



**The Social Gradient In Health: Trends In C20<sup>th</sup> Ideas,  
Australian Health Policy 1970-1998, and A Health Equity Policy  
Evaluation of Australian Aged Care Planning**

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**Statement**

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## Abstract

Inequalities in health, which I prefer to call the social gradient in health, have been observed for centuries. Since the late 1970s, there has been increasing international attention paid to the topic, growing exponentially in the late 1990s. In Europe and the USA theories explaining the existence of a social gradient in health abound, yet have changed markedly over time, and this history is presented as a novel map of ideas. Despite the variety of theories, the social gradient in health remains, and may be growing steeper. Theories of the production of good health are similarly varied, and have also changed over time. There are substantial parallels between the two sets of theories. Regrettably, developed and developing countries separated their health conferences, parking certain theories away from developed countries' gaze. Australian research has contributed some important descriptive work.

Australian policy interest in the topic, at the national level, waxed and waned from 1970 to 1998, only once reaching a threshold where it transferred into policy action that was likely to have any attenuating impact on the social gradient in health. The department responsible for health is consumed by its relationships with, and expenditure upon, health services. An iterative policy loop within the department ensures that interest in the social gradient in health by middle level staff does not affect pragmatic concerns, with disease, at more senior levels.

Three policy dimensions are suggested for attention, one material/macro-social, another the workplace/individual and one concerned with the reproduction of the social gradient in health over time. Among suggestions for policy change is one for the national health department to examine funded programs from the perspective of a social gradient in health. Australian aged care planning policy is evaluated this way, in an example of research-to-policy transfer. It is shown that there is a spatial gradient in age at entry of women to residential aged care in South Australia, consistent both with the spatial distribution of socioeconomic circumstances and generally with gradients in health persisting into old age. A model of resource distribution is developed, based on spatial gradients in mortality.

## Contents

<b>Abstract</b> .....	ii
<b>Introduction: why look at inequalities, or the social gradient, in health?</b> .....	1
<b>Chapter 1. Explanations for the (increasing) social gradient in health</b> .....	6
<i>In a detailed introduction to the main players and the range of ideas, this chapter introduces a taxonomy of explanations for the social gradient in health. These elaborate on and add to the explanations in the Black Report, 1980.</i>	
<b>Chapter 2. Explanations for good health</b> .....	60
<i>There is a variety of explanations for good health, or rising life expectancy. This topic is not developed extensively in the relevant literature but is important because attempts to improve health, based on particular explanations, may act perversely to steepen the social gradient in health.</i>	
<b>Chapter 3. Australia: the social gradient in health and material inequality</b> .....	75
<i>The gradient in mortality by measures of socioeconomic status is similar to other developed countries, particularly Anglophone ones. The Australian work is predominantly descriptive, rather than theoretical, while the tacit explanatory framework in government health publications is predominantly behaviourist.</i>	
<b>Chapter 4. A history of ideas about inequalities in health</b> .....	92
<i>It is illuminating to map influential research into the social gradient in health in an historical context, by explanation. An accumulation of anomalies and failures in individualist explanations drove research toward social and structural explanations, which had been little explored. This direction is, however, against the current balance of forces that favour particular explanations.</i>	
<b>Chapter 5. Power and the welfare state</b> .....	113
<i>I describe two analytical tools that are used in the following three chapters to explore policy-making about the social gradient in health, particularly in Australia.</i>	
<b>Chapter 6. Policy dimensions</b> .....	119
<i>I set out the main reasons advanced for action, arguing that health matters to Australians and that its social distribution strikes at one of the publicly held moral values of Australians- that of fairness. I suggest three policy dimensions to aid thinking about policy action: a social dimension, an individual dimension and, a dimension for the reproduction of the social gradient in health.</i>	
<b>Chapter 7. Australian health policy and the social gradient in health</b> .....	142
<i>A variety of documents used at high levels in health policy formulation reveals that Australia is in a weak position to include materialist, relative materialist and political explanations for the social gradient in health in the evidence base for a health- production or health- creation agenda.</i>	
<b>Chapter 8. What should the Department of Health do?</b> .....	165
<i>I draw together the conclusions from the previous seven, more conventionally analytic, chapters, to speculate on what action might be taken by a Department of Health that was keen to make a difference to the social gradient in health.</i>	
<b>Chapter 9 Health equity evaluation of a specific policy domain - Aged Care</b> .....	179
<i>I show that that the existing policy approach to planning services for older Australians contains a structural bias that delivers relatively more services to areas with higher socioeconomic profiles. I also demonstrate an alternative approach, based on mortality, which would make for a fairer and more rational, graded, targeting of resources.</i>	
<b>Thesis conclusion</b> .....	218
<b>References</b> .....	221

## Figures

Figure 1 A diagram of the layout of this thesis .....	5
Figure 2 Mortality (SMR) by social class 1931-81 (Men, 15-64 years, England and Wales).....	8
Figure 3 A taxonomy of explanations for the social gradient in health.....	9
Figure 4 Pamuk shows inequality rises, adjusting for the size of classes. ....	17
Figure 5 The social gradient in health persists after working age.....	19
Figure 6 Pathways linking early life with adult disease.....	22
Figure 7 Risk of death by occupational category 1980 c/f 1955, France. ....	28
Figure 8 Relative risk of death by cause and employment grade among British civil servants. ....	30
Figure 9 Karasek and Theorell's job/strain model .....	30
Figure 10 Income (1970) and Standardised Mortality Ratio, curvilinear? .....	34
Figure 11 The relationship between GNPpc and life expectancy across nations. ....	36
Figure 12 GNPpc and life expectancy over time.....	37
Figure 13 GNPpc and life expectancy 1990, developed countries.....	38
Figure 14 Life expectancy (male and female) and Gini coefficients of post-tax income inequality c1981.....	38
Figure 15 Annual change in (both) life expectancy and percentage of income received by least well off 60% of population.....	39
Figure 16 Whitehall, all cause mortality by grade and car ownership.....	41
Figure 17 Whitehall Mortality by grade, car and garden.....	42
Figure 18 The social gradient in health is differentiated by cause of death - an argument against general 'susceptibility'.....	48
Figure 19 Schematic of mortality by absolute and relative measures.....	49
Figure 20 Explanations for the rise in life expectancy in developed countries.....	60
Figure 21 Mortality amenable to medical care, England and Wales, men aged 15-64, by social class, 1961 and 1981.....	62
Figure 22 Australian jurisdictional Gini coefficients and male life expectancy at birth, cross sectional relationship 1996. ....	86
Figure 23 Australian mainland state Gini coefficients and male life expectancy at birth, cross sectional relationship. ....	86
Figure 24 Australian jurisdictions: change in Gini coefficient of income (all income units) and change in male life expectancy at birth 1994/5 to 1996/7.....	88
Figure 25 Australian mainland states: change in Gini coefficient of income (all income units) and change in male life expectancy at birth 1994/5 to 1996/7.....	88
Figure 26 Australian jurisdictional Gini coefficients and female life expectancy at birth, cross sectional relationship 1996. ....	89
Figure 27 Australian mainland Gini coefficients and female life expectancy at birth, cross sectional relationship 1996.....	89
Figure 28 Australian jurisdictions: change in Gini coefficient of income (all income units) and change in female life expectancy at birth 1994/5 to 1996/7.....	90
Figure 29 Australian mainland states: change in Gini coefficient of income (all income units) and change in female life expectancy at birth 1994/5 to 1996/7.....	90
Figure 30 A map of influential research over time by explanation.....	107
Figure 31 The balance of social forces explaining the social gradient in health at the end of the twentieth century. ....	108
Figure 32 Dahlgren and Whitehead.....	109
Figure 33 Diagram of factors affecting health and illness.....	110
Figure 34 A socio-ecological framework for the production of health.....	110
Figure 35 Model of the social and economic determinants of health .....	111
Figure 36 A suggested adaptation of Tarlov's model. ....	112
Figure 37 Welfare state paradoxes adapted from Offe .....	116
Figure 38 Policy vector model - two vectors: individual and social dimensions.....	125

Figure 39 Policy vector model - three vectors: individual level, social level and reproduction of the social gradient in health.....	139
Figure 40 A policy loop.....	158
Figure 41 Real and social wage 1976-1990 .....	160
Figure 42 Schematic of policy interest, and policy action to impact on the social gradient in health.....	162
Figure 43 Proposed new structure for the Department of Health.....	170
Figure 44 Schematic of policy priority for the 'quality' section of the department. ....	175
Figure 45 Lifetable survival curves, Australia, male and female.....	182
Figure 46 Lifetable deaths curves, Australia, male and female.....	183
Figure 47 The distribution of females and males in aged care in South Australia by age, June 2000. ....	185
Figure 48 The distribution of females in residential aged care in South Australia by age, June 2000, and deaths from South Australian lifetable.....	186
Figure 49 Are deaths data related to aged care use two years prior: linear regression of females in residential aged care on deaths.....	186
Figure 50 The distribution of females in residential aged care in South Australia by age, June 2000, and survivors 70years or more from South Australian lifetable.....	187
Figure 51 The distribution of males in residential aged care in South Australia by age, June 2000, and deaths from South Australian lifetable.....	187
Figure 52 The distribution of males in residential aged care in South Australia by age, June 2000, and survivors 70years or more from South Australian lifetable.....	188
Figure 53 Lifetable survival curves, Australia, 1985, male and female.....	190
Figure 54 Lifetable survival curves, Australia, 1997, male and female.....	190
Figure 55 Life table graph, Australia, 1985 and 1997, male and female.....	191
Figure 56 Lifetable survival curves, Australia, 1985 and 1997, female.....	191
Figure 57: Schematic of dementia numbers, female in a 100,000 population.....	194
Figure 58 Survival curves for two populations whose life expectancy is about 5 years different.....	196
Figure 59 An Australian example of life expectancy by local area.....	197
Figure 60 Median age at death, males, females, persons (ranked), by SLA.....	198
Figure 61 Median age at death, persons, metropolitan areas (SLAs) grouped into Commonwealth planning regions.....	199
Figure 62 Median age at death, persons, non-metropolitan areas (SLAs) grouped into Commonwealth planning regions.....	200
Figure 63 Determining the population by using an equal probability of death approach.....	202
Figure 64 Comparison of the proportion of aged care services by region using median age at death(+) versus 70 years from birth(+). ....	202
Figure 65 The proportion of regional population by age.....	207
Figure 66 Sex ratio, Australia population 65+, 1996.....	208

## Tables

<i>Table 1 Mortality (SMR) by Social Class 1931-71 (Men, 15-64 years, England and Wales)</i>	7
<i>Table 2 Mortality (SMR) by Social Class 1931-81 (Men, England and Wales)</i>	7
<i>Table 3 European Standardised Mortality rates by social class 1971-92 (Men, 20-64 England and Wales)</i>	7
<i>Table 4 Social mobility and perinatal mortality: indices of perinatal mortality rates (births in Aberdeen 1951-80. Mothers classified by their fathers' and husbands' occupation)</i>	14
<i>Table 5 Australia's income distribution 1994-8 and Gini coefficient.</i>	85
<i>Table 6 Calculation of income shift in Au dollars 1996/7 to 1997/8</i>	85
<i>Table 7 Australian jurisdictional Gini coefficients 1995/6 and male life expectancy at birth.</i>	86
<i>Table 8 Australian jurisdictions: male life expectancy at birth and Gini coefficient of income (all income units)</i>	87
<i>Table 9 Strategies to control workplace hazards.</i>	137
<i>Table 10: Total hostel and nursing home places per '000 persons June 1985</i>	180
<i>Table 11 Expected length of stay in residential care by age, compared with life expectancy at that age.</i>	184
<i>Table 12: Probability of death (<math>q_x</math>) at different ages 1985-98</i>	189
<i>Table 13: Expectation of life at birth and at 65 years 1985 and 1997</i>	190
<i>Table 14: The number of places in South Australia based on planning age 73+</i>	192
<i>Table 15 Compare median age at death with expectation of life at birth, Australian jurisdictions.</i>	198
<i>Table 16 Median age at death data- selected features</i>	199
<i>Table 17 Median age at death, persons, South Australian areas (SLAs) grouped into Commonwealth planning regions</i>	200
<i>Table 18 The change in service distribution using median age at death.</i>	203
<i>Table 19: ACAT client age by team(s) 1998</i>	204
<i>Table 20 Age at admission by region: SA residents.</i>	205
<i>Table 21 The ranking of regions by median age at death (persons) compared with age of female residents</i>	206
<i>Table 22 Comparing Regional Median Age at Death with Life Expectancy</i>	216

## Introduction: why look at inequalities, or the social gradient, in health?

If one's health were the result of entirely random events there would be no real association between health and social position or material circumstances. The existence of that association, affecting whole populations, demands explanation and a history of investigation of this phenomenon shows that while the association has persisted over time, the attending explanations have changed. For much of the time, including most of the twentieth century, a simple relationship between *poverty* and poor health was assumed.

The recorded association between poverty and poor health goes back two and a half millennia to ancient Greek times. Other ideas expressed then echo through to today. Hippocrates rejected the connection between health and spirituality, arguing that health should be understood with reference to what a person eats and thinks, the person's occupation or habits, and their consequences, offering what might be understood today as a lifestyle explanation. Plato said that physicians should refuse to treat a patient unwilling to lead the good life; an individualist perspective with a moral health system response.<sup>1</sup>

William Farr, in England in the late nineteenth century, was interested in the minimum level to which mortality might be reduced, at a time when interest in health in different sections of the community paralleled increasing recognition of environmental influences.<sup>2</sup> Farr's 1875 report to the Registrar-General was the first, in a series produced every 10 years since, which contained detailed commentary on mortality in relation to occupation.<sup>3</sup>

Twentieth century research was assisted by, and observations of health status probably contributed to, the creation of a social class classification structure, based on occupation, in the UK in the early 1900s. Stevenson argued successfully for occupation as the measure of social class because area-based measures were heterogeneous- there were servants in wealthy areas and publicans in poor.<sup>4</sup> By using occupation as the measure he hoped also to capture wealth and culture, which were thought to be greater influences, with the clergy as an example of the

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<sup>1</sup> Knight, J., *Models of Health*. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 136-155, Oxford University Press., Melbourne (1998).

<sup>2</sup> William Farr was appointed as the first "Compiler of Abstracts" at the General Register Office (GRO) in July 1839, his tenure lasting 40 years. See Fox, A.J., *Prospects for change in differential mortality, Socioeconomic Determinants and Consequences of Mortality*, pp. 515-561, United Nations & World Health Organization, Mexico (1979).

<sup>3</sup> The report was in the form of a supplement, now known as the Decennial Supplement. Ibid.

<sup>4</sup> Dr Stevenson was the UK Registrar General who developed the UK social class classification system based on occupation. This initially had eight groups of occupations, later reduced to the current five social classes.

latter. Material and cultural explanations, that is, socioeconomic relationships with health, underlie the social class classification.

A new surge of interest in health differences followed the release, in controversial circumstances, of the Black report in Britain in 1980, and subsequently the idea of *inequality* in health gained prominence.<sup>1</sup> 'Inequalities in health' emphasised that health status has a smooth 'social gradient' related to material circumstances, such as income, rather than a single step out of material poverty.<sup>2</sup> This social gradient in health has also been observed within employment sectors, most notably in the UK civil service.<sup>3</sup> At an international scale it has been shown that health, as measured by life expectancy, is only weakly related to national income but strongly related to the distribution of that income within nations. It appears that it is not the richest societies that have the best health, but those that have the smallest differences between rich and poor.<sup>4</sup> A series of eight articles on socioeconomic determinants of health in the British Medical Journal in 1997, underlined renewed interest, and brought together some disparate research.<sup>5</sup>

Interest in the health inequality debates followed economic changes in the 1980's when economic inequality seemed to be growing. In the UK death rates worsened in relative terms and, in some age groups such as young men, actually rose in absolute terms.<sup>6</sup> The widening of some inequality measures is adding a time series dimension to other aetiological dimensions and provokes policy questions of how to respond.

### *Public health importance*

The greatest 'inequalities' in health are between people who are sick and healthy, or dead and living. In this thesis, and in much of the literature, the term is used to

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<sup>1</sup> The Black Report is the colloquial term of the report whose proper title is: Black, D., Morris, J.N., Smith, C. and Townsend, P., *Inequalities in Health*, Report of a Research Working Group, Department of Health and Social Services, London (1980).

<sup>2</sup> Throughout this thesis I will refer to inequalities in health in the sense of a gradient and I prefer the term 'social gradient in health' for that reason. The term 'inequalities in health' is frequently presented and (mis-)understood, particularly in the popular press, only as simple dichotomous relationships, eg rich/poor, which is misleading.

<sup>3</sup> Marmot, M.G., Davey Smith, G., Stansfeld, S., Patel, C., North, F., Head, J., White, I., Brunner, E. and Feeney, A., Health Inequalities among British civil servants: the Whitehall II study. *The Lancet*, **337**, 1387-93 (1991).

<sup>4</sup> Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).

<sup>5</sup> Bartley, M., Blane, D. and Montgomery, S., Health and the life course, why safety nets matter. *British Medical Journal*, **314**, 1194-6 (1997),

Brunner, E., Stress and the biology of inequality. *British Medical Journal*, **314**, 591-5 (1997),

James, W.P., Nelson, M., Ralph, A. and Leather, S., Socioeconomic determinants of health. The contribution of nutrition to inequalities in health. *British Medical Journal*, **314**, 1545-9 (1997),

Kawachi, I. and Kennedy, B.P., Health and social cohesion: why care about income inequality? *British Medical Journal*, **314**, 1037-40 (1997),

Roberts, H., Children, inequalities and health. *British Medical Journal*, **314**, 1122-5 (1997),

Wallace, R. and Wallace, D., Community marginalisation and the diffusion of disease and disorder in the United States. *British Medical Journal*, **314**, 1341-5 (1997),

Wilkinson, R.G., Health inequalities: relative or absolute material standards? *British Medical Journal*, **314**, 591-5 (1997),

Wilson, M. and Daly, M., Life expectancy, economic inequality, homicide, and reproductive timing in Chicago neighbourhoods. *British Medical Journal*, **314**, 1271-4 (1997).

<sup>6</sup> Phillimore, P., Beattie, A. and Townsend, P., Widening inequality of health in northern England, 1981-91. *British Medical Journal*, **308**, 1125-1128 (1994).

refer to observations of the social patterns of health. In the late 1990s some participants in the debate began to refer to 'inequities' in health, emphasising unfairness, an important policy message. The tendency, however, to characterise inequalities and inequities in simple dichotomous terms is a weakness of both terms and contributes to misunderstanding of the phenomenon. The relationship between socioeconomic status and health status is not a simple step out of poverty, instead it is a gradient across society. For this reason I prefer the term 'social gradient in health', to emphasise the large populations affected.

The social gradient in health is important because it is difficult to explain and lies hidden behind most single disease-based or cause of death based analyses. Mortality, generally, and nearly all causes of death have a social gradient, with a typical social class - relative risk, bottom to top, of between 1.0 and 2.0. Similarly for most chronic conditions, there is higher prevalence in lower socioeconomic groups. The relationship is found across nations although the diseases most strongly related to socioeconomic status within each country differ from one country to another. The relative risk between, say, social classes, is not large but the public health importance is high as it affects such large populations. Importantly, the more accurate the measures of relative material position the steeper are the gradients in health.

While the existence of the relationship between socioeconomic status and health status is not contested by researchers, its nature, the direction of cause and effect and its measurement have been contentious.

#### *Method and Structure*

William Farr's 1875 letter to the Registrar -General provides a foundation for this investigation

How the people live is one of the most important questions that can be considered; and how - of what causes, and at what ages - they die is scarcely of less account; for it is the complement of the primary question of teaching men how to live a longer, healthier, and happier life ...<sup>1</sup>

I have attempted to come to terms with the breadth of the research by following literature trails, based on references that appeared to have either explanation for the social gradient in health, or related terms, as part of the title or abstract, or were cited as references by authors in the field.<sup>2</sup> The bulk of the background research and construction of models was conducted in 1998. Since then developments in technology and a dramatic expansion in internet-based material have enabled me to stay informed of theoretical developments via alert services,

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<sup>1</sup> Fox, A.J., Prospects for change in differential mortality, *Socioeconomic Determinants and Consequences of Mortality*, pp. 515-561, United Nations & World Health Organization, Mexico (1979).

<sup>2</sup> A comprehensive review of the literature of inequalities in health is a formidable task as there have been well in excess of 100 new listings of socioeconomic relationships with health per month on Medline. The vast majority of these are descriptive of that relationship.

where specific search terms draw material from international databases, and via membership of an electronic interest group, which e-mails material to its members. My examination of health policy papers in Australia is limited to material published prior to 1999, with minor exceptions.

I have organised my contribution into two main sections. The first section is a history of ideas in 'The Inequalities in Health Debate'; it considers how these ideas have changed over time, the evidence that supports and undermines them, and how they relate to the production of 'health'. The second section tests Australian health policy in relation to the history of ideas and considers the implications of that social gradient in health analysis for health policy in Australia.

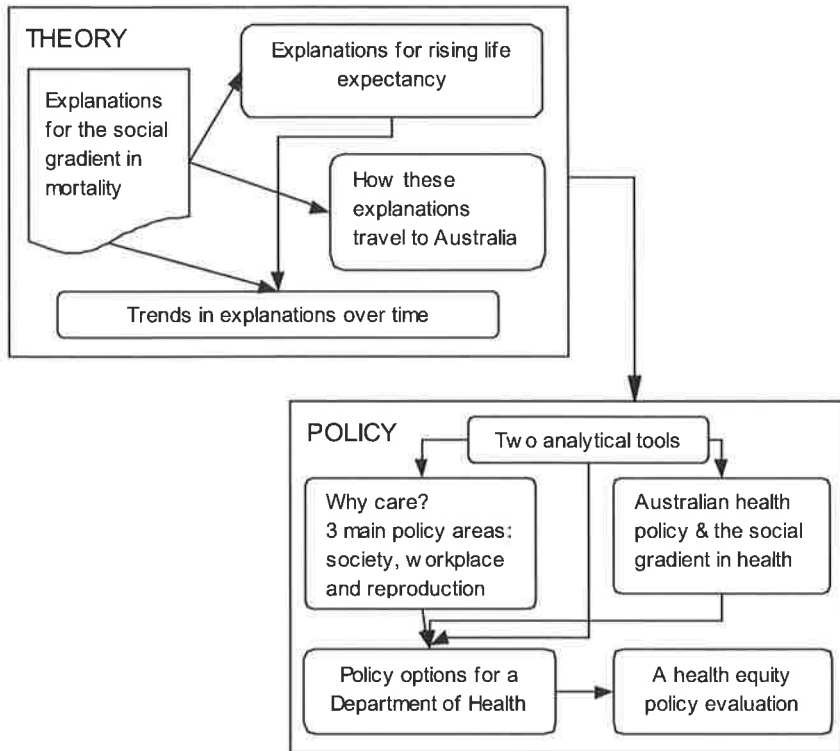
The first section has four chapters. In the first, I detail the main explanations for the social gradient in health, beginning with explanations that are concerned with an increase in the slope of that gradient over the last few decades and moving to general explanations. This is a detailed introduction to the main players and the range of ideas that I later synthesise. A common, significant feature is that the work is based primarily on the absence of health, mainly early mortality. In the second chapter I outline, in less detail, the competing explanations for good health, mainly identified as rising life expectancy. This topic is less developed in the inequalities in health literature but it is important because attempts to improve health, based on particular explanations, may act perversely to steepen the social gradient in health. The third chapter considers whether these explanations apply in Australia. The fourth presents a novel map of the trends in ideas over time and some major socio-political influences on those trends.

The second section has five chapters. A short chapter, chapter five, introduces two analytical tools that are used through the following three chapters. In chapter six I set out five main reasons that policy makers ought to be interested in the social gradient in health and reduce the policy territory to three main dimensions: one, a wider material/ macro-social dimension, another, a workplace/ individual dimension and the third, importantly, the reproduction of the social gradient in health. An analysis of Australian national policy papers 1980 to 1998 is the subject of chapter seven. In chapter eight I offer some challenging policy directions for an Australian Department of Health in those three policy dimensions, each examined at international, national and departmental levels. These include measures to address the factors that are producing and reproducing the social gradient in health, so-called 'upstream' factors, and a pressing need to review existing service delivery programs in relation to the social gradient in health. In Chapter nine, as an example of research-to-policy transfer, I evaluate Australian aged care planning

policy from a social gradient in health perspective and develop an alternative model, based on the spatial gradient in mortality.

A diagrammatic representation of the thesis appears at Figure 1.

**Figure 1 A diagram of the layout of this thesis**



## Chapter 1. Explanations for the (increasing) social gradient in health

In this chapter I detail a range of explanations for the social gradient in health, drawing mainly on British work.<sup>1</sup> I have created a taxonomy of explanations for the purpose, which I will address in some detail. It should be noted at the outset that the explanations are largely concerned with mortality as the proxy for 'health'; the lower the mortality of particular groups the better the health. A useful starting point is the Black Report in the UK, as it showed an increase in 'inequality in health', which I am calling the social gradient in health, and sparked a surge of research interest.<sup>2</sup>

### *The Black Report*

Prior to the 1980s it was widely assumed that Britain was becoming a more egalitarian society in the twentieth century- that class divisions and socioeconomic inequalities were becoming less important. Changes in income distribution were assumed to be compensated for by the growth of welfare services and protective and regulatory legislation together with rises in the average income of different classes.<sup>3,4,5</sup>

The Black Report contested those assumptions, apparently showing that inequalities in mortality by occupational social class had widened over a fifty- year period to 1971.<sup>6</sup> Table 1 is the core of the Black Report. Table 2, from Wilkinson, updates Black to the next decennial period.<sup>7</sup> I have illustrated Table 2 graphically at Figure 2.

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<sup>1</sup> The main source of data on health inequalities in the UK has been the Decennial Supplement on Occupational Mortality published by the Registrar General's Office. It was first produced by William Farr in 1875 and contains detailed commentary on mortality in relation to work performed. I have concentrated on the British material because there is a longer history in English of British experience than of, say experience in the United States (although there has been a rapid increase of writing about inequality in America since 1996).

<sup>2</sup> Sir Douglas Black was appointed in 1977 to lead a research group on health, to report to the UK government, and the subsequent report is known as the Black Report, published in 1980.

<sup>3</sup> Note this is an important idea in itself, and one that is elaborated in this chapter. The assumption itself is referred to by RG Wilkinson, a prominent researcher in the inequality field, and confirmed by Tomlinson, in the social policy field, but the view that Britain had in any sense an 'extravagant' welfare state is now contested in social policy literature. Wilkinson, R.G., Socio-economic differences in mortality: interpreting the data on their size and trends. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 1-20, Tavistock, London (1986). Tomlinson, J., Why so Austere? The British Welfare State of the 1940s. *Journal of Social Policy*, **27**, 63-77 (1998).

<sup>4</sup> Wilkinson, R.G., Socio-economic differences in mortality: interpreting the data on their size and trends. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 1-20, Tavistock, London (1986).

<sup>5</sup> Tomlinson, J., Why so Austere? The British Welfare State of the 1940s. *Journal of Social Policy*, **27**, 63-77 (1998)., Wilkinson, R.G., Class Mortality Differentials, Income Distribution and Trends in Poverty 1921 - 1981. *Journal of Social Policy*, **18**, 307-335 (1989).

<sup>6</sup> Black, D., Morris, J.N., Smith, C. and Townsend, P., Inequalities in Health, Report of a Research Working Group, Department of Health and Social Services, London (1980).

<sup>7</sup> Wilkinson, R.G., Socio-economic differences in mortality: interpreting the data on their size and trends. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 1-20, Tavistock, London (1986).

**Table 1 Mortality (SMR) by Social Class 1931-71 (Men, 15-64 years, England and Wales)**

<i>Social Class</i>	<i>1931</i> <i>(30-32)</i>	<i>1951</i> <i>(49-53)</i>	<i>1961</i> <i>(59-63)</i>	<i>1971</i> <i>(70-72)</i>
<i>I Professional</i>	90	86	76	(75) 77 (75)
<i>II Managerial</i>	94	92	81	81
<i>III Skilled manual and non-manual</i>	97	101	100	104
<i>IV semi-skilled</i>	102	104	103	114
<i>V unskilled</i>	111	118	143	(127) 137 (121)

Parentheses denote adjustment of the SMR to the equivalent 1951 employment classification.

Source: DHSS (1980) Table 3.1 <sup>1</sup>

**Table 2 Mortality (SMR) by Social Class 1931-81 (Men, England and Wales)**

<i>Social Class</i>	<i>1931</i> <i>(30-32)</i>	<i>1951</i> <i>(49-53)</i>	<i>1961</i> <i>(59-63)</i>	<i>1971</i> <i>(70-72)</i>	<i>1981</i>
<i>I Professional</i>	90	86	76	(75) 77 (75)	66
<i>II Managerial</i>	94	92	81	81	76
<i>III Skilled manual and non-manual</i>	97	101	100	104	103
<i>IV semi-skilled</i>	102	104	103	114	103
<i>V unskilled</i>	111	118	143	(127) 137 (121)	166

Source: Wilkinson 1986. Note 1931-71 men aged 15-64 and 1981 men aged 20-64.<sup>2</sup>

**Table 3 European Standardised Mortality rates by social class 1971-92 (Men, 20-64 England and Wales)**

<i>Social Class</i>	<i>1931</i> <i>(30-32)</i>	<i>1951</i> <i>(49-53)</i>	<i>1961</i> <i>(59-63)</i>	<i>1971</i> <i>(70-72)</i>	<i>1981</i>	<i>1991-3</i>
<i>I Professional</i>				500	373	280
<i>II Managerial</i>				526	425	300
<i>III Skilled manual</i>				637	522	426
<i>III Skilled non-manual</i>				683	580	493
<i>IV semi-skilled</i>				721	639	492
<i>V unskilled</i>				897	910	806
<i>England and Wales</i>				624	549	419

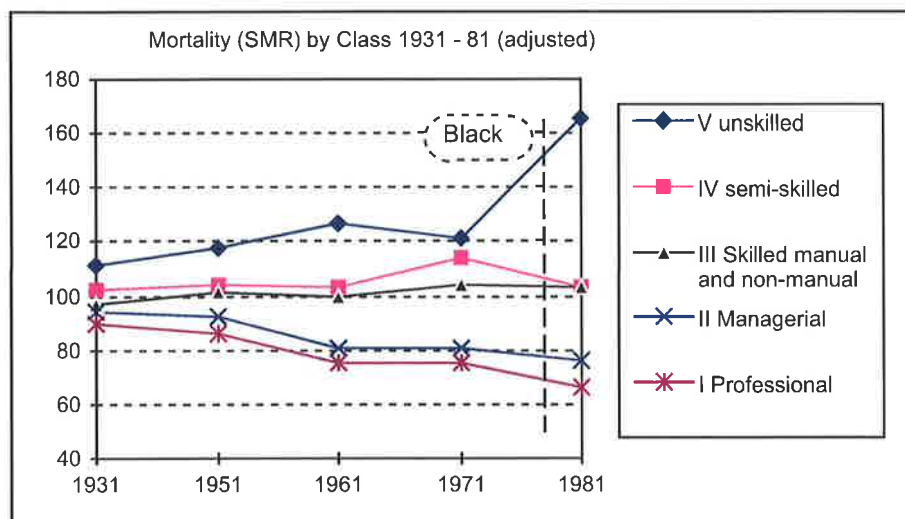
Source: as above plus 1991-4 men aged 20-64 estimated from Acheson Independent Inquiry into Inequalities in Health and UK Office for national statistics.<sup>3</sup>

<sup>1</sup> Black, D., Morris, J.N., Smith, C. and Townsend, P., Inequalities in Health, Report of a Research Working Group, Department of Health and Social Services, London (1980).

<sup>2</sup> Wilkinson, R.G., Socio-economic differences in mortality: interpreting the data on their size and trends. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 1-20, Tavistock, London (1986).

<sup>3</sup> The Independent Inquiry published mortality as: European standardised rates, for men 20-64, England and Wales, All-causes rates per 100,000 see Table 2. That is, they were standardised to a different population than previously and not as SMRs and so were not backwards comparable. The Independent Inquiry also showed both sub-classifications of Social Class III - manual and non-manual. In order to add to the table above the 1991-3 SMRs were derived directly from the Independent Inquiry for other than Social Class III. Social Class III was estimated using denominator data from UK Office of National Statistics; the manual sub category is about three times the size of the non-manual category.

**Figure 2 Mortality (SMR) by social class 1931-81 (Men, 15-64 years, England and Wales)**



Source: Based on tables 3.1 in Black Report and Wilkinson 1986.<sup>1,2</sup>

The Black Report suggested four categories of explanation for increasing disparities in mortality: artefact, selection, cultural or behavioural, and material, of which Black favoured material deprivation as the most likely explanation.

The findings sparked a surge in interest in health inequalities and Black's categorisation has been described as providing a useful frame for much of the subsequent work.<sup>3</sup> Other classifications than Black's have been suggested and used. A useable four-fold classification had been developed in 1936 for analysing the influences on mortality and mortality change, these were: political, social, sanitary, and medical.<sup>4</sup> It has been suggested that, in subsequent years, this four-fold classification was more commonly reduced to two influences, socioeconomic and medical or technological, partly by ignoring societies where violence (and hence politics) played a major role and partly by adding sanitation to either the social or technological side or to both.<sup>5</sup>

Black's first two categories of explanation for widening inequalities in health, selection and artefact, are non-determinant relationships, that is, there is nothing real occurring, nothing causal in the relationship between material circumstances and health. I will describe selected work on these non-determinant relationships first. However, I have expanded and added to Black's categories of explanations that

<sup>1</sup> Black, D., Morris, J.N., Smith, C. and Townsend, P., *Inequalities in Health*, Report of a Research Working Group, Department of Health and Social Services, London (1980).

<sup>2</sup> Wilkinson, R.G., Socio-economic differences in mortality: interpreting the data on their size and trends. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 1-20, Tavistock, London (1986).

<sup>3</sup> Davey Smith, G., Blane, D. and Bartley, M., Explanations for socio-economic differentials in mortality. In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 105-146, Waxmann Publishing Company, Münster; New York (1994).

<sup>4</sup> Carr-Saunders, A.M., *World Population: Past Growth and Present Trends*, 1936 ed., p. 336, OUP, London (1936).

<sup>5</sup> Caldwell, J.C., Education as a factor in mortality decline: an examination of Nigerian data., *Socioeconomic Determinants and Consequences of Mortality*, pp. 172-192, United Nations & World Health Organization, Mexico (1979).

favour determinant relationships, 'behavioural/cultural' and 'material', as they now seem inadequate to capture the range of important recent studies that have been undertaken, while it can be argued these are a manifestation of material differences.<sup>1</sup>

I have classified explanations, illustrated at Figure 3, as follows: the first two remain as selection and artefact, the next two are located within the individual – genetic and biologic, the next five explanations for the gradient are about the individual's relations with others – behaviour, occupation/class, culture, income and status, the next two are environmental – physical and social settings and the last two are ecological – psychosocial and political explanations. Of course there is overlap in the categories, and even some circularity. However, when looking at studies over time, this categorisation also has the individual's relationship to his or her surroundings ranging from the personal to household, neighbourhood, community and society, and this has some relevance to the more recent studies. In Figure 3, I have set these against Black Report categorisation, as a reference point.

**Figure 3 A taxonomy of explanations for the social gradient in health**

	Explanation	Level	Black Report
Non- determinant explanations	Selection		Selection
	Artefact		Artefact
Determinant explanations	Genetic	Personal/ Individual	
	Biologic		
	Behaviour	Work	Behaviour/Culture
	Occupation/ class		
	Culture	Household	
	Income		Material
	Status	Neighbourhood	
	Physical setting	Community	
	Social		
	Psychosocial	Society	
Political			
Environment			
Ecology			

The first two categories of (non-determinant) explanations for the increasing social gradient in health are selection and artefact. I will cover these in some detail, outlining the main debates and research since Black.

### *Selection and Artefact*

Two different forms of selection could account for an increasing social gradient, direct and indirect. Direct selection proposes that inequality exists through

<sup>1</sup> It should be noted that the Black Report's category of 'material' might now be more commonly understood as environmental, reflecting language change over time since Black. Nevertheless this category remains less than satisfactory to capture the range of subsequent studies of psychosocial effects, social capital and powerlessness, and political influences.

unhealthy people moving down a social/material hierarchy into lower positions and/or healthier people moving up the hierarchy, so that mortality differences reflect people's social position because of their health status, rather than the opposite. This occurs within a generation if children exhibit no class gradient in health, which then appears at their labour market entry. A continuous process of health selection would account for a widening gap or steepening social gradient in health.

To examine health selection, Wadsworth used data from the cohort of British children born in one week of March 1946 to look at the effect of child health on adult achievement. He showed that:

- people had lower adult educational achievement when seriously ill as a child, and that this was more damaging for a child ill under five years than for a junior primary child;
- high achievers were taller in both manual and non-manual class males and manual class females;
- men seriously ill in childhood were more likely to be lower class than those with a healthy childhood but this was not the case for women, and;
- male social mobility was associated with height, both ways, and independent of education.<sup>1</sup>

Evidence for health selection is limited to the seriously ill, and, while the relationships were with class-based categorisation, other indicators of socioeconomic status, such as education, were less strongly related. This is significant because any one class is quite heterogeneous in socioeconomic terms; that is, there is more variation in income within classes than between them.<sup>2</sup> Wadsworth is careful to note the importance of the times because this cohort was born in post-war austerity when infectious diseases were still prevalent, which could have exacerbated the impact of material circumstances (lack of) on health or, as later studies show, inequality narrows in times of war, which could attenuate the relationship. In relation to height, Wadsworth tentatively concluded: 'this may mean that at this age shortness of stature is to be seen as a consequence, not as a predictor, of serious illness'.

Wadsworth's study gives support to health selection as a component of a social gradient in health. The weight of studies is, however, against more than a minor impact of direct selection on Black's findings of a steepening gradient. Fox, Goldblatt and Jones reviewed Longitudinal Study (LS) mortality data of the Office of Population Censuses and Surveys (OPCS).<sup>3,4</sup> They showed that distortions to

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<sup>1</sup> Wadsworth, M.E.J., Serious illness in childhood and its association with later-life achievement. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 50-74, Tavistock, London (1986).

<sup>2</sup> An important issue that I refer to several times in this thesis.

<sup>3</sup> This was a review by the OPCS Medical Statistics Division in collaboration with the Social Statistics Research Unit at City University.

<sup>4</sup> The longitudinal data comes from a one percent sample of people identified at the 1971 census.

gradients observed in the early years of the longitudinal study, and ascribed to selective health-related mobility out of employment from the principal social classes to the permanently sick, had largely worn off after five years of follow up, while class differences in mortality persisted.<sup>1</sup>

Sharp gradients at ages over 75 years, similar to those at younger ages, suggested that, for men aged over 50 years, selective health-related mobility between social classes does not contribute to differentials in mortality. They noted that studies showing mobility deal with people at younger ages and agreed that some of this is health related; however, health selection at these ages is magnified because fewer are unhealthy. Selection by health-related *behaviour* may persist, for example, a smoker who falls ill, moves to a lower class, and continues to smoke, but this behaviour is determined by earlier experiences, not health per se. They also consider it possible that a psychiatric condition might impact on morbidity at a young age but not on mortality until later, but these cases are not widespread enough to have any impact on the observed gradient. Fox concludes that health selection is not only minor but also improbable:

... it seems improbable that ill health could persist in a large part of the community for many years, affecting their job prospects for most of their working lives, failing to diminish the size of the group through early mortality and, at the end of their working lives, result in excess mortality sufficient to generate social class differentials.

From the same data set, Moser, Fox and Jones show that there is only limited support for the idea of men becoming unemployed because of their ill health.<sup>2</sup> Interestingly, the mortality of women whose husbands were unemployed was also higher than that of all married women (SMR 120), and this excess persisted after allowance for their socioeconomic distribution. It is difficult to call the woman's experience 'selection' unless her ill health contributed to her husband's availability for work, so her ill health seems much more likely to be attributable to the effects of unemployment.

Marmot also looked at health selection as a potential confounder in the hierarchical gradient in health that he found in the Whitehall studies in the United Kingdom civil service.<sup>3,4</sup> He stratified the sample by illness at entry to the study, with no

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<sup>1</sup> Fox, A.J., Goldblatt, P.O. and Jones, D.R., Social Class mortality differentials: artefact, selection, or life circumstances? *In*: R.G. Wilkinson (ed.), *Class and Health*, pp. 34-49, Tavistock, London (1986).

<sup>2</sup> Moser, K.A., Fox, A.J. and Jones, D.R., Unemployment and Mortality in the OPCS Longitudinal Study *Ibid.*, pp. 75-87.

<sup>3</sup> Marmot, M.G., Social inequalities in mortality: the social environment. *Ibid.*, pp. 21-33.

<sup>4</sup> The Whitehall studies have become a rich source of information about inequalities in health. The original study, Whitehall I, was set up in 1967 to examine the role of conventional risk factors, smoking, blood pressure and serum cholesterol on coronary heart disease in a cohort of male civil servants in Whitehall in the UK. When the three classic risk factors accounted for only a quarter of the differences in premature coronary heart disease between civil service grades, the risk factor model was seen to be inadequate. So, between 1985 and 1988, Whitehall II investigated expanded biomedical and psychosocial measures in a new, younger cohort of 10,314 males and females. Marmot, M.G., Davey Smith, G., Stansfeld, S., Patel, C., North, F., Head, J., White, I., Brunner, E. and Feeney, A., Health Inequalities among British civil servants: the Whitehall II study. *The Lancet*, **337**, 1387-93 (1991).

effect on the gradient, by grade of employment, and no narrowing of the differences over time as the sicker ones left.

Wilkinson reviewed the evidence for selection in 1986.<sup>1</sup> He argued that any effect of selection in the relationship between social class and health is attenuated by taking only the economically active into account in the mortality figures. If people are out of the workforce they're not counted in social class data, as they have no occupation, and this was the case with the Black Report. Wilkinson calculated from Wadsworth's study that, of the movements up and down, 8% more of the boys who became downwardly mobile experienced childhood illness. However, when put with other data, the proportion of adult illness associated with childhood illness, multiplied by the effect of childhood illness on mobility, means that about 1.5% of those seriously ill in their 20's have suffered downward mobility as a result of childhood illness. That is, not much.

The social gradient in health is the subject of intense research around the world and studies with longitudinal data have contributed to the investigation of potential confounders, such as selection. One such study that has contributed to the inequalities debate in the United States is the Alameda County study in California.<sup>2</sup> Lynch, Kaplan and Shema followed up Alameda County Study data on income in 1965, 1974 and 1983, from a representative sample of adults, to examine the cumulative effect of economic hardship on participants who were alive in 1994, and found little evidence that episodes of illness might have caused subsequent economic hardship.<sup>3,4</sup> They concluded instead that sustained economic hardship leads to poorer physical, psychological, and cognitive functioning.

In a detailed review of both selection and stress hypotheses (the psychological stress of unemployment causes ill health), Bartley argues against either ill-health causing unemployment or vice-versa.<sup>5</sup> She notes that health-related selection has been thrown into doubt by longitudinal studies in England, Wales and Denmark, and that there is little evidence of a simple link between unemployment and ill health. Rather, she says, the types and levels of social participation are set by the more affluent, and those excluded from a secure place in the mainstream of the economy have to choose between biological needs and forms of social participation.

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<sup>1</sup> Wilkinson, R.G., Socio-economic differences in mortality: interpreting the data on their size and trends. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 1-20, Tavistock, London (1986).

<sup>2</sup> The Alameda County Study was a longitudinal survey of 6,545 adult residents from the northern California county, begun in 1965. Researchers from the state health department began the survey, which is ongoing, to study the interrelationships among health status and social, familial, environmental and other factors. One of the early researchers was Len Syme, whose influence in social epidemiology is discussed on page 104.

<sup>3</sup> Defined as a total household income of less than 200 percent of the federal poverty level

<sup>4</sup> Lynch, J.W., Kaplan, G.A. and Shema, S.J., Cumulative Impact of Sustained Economic Hardship on Physical, Cognitive, Psychological, and Social Functioning. *The New England Journal of Medicine*, 337 (1997).

<sup>5</sup> Bartley, M., Health and Labour Force Participation: 'Stress', Selection and the Reproduction Costs of Labour Power. *Journal of Social Policy*, 20, 327-64 (1991).

Bartley refers to research that shows biological needs, such as warmth and diet, may be given a priority lower than social needs among people on low incomes and notes both that the effect on health would take place over a long period, and that higher class employment enables a higher tolerance of 'limiting, long-standing illness', acting as an employment shelter in white collar jobs.

The balance of evidence is against more than a minor effect of direct selection and this explanation for the social gradient can be set aside. The other form of selection, indirect selection, as an explanation for the social gradient in health, occurs when common background factors such as childhood deprivation, height, and education determine both social mobility and later health.

Illsey found a tendency for tall women to marry up the social scale and argued that this, together with problems of classification and social class size, tended to maintain or sharpen class differences in mortality.<sup>1,2</sup> Marmot found that height is an inverse independent predictor of coronary heart disease (CHD) mortality, (men under 168cm have the highest CHD mortality independent of grade and age) and is strongly associated with employment grade, although he argues that this is a guide to their social circumstances as children.<sup>3</sup> He reasoned that, if height is determined by nutrition and environment, it should relate to father's class. He found that, within each father's class, those who entered higher grades of the civil service were taller than were those in lower grades. This implies that taller men with fathers in social classes IV and V are upwardly mobile, and vice versa. Fox, Goldblatt and Jones, in their longitudinal study, also considered indirect selection, referring to Illsey's work, but concluded that major explanations for differentials should not be sought from artefactual or selection theories. Wilkinson rejects any major effect of selection by 'health potential', his term for indirect selection, by using Illsey's research to estimate the size of the effect on perinatal mortality differentials. He calculated the table of perinatal mortality rates in Table 4 from Illsey, who had compared the social status of women's husbands with that of their fathers.

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<sup>1</sup> Illsey refers to his own 1955 study, publications in 1955 and 1956

<sup>2</sup> Illsey, R., Occupational Class, Selection and the production of Inequalities in Health. *Quarterly Journal of Social Affairs*, 2, 151-65 (1986).

<sup>3</sup> Marmot, M.G., Social inequalities in mortality: the social environment. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 21-33, Tavistock, London (1986).

**Table 4 Social mobility and perinatal mortality: indices of perinatal mortality rates (births in Aberdeen 1951-80. Mothers classified by their fathers' and husbands' occupation)**

<i>Social class of father</i>	<i>Social class of husband</i>			<i>All classes</i>
	<i>I-IIINM</i>	<i>IIIM</i>	<i>IV&amp;V</i>	
<i>I-IIINM</i>	73	74	129	81
<i>IIIM</i>	80	107	119	109
<i>IV&amp;V</i>	71	108	138	111
<i>All classes</i>	75	101	129	100

Note: mean =100 = 24 deaths per 1000 births

Source: Wilkinson 1986 Table 1.2

Wilkinson thinks there is little doubt that the data provide evidence that social mobility is selective for characteristics closely related to health, that is, indirect selection. He calculates that the height differential (the proportion of mothers over 5 foot 4 inches in classes I and II compared with IV and V) increases by 20 percent when classifying by class at marriage. In the absence of a better indicator, this is then the expected difference in perinatal mortality. But the differential in perinatal mortality increased by 116%. He argues that if selective mobility adds 20% to the pre-mobility perinatal differential, and the observed differential by class of marriage more than doubles, then the selection component of the perinatal mortality is less than 10%. Wilkinson also argues that: a) all of the difference that Illsey found could be explained by environmental influences on malformations and the impact of this on perinatal mortality, and b) misclassification can make a substantial contribution to an impression of social mobility. Misclassification could occur when records are obtained of the (then) current occupation of the husband but of the occupation of the father 15 years prior. His conclusion is that the contribution of indirect selection is small in relation to mortality differentials.

Illsey's and, separately, Stern's explanation for widening mortality over time included direct health selection and intergenerational mobility by taller daughters marrying up the social scale over time, that is, indirect selection. Longitudinal studies show a minor effect and do not explain the social gradients in mortality.

Both direct and indirect selection effects should show up in studies of social mobility; that is, if there is a widening gap, there should be increasing mobility. Wilkinson refers to a study that looks at mobility by comparing a son's class with that of his father, shown by year of birth.<sup>1</sup> He argues that a small trend upward in mobility shown in this study would only make 'a trivial selective addition' to observed class differences in mortality. Similarly Erikson and Goldthorpe studied social mobility in nine European nations and, among the nations, find 'trendless

change'; for the UK the trend is for a slight monotonic *decrease* in mobility for men born between 1905 and 1945.<sup>2</sup>

### Discussion.

The most vigorous early discounting of Black's rejection of selection explanations came from Illsey, whose critique was directed mainly at the use of social class as a measure.<sup>3</sup> For Social Class, as a measure, Wilkinson agrees that there are problems, but points to convincing evidence that better measures of social position show larger gradients in mortality (Whitehall and the OPCS LS). That is, that the real social gradient in health is steeper than Social Class describes. The class-based analysis nevertheless has the advantage of a unique historical record.<sup>4</sup> Another of Illsey's concerns is that the use of class-based mortality data showing widening differentials can be used as evidence that the welfare state in Britain has not been effective and therefore threatens structural institutions like the National Health Service (NHS). The potential to undermine national services by illuminating their lack of achievement is echoed by Strong, whose repetition of this argument highlights structural and political considerations underlying the debate, particularly in relation to the policy consequences of its resolution.<sup>5</sup>

On balance it is reasonable to conclude that selection, both direct and indirect, exists but has only a marginal effect on either the existence of a social gradient in health or on trends over time. Davey Smith summarises one of the assumptions of intra-generational health selection thus: 'the idea that children don't show a class gradient, which then appears when they enter an occupation, that is, within a lifetime, is implausible'.<sup>6</sup> The OPCS longitudinal study shows gradients exist after retirement and the Whitehall study shows that excluding those with no evidence of illness at the start of the program made no difference to the observed gradient. Indirect selection via factors associated with health is similarly not supported as more than marginal, as those factors are also associated with socioeconomic background: height is in part the outcome of the environment. Extensive research on selection has produced little evidence for its operation. Better measures, and the

<sup>1</sup> Wilkinson refers to the Oxford Social Mobility Study and cites Heath, A (1981) *Social Mobility*, London: Fontana. See Wilkinson, R.G., Socio-economic differences in mortality: interpreting the data on their size and trends *Ibid.*, pp. 1-20.

<sup>2</sup> Erikson, R. and Goldthorpe, J.H., *The constant flux; a study of class mobility in industrial societies.*, p. 429, Oxford University Press, Oxford (1992).

<sup>3</sup> Illsey prefers to explain differentials in mortality as the 'summation of social experience over the preceding lifetime, only partially susceptible to short-term measures'. Illsey, R., Occupational Class, Selection and the production of Inequalities: a rejoinder to Richard Wilkinson's reply. *Quarterly Journal of Social Affairs*, **3**, 213-23 (1986).

<sup>4</sup> Pamuk, E.R., Social Class inequality in mortality from 1921 to 1972 in England and Wales. *Population Studies*, **39**, 17-31 (1985).

<sup>5</sup> Strong, P.M., Black on class and mortality: theory, method and history. *Journal of Public Health Medicine*, **12**, 168-80 (1990).

<sup>6</sup> Davey Smith, G., Blane, D. and Bartley, M., Explanations for socio-economic differentials in mortality. In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 105-146, Waxmann Publishing Company, Münster; New York (1994).

inclusion of the non- economically active, show Black's figures under-estimate the social gradient in health.

### Artefact

The second non-determinant relationship, among Black's explanations for an increase in the social gradient in health, is that the increase could be produced artefactually.<sup>1</sup> There are two main potential artefactual explanations: the changing relative size of the classes and, numerator/ denominator bias.

The relative size of the classes is a potential artefactual explanation for widening mortality as the size of the lowest class, class V, has reduced over time. If the decrease in the population size of class V were accompanied by higher- mortality occupations remaining within class V, then this would increase the differences between mortality measured by Social Class. Also, definitional changes over time have changed the social class of some occupations so that, for example, if a low mortality occupation were redefined, from a lower to a higher class, it would serve to increase the apparent gradient.

Pamuk took up the challenge of describing class changes in mortality over time with an adjustment for the changing size of classes.<sup>2</sup> In epidemiological terms, if the adjustment for class size attenuated the relationships found by Black then class size would be an artefactual confounder. While noting the weaknesses of the UK classification by occupation, Pamuk observed that the reports are unique in that they provide the only continuous assessment of social class differentials over a major portion of the general decline in mortality to its current levels. In order to take into account changes in the relative size of the classes Pamuk created the Slope Index of Inequality (SII).<sup>3</sup> Pamuk applied this method separately to adult males, infants, married women and retired adult males for the period 1921 to 1971. She concluded that class inequality in mortality among occupied and retired adult males declined in the 1920s and increased in the 1950s and 1960s, so that, by the early 1970s it was greater than it had been in the early part of the century, both in absolute and relative terms.<sup>4</sup> For infant mortality, she concluded that social class trends in mortality have declined dramatically in absolute terms, but the trend for relative social class inequality among infants is similar to that for adults. One of

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<sup>1</sup> That is, from the taxonomy I set out in Figure 3, on page 9.

<sup>2</sup> Pamuk, E.R., Social Class inequality in mortality from 1921 to 1972 in England and Wales. *Population Studies*, **39**, 17-31 (1985).

<sup>3</sup> Slope Index of Inequality calculated as follows: 1. Arrange social classes from V to I on horizontal axis. 2. compute each class's range in the cumulative proportionate ranking of the population from lowest (beginning at zero) to highest (ending at one). 3. plot age-standardised death rates at the mid point of the range. The relation between the death rates and the mid-point of cumulative class ranking is then fitted by weighted least squares, where the rates are the class proportions. The SII is a measure of the absolute advantage of belonging to a higher social class. The relative advantage can be measured by dividing the slope by the death rate, indicating the proportionate decline in the death rate over the population when ranked by social class.

<sup>4</sup> Pamuk reached similar conclusions for mortality of married women.

Pamuk's graphs, showing increases in inequality for adult males and infants, against her calculated index, is reproduced at Figure 4 below. Pamuk's method enabled adjustment for the potential artefactual explanation of the changing size of the denominator populations and confirmed the Black Report's observation of widening inequalities by eliminating one of the potential confounders.

**Figure 4 Pamuk shows inequality rises, adjusting for the size of classes.**



Source: Pamuk 1985<sup>1</sup>

The second potential artefactual explanation is numerator/ denominator bias in social class comparisons. Social class mortality rates are calculated using unlinked data sources; the numerator, deaths, is not derived from the same source as the denominator, occupation. If, following a census, a person became ill, moved down a social class and died, his occupation at death would be attributed to the lower class for mortality, as the record of occupation would come from the death certificate. The size of that lower class, however, would be taken from the prior census collection, which didn't include that person. This would artificially inflate lower class mortality.<sup>2</sup> Similarly, but with the opposite effect, a tendency for relatives who provide data for a death certificate to 'promote the dead', or inflate the person's occupational status would artificially reduce the class gradient in mortality.

The UK Registrar General's Social Class classification is intended to represent 'general standing in the community'.<sup>3</sup> Judgements about the class position of occupations can potentially have an effect on the distribution and there have been

<sup>1</sup> Elsie Pamuk did this work as a graduate student at the University of Pennsylvania, receiving her PhD in demography from that institution. She has eclectic interests in fertility, obesity, nutrition but with a focus on socioeconomic relationships with health. She co-authored a major health report by the US National Center for Health Statistics, which had a chartbook on socioeconomic status and health. Pamuk, E.R., Social Class inequality in mortality from 1921 to 1972 in England and Wales. *Population Studies*, 39, 17-31 (1985). Pamuk, E., Makuc, D., Heck, K., Reuben, C. and Lochner, K., Health, United States, 1998 With Socioeconomic Status and Health Chartbook, pp. 465, National Center for Health Statistics, Hyattsville, Maryland (1998).

<sup>2</sup> Note this example is also a selection argument

<sup>3</sup> Davey Smith, G., Blane, D. and Bartley, M., Explanations for socio-economic differentials in mortality. In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 105-146, Waxmann Publishing Company, Münster; New York (1994).

changes to the class position of a number of occupations. Illsey and Strong suggest that the gradient in mortality and the widening gradient could be an artefact of the social class classification system.<sup>1,2</sup> It is also possible that the Decennial Supplement is not representative as it covers only occupational ages 15-64, that is, only the economically active (by occupation) and so may not be representative of class mortality as a whole. The deaths, for example are only a minority of all deaths (eg. 28% of male deaths and 17% of female in 1979) as most deaths occur at older ages, outside the scope of the Supplement.<sup>3</sup>

The possible artefactual impact of numerator/ denominator problems and changes in classification were largely overcome by longitudinal studies. Fox, Goldblatt and Jones used ten-year follow-up data from the OPCS Longitudinal Study (LS) to classify deaths in 1976-81 by the 1971 occupation recorded at census, to exclude downward movement in occupation in the interim.<sup>4</sup> They concluded that there was very little contribution; the similarity between the class differentials observed for men aged 15-64 years in this study and those reported in the 1970-72 Decennial Supplement indicate that the published gradients were not grossly distorted by numerator-denominator biases.

The Fox graph, reproduced at Figure 5, compares mortality by social class at ages 65-74 years and 75 years and over with that at younger ages. It is restricted to the period 1976-81 in order to allow for the observed selection effect to wear off.

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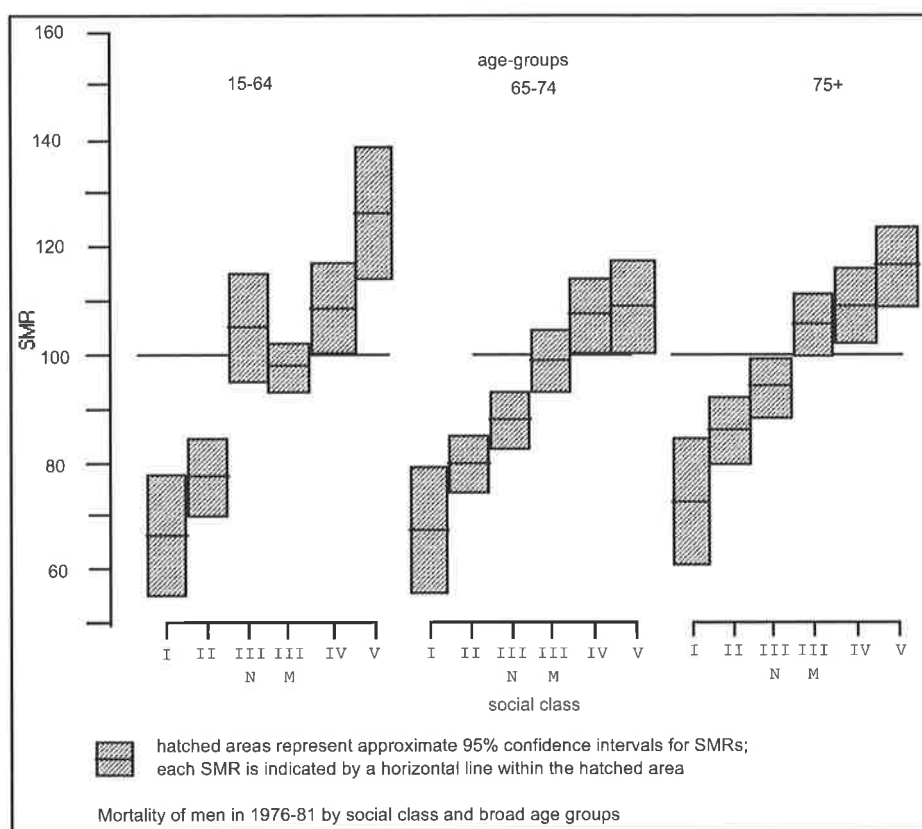
<sup>1</sup> Illsey, R., Occupational Class, Selection and the production of Inequalities in Health. *Quarterly Journal of Social Affairs*, **2**, 151-65 (1986).  
Strong, P.M., Black on class and mortality: theory, method and history. *Journal of Public Health Medicine*, **12**, 168-80 (1990).

<sup>2</sup> It should be noted here that, in 1994, the UK Office for National Statistics commissioned a review of social classifications and the result was a new classification system – the National Statistics Socio-economic Classification (NS-SEC). The NSSEC emphasises employment relations and conditions rather than social standing. See <http://www.bbc.co.uk/radio4/today/reports/chat/livechatrose.shtml>

<sup>3</sup> Myers, G.C., Comment on van Poppel, F: Regional differences in mortality in Western and Northern Europe: a review of the situation in the seventies., *Socioeconomic Determinants and Consequences of Mortality*, pp. 351-372, United Nations & World Health Organization, Mexico (1979).

<sup>4</sup> Fox, A.J., Goldblatt, P.O. and Jones, D.R., Social Class mortality differentials: artefact, selection, or life circumstances? *In*: R.G. Wilkinson (ed.), *Class and Health*, pp. 34-49, Tavistock, London (1986).

Figure 5 The social gradient in health persists after working age.



Source: Fox, Goldblatt and Jones 1986<sup>1</sup>

The graph shows that differences continue to widen over time, with gradients after retirement almost as steep as during working life. This counters the suggestion that the Decennial Supplement is not representative, that is, the possibility that the observed social gradient in health and the steepening of this gradient over time has been produced as an artefact of the social class classification structure itself.

Numerator/ denominator problems were not present in the Whitehall longitudinal study, which showed a steeper gradient over four groups *within* the civil service than Black had shown *across* social classes. This showed not only that artefactual explanations of bias could be rejected but also indicated that a more accurate recording of socioeconomic status, that is grade of employment versus social class, strengthened the observed relationships, lending support to socioeconomic determinants.<sup>2</sup> Apart from longitudinal studies there have been methodological advances since Black. To overcome potential bias in the changing classification structure of the social class analysis, Pamuk, in her study outlined earlier, standardised occupation groups over time; she also successively eliminated, from

<sup>1</sup> Ibid.

<sup>2</sup> Marmot, M., The social pattern of health and disease. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization: Towards a health policy for the twenty first century*, pp. 42-70, Routledge, London (1996)., Refs continue over.

the analysis, groups that had been identified as problematic. For example, a reclassification of armed forces service personnel contributed to the adjustment of figures for 1949-53 in Black's table, Table 1. Pamuk found that no adjustments altered the overall trend to increasing inequalities. In the US, Pappas et al overcame potential artefactual problems with record matching, to reveal that mortality differentials between socioeconomic groups had markedly increased between 1960 and 1986.<sup>1</sup> It is also worth noting here that the found relationships do not depend solely on occupational classification. Other measures of material circumstances, such as car ownership, education and housing tenure are also related to mortality.<sup>2,3</sup> This strengthens the case against bias.

### Summary – non-determinant explanations

The first two of Black's explanations for the steepening social gradient in health, or, as the Black report described, widening inequalities in health, were selection and artefact. I have pointed to the detailed studies and reasoning behind refutation of these explanations since the Black Report. The conclusion, from well-controlled longitudinal studies and new methods, is that the main artefactual explanations-changing class sizes and numerator denominator biases- are rejected and selection is now widely considered to have no more than a minor effect.

These first two explanations were non-determinant- that is that there was nothing 'real' occurring. I will now explore explanations for the (steepening) social gradient in health that are determinant, that is, according to the taxonomy I put forward in Figure 3 and which is repeated here for convenience. This work will cover

explanations both for the existence of the social gradient, and those that are directed only at the increasing gradient, as all are relevant to policy considerations.

	Explanation	Level	Black Report
Non-determinant explanations	Selection		Selection
	Artefact		Artefact
Determinant explanations	Genetic	Personal/ Individual	
	Biologic		
	Behaviour	Work	Behaviour/Culture
	Occupation/ class		
	Culture	Household	
	Income		Material
	Status	Neighbourhood	
	Physical setting	Community	
	Social		
	Psychosocial	Society	
Ecology	Political		

Marmot, M.G., Davey Smith, G., Stansfeld, S., Patel, C., North, F., Head, J., White, I., Brunner, E. and Feeney, A., Health Inequalities among British civil servants: the Whitehall II study. *The Lancet*, **337**, 1387-93 (1991).

<sup>1</sup> Pappas, G., Queen, S., Hadden, W. and Fisher, G., The increasing disparity in mortality between socioeconomic groups in the U.S., 1960-1986. *New England Journal Of Medicine*, **329**, 103-09 (1993).

<sup>2</sup> In the LS men without access to a car and living in rented accommodation contribute 21% of deaths with an SMR of 123, almost the same as class V at 125 and 5% of deaths.

<sup>3</sup> Davey Smith, G., Blane, D. and Bartley, M., Explanations for socio-economic differentials in mortality. In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 105-146, Waxmann Publishing Company, Münster; New York (1994).

### *Genetic and Biologic*

A genetic explanation is straightforward; it holds that a distribution of some genetic weakness accounts for both low social class and poor health, and that this is reproduced naturally. It can be described as a subset of the idea that both poor health and socioeconomic position are transmitted across generations, in this case by genetic factors.

This explanation is given little credence in the literature. Marmot found in the Whitehall study that data on relatives with CHD, of subjects in study, are the opposite of a genetic hypothesis.<sup>1</sup> The general inversion of class gradients in coronary heart disease mid twentieth century is also a strong argument against a genetic explanation.<sup>2</sup> Tarlov argues that while genetic variation over all classes explains vulnerability to certain disease outcomes, (atherosclerosis, diabetes, arteriolar smooth muscle constriction), genetic differences can't account for national differences in American health indicators as the stock is derived from the countries of comparison.<sup>3</sup>

The idea that one is programmed for life, that growth and development of the cardiovascular and the respiratory systems take place in a window of biological opportunity before birth and in early life, is most closely associated with Barker.<sup>4</sup> The argument is that under-nutrition in early gestation reduces body size permanently and in late gestation it has a profound effect on body form, without necessarily reducing body size. The idea has similarities to notions of 'biological capital' or 'health capital', terms apparently borrowed from the dominant economic paradigm of the late twentieth century.

The Barker hypothesis is challenged by Power et al, who examined the transmission of social and biological risk across the life course.<sup>5</sup> They note associations between poor living conditions and adult heart disease two decades earlier and Dutch research that linked low birthweight over two generations to the grandmother's experience of the Dutch famine.<sup>6</sup> They describe two potential mechanisms,

<sup>1</sup> Marmot, M.G., Social inequalities in mortality: the social environment. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 21-33, Tavistock, London (1986).

<sup>2</sup> Brunner, E., The social and biological basis of cardiovascular disease in office workers. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 272-301, Routledge, London (1996).

<sup>3</sup> Tarlov, A.R., Social determinants of health: the sociobiological translation Ibid., pp. 71-93.

<sup>4</sup> Barker, D.J.P., *Fetal and infant origins of adult disease.*, British Medical Journal, London (1991),.

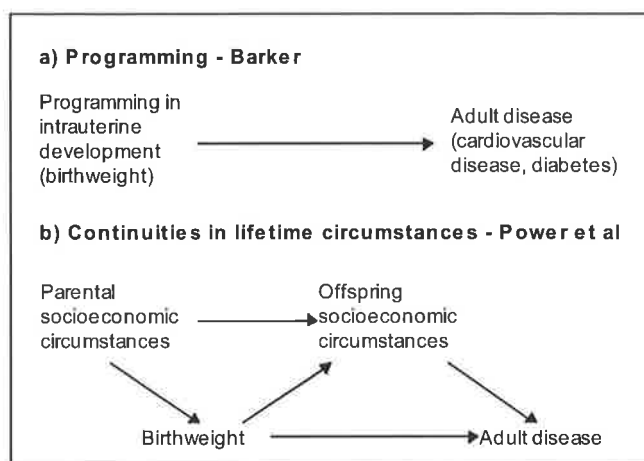
Barker, D.J.P., The fetal and infant origins of disease. *British Medical Journal*, **301**, 1111 (1990).

<sup>5</sup> Power, C., Bartley, M., Davey Smith, G. and Blane, D., Transmission of social and biological risk across the life course. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 188-203, Routledge, London (1996).

<sup>6</sup> Respectively Forsdahl and Lumey in Power et al Forsdahl, A., Are poor living conditions in childhood and adolescence an important risk factor for arteriosclerotic heart disease? *British Journal of Preventative and Social Medicine*, **31**, 91-5 (1977),.

illustrated at Figure 6. The first is biological; events in-utero program the risk, before other factors are encountered later in life (per Barker). In the second, which they favour, birth weight and infant growth are acting as markers for other causal factors.

**Figure 6 Pathways linking early life with adult disease.**



Source: Power 1996<sup>1</sup>

Power et al argue that the Barker association may be confounded by socioeconomic circumstances because: a) as social and economic deprivation is known to influence intra-uterine development and early growth, birth weight may be a marker of the life chances of the family of origin, and b) while Barker's analysis was adjusted for social class, social class is a crude measure, as income and living standards vary widely within a class. The same group of researchers had analysed data from the 1958 British birth cohort (National Child Development Study) longitudinal study using alternative socioeconomic markers and found relationships between birthweight and social class that persist throughout childhood and into early adulthood. This was a result contrary to Barker, but consistent with earlier work by the group.<sup>2</sup> They suggest the association between parity, low social class and low birthweight may also be a factor and conclude that lower birthweight may be acting as a marker of a particularly disadvantaged life trajectory. Research to show that a

Lumey, L.H., Decreased birthweights in infants after maternal in utero exposure to the Dutch famine of 1944-1945. *Paediatric and Perinatal Epidemiology*, **6**, 240-253 (1992).

Power, C., Bartley, M., Davey Smith, G. and Blane, D., Transmission of social and biological risk across the life course. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 188-203, Routledge, London (1996).

<sup>1</sup> Power, C., Bartley, M., Davey Smith, G. and Blane, D., Transmission of social and biological risk across the life course. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 188-203, Routledge, London (1996).

<sup>2</sup> Bartley, M., Power, C., Blane, D., Davey Smith, G. and Shiley, M., Birthweight and later socioeconomic disadvantage: evidence from the 1958 cohort study. *British Medical Journal*, **309**, 1475-79 (1994).

decline in social status was associated with an increased risk of having a low birthweight infant lends support to the alternative hypothesis.<sup>1</sup>

### Discussion

One issue in the Barker hypothesis, and other biologic research, is the effect of adjustment of any relationship found for a measure of socioeconomic circumstances. The Barker relationship between in-utero nutrition and later health was presented as independent of socioeconomic circumstances; an adjustment had been made using an estimate of the father's social class, which attenuated the found relationship. At the heart of arguments against this, and many other found relationships in the health field, is that social class is an inadequate descriptor of socioeconomic circumstances because more accurate measures of these circumstances show steeper gradients in health than does social class. The Whitehall studies illustrate this point clearly; the gradients in health found in the Whitehall studies (better descriptors of socioeconomic position) were stronger than social class gradients (poorer descriptors). The implication is that any found relationship, between an agent or factor and health that is attenuated by adjustment for social class should be regarded with some scepticism. This issue is elaborated further throughout this thesis.<sup>2</sup>

Biologic research in the inequalities field also considers pathways to disease in individuals as researchers examine how various explanations might exert their effects on individuals. Underlying both the Barker hypothesis and its refutation is the idea that there is a delay, or latency period, between the explanation, or 'cause', and its effects, in this case some sixty years. I will show later that there is a distinction between explanations for the social gradient in health based on the time-scale over which they have an effect. Another criticism of the Barker hypothesis is that, while the mechanism is presented as biologic, the underlying message is about maternal behaviour, that is, the mother's responsibility for adequate nutrition of the foetus.

### *Behaviour/ Culture*

Behavioural explanations for the social gradient in health hold that health differences are a result of individual decisions about nutrition, exercise, consumption of tobacco and alcohol, often summed up as lifestyle choices, and partialised as 'risk factors'. Cross-sectional studies find a well-known association between poor health behaviour and low social class. Moreover, social class differences in health would widen over time if there were non-proportionate changes

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<sup>1</sup> Basso, O., Olsen, J., Johansen, A.M.T. and Christensen, K., Change in social status and risk of low birthweight in Denmark. *Ibid.*, **315**, 1498-502 (1997).

<sup>2</sup> For the converse, that is, over adjustment, see page 24.

in health-related behaviour by class. Behavioural explanations fit with class approaches to health because social class, by definition, includes notions of group-behaviours.<sup>1</sup> Most (all?) large health promotion campaigns and longitudinal studies have their origins in behaviourist ideas.<sup>2</sup> However there is now a substantial literature critical of behavioural explanations for the social gradient in health, while accepting that there are differences in behaviour and that they do make a contribution to health differences. For example Marmot, in the Whitehall studies of civil servants, found that a combination of all the individual risk factors that were measured in the study only accounted for a quarter of the mortality gradient, despite the study being constructed specifically to examine risk factors.<sup>3</sup> He argues that lifestyle is important but questions two things: first, to what extent are lifestyle factors influenced by social, cultural and economic factors, and second, are there psychosocial pathways that influence health, to account for at least half the remaining mortality gradient?

In the course of the Whitehall study, smoking prevalence declined overall but remained higher in lower grades. Marmot asks why a social gradient in smoking behaviour remains, what force produces the different behaviour?<sup>4</sup> This last question is at the core of an epidemiological debate over the social gradient in health. The pervasiveness of the social gradient, by social class, over time, means that the majority of epidemiological studies routinely collect social class information of study participants in order to 'control' or adjust for social class as a confounder in any other found relationships. There are two separate and important issues here. The first is the issue of adjustment.

In considering adjustment in the Whitehall studies, Marmot points out we should adjust a relationship, say between risk factors and health outcome, if it is other characteristics that are responsible for the risk, but this is *over* adjustment if monotonous work is part of the reason for the association between low social status and increased cardiovascular risk.<sup>5</sup> Similarly Lynch and colleagues argue that

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<sup>1</sup> Bauman, Z., Class, social. In: A. Kuper and J. Kuper (eds.), *The Social Science Encyclopedia*, pp. 110-13, Routledge & Kegan Paul, London (1985).

<sup>2</sup> Note the similarity between behaviourist explanations, behaviourist ideas and behaviouralism. I use behaviour in this thesis in the sense of Marshall, G., Ed. (1994). *The Concise Oxford Dictionary of Sociology*. Oxford, Oxford University Press. 'Behaviourism represents an extreme environmentalist position as regards the question of what guides human actions. According to behaviourists, all behaviour is learned through association and conditioning of one kind or another, and this same behaviour can therefore be unlearned or altered by external (environmental) manipulations. As might be expected, the theory has been regarded with suspicion or rejected outright by sociologists, mainly for two reasons: it is primarily individualistic in its approach; and it is very difficult to carry out a sociological study without taking some account of how people think about the social world.'

<sup>3</sup> Marmot, M., The social pattern of health and disease. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 42-70, Routledge, London (1996).

<sup>4</sup> Marmot's research has been a major contributor/ mover / force to the search for psychosocial factors, discussed later in this chapter.

<sup>5</sup> Marmot, M. and Feeney, A., Work and health: implications for individuals and society. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 235-254, Routledge, London (1996).

behaviour is often used to explain health differences in the USA, with the tacit assumption that a pattern of behaviour is the individual's free choice. However, health damaging, or indeed health promoting, behaviours are not evenly distributed across socioeconomic groups as would be expected if this were true.

Lynch notes that many studies treat health-related behaviour as a confounder to adjust other findings and argues that if exposure to lower socioeconomic conditions in childhood led to those behaviours, then their treatment as a confounder is inappropriate.<sup>1</sup> This has profound implications for most epidemiological research. Lynch also found that adults' behaviours are associated with their parents' socioeconomic status; therefore, he argues that it's not a free choice, 'it's where you started out, what your choices are'. This kind of approach is also taken in social health studies that look at the production and reproduction of behaviour using an analysis of power. Lynch's position is that socioeconomic status ought to be treated as a fundamental cause of disease. In the Finnish Kuopio Ischaemic Heart Disease Risk Factor Study, a population-based study of 2674 middle-aged Finnish men, Lynch's findings were consistent with this position; poor adult health behaviours and psychosocial characteristics were more prevalent among men whose parents were poor, so poor behaviour is likely to be produced more by poor socioeconomic circumstances than by choice.<sup>2</sup>

The second issue is the 'real' size of the gradient. If, as Marmot shows, more accurate measures of socioeconomic circumstances show steeper gradients than does social class, and epidemiological studies find relationships that are attenuated by (an appropriate) use of a social gradient measure, then using social class may inadequately control for size of the gradient. This could be in either direction but is likely to under-control for the social gradient.

### Culture

Stevenson, in constructing the UK social class classification system by occupation in the mid-1920s, thought that occupation would serve also to include culture.<sup>3</sup> Within countries and for individuals and groups, in the inequality literature, culture is almost synonymous with behaviour, and the Black Report grouped culture with behaviour in its four categories of explanation for the social gradient in health. A

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<sup>1</sup> Lynch, J., Sustained economic hardship and physical, psychological, cognitive and social functioning after 29 years follow up in the Alameda County study, *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997), Lynch, J.W., Kaplan, G.A. and Shema, S.J., Cumulative Impact of Sustained Economic Hardship on Physical, Cognitive, Psychological, and Social Functioning. *The New England Journal of Medicine*, **337** (1997).

<sup>2</sup> Lynch, J.W., Kaplan, G.A. and Salonen, J.T., Why do poor people behave poorly? Variation in adult health behaviours and psychosocial characteristics by stages of the socioeconomic lifecourse. *Soc Sci Med*, **44**, 809-19 (1997).

<sup>3</sup> Berkman, L.F. and Macintyre, S., The measurement of social class in health studies: old measures and new formulations. In: M. Kogevinas, N. Pearce, M. Susser and P. Boffetta (eds.), *Social inequalities and cancer*, IARC Scientific Publications No. 138, pp. 207-228, International Agency for Research on Cancer, Lyon (1997), Fox, A.J., Prospects for change in differential mortality, *Socioeconomic Determinants and Consequences of Mortality*, pp. 515-561, United Nations & World Health Organization, Mexico (1979).

general definition of culture emphasises that it is passed on from one generation to the next by learning rather than biological inheritance, and contains principles for interpreting, rather than explaining, behaviour.<sup>1</sup> A definition more specific to health defines culture as:

... a set of guidelines (both explicit and implicit) which an individual inherits as a member of a particular society, and which tells him how to view the world, and how to behave in it in relation to other people ...<sup>2</sup>

as distinguished from its cumulative aspect, synonymous with 'a body of acquired knowledge'.<sup>3</sup> The idea is that both the structural (income, place) and cultural environment influence health so that, for example, groups do not benefit in the same way from education.

The relationship between culture and behaviour means that culture in the individual or group senses does not figure highly in explanations of inequality.<sup>4</sup> The idea of 'being in control' may have more explanatory power in epidemiological terms and so I explore it under the heading of occupation below.<sup>5</sup>

Between countries, however, culture is used to interpret differences in inequality gradients by examining structural differences between nations. An example is the observation that countries with unusually high death rates from particular causes tend to have large socioeconomic gradients in the same causes - alcohol in France, violence in the US and heart and respiratory disease in England and Wales. Separating a cultural component from ideological or political components seems to be an issue here, but, without delving into the anthropological literature, the main point is that culture is used for interpretation rather than explanation.<sup>6</sup>

#### Summary - behavioural explanation

There are three main problems with using behaviour as an explanation for the social gradient in health. Empirically, behaviour does not account for more than a small part of the observed gradient in well-controlled studies. Theoretically the question of how the behaviour is produced and reproduced has not been explicated. Practically, the interventions and policies flowing from behavioural explanations

<sup>1</sup> Hatch, E., Culture. In: A. Kuper and J. Kuper (eds.), *The Social Science Encyclopedia*, pp. 178-80, Routledge & Kegan Paul, London (1985).

<sup>2</sup> From C Helman 1984 *Culture Health and Illness*, Bristol, 242 pp. Ed. Wright.

<sup>3</sup> Godin, I. and Lagasse, R., Culture and health. What role does culture play in the development and maintenance of social disparities in health? In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 163-174, Waxmann Publishing Company, Münster; New York (1994).

<sup>4</sup> It should be noted that the originator of the social class classification system in the UK used occupation as the measure rather than income due to the latter's failure to take into account culture, using the clergy as an example Berkman, L.F. and Macintyre, S., The measurement of social class in health studies: old measures and new formulations. In: M. Kogevinas, N. Pearce, M. Susser and P. Boffetta (eds.), *Social inequalities and cancer*, IARC Scientific Publications No. 138, pp. 207-228, International Agency for Research on Cancer, Lyon (1997).. I argue that this is also a behavioural use of the term.

<sup>5</sup> See page 27.

<sup>6</sup> For example it was reported that, in a survey of attitudes to individual versus collective effort, Australian children believe it is four times more important 'to be an individual doing your own thing' than to 'fit in with others and go along with the crowd' whereas Japanese and Taiwanese children think going along with the crowd is 2 to 3 times more important than individualism. Gunn, M. and Foreshe, J., *New GenerAsians*, *The Australian*, Adelaide (1998)..

have been notably unsuccessful.<sup>1</sup> At a broader level there is a link between ideological individualism and behaviour as the notion of ‘the opportunity to choose’ brings with it the capacity for those who don’t so choose to wear the consequences, and the capacity for policy makers to blame the victim for poor choices and failure. If the results of these choices were randomly distributed then this would be a reasonable decision, but they are not; the differences follow social patterns, that is, a social gradient. It is likely then that the social gradient in health and the widening of the gradient both have minor components that may be identified as behavioural, but in the absence of an explanation for why behaviour is not randomly distributed by material circumstances, or how health damaging/promoting behaviour is reproduced, this is an unsatisfactory explanation for policy purposes.

### *Occupation*

Occupation, as a marker of general standing in the community, shows an inverse and widening gradient with mortality across Western nations. One’s material circumstances however are not well described by use of ‘occupation’ because incomes vary greatly within any one occupational category. In longitudinal studies, in Whitehall I, the gradient in health (by employment grade) within an homogenous, non-hazardous, environment, where none was poor, was steeper than the social class gradient. The possibility that an unknown individual risk factor accounted for the large unexplained mortality was remote so, in Whitehall II, Marmot investigated the psychosocial effects of hierarchy associated with work, both on the employee and his/her partner.<sup>2</sup> Unemployment and insecure employment also have psychosocial health impacts on more than the directly affected person. After a brief outline of international data I will concentrate this section on the social experience work.

### Occupation and Work

Much of the research on explanations for inequalities in health uses social class classifications, which are derived from occupation and intended to represent general standing in the community, in the UK. Explanations that rely on social class are therefore, to a greater or lesser extent, using occupation as a marker. Mustard reports that USA mortality rates have widened by class but that this is not so for Scandinavia and Japan, which have smaller class differences; he concludes that whatever produces the gradients affects the whole of society, not just the economically active.<sup>3</sup>

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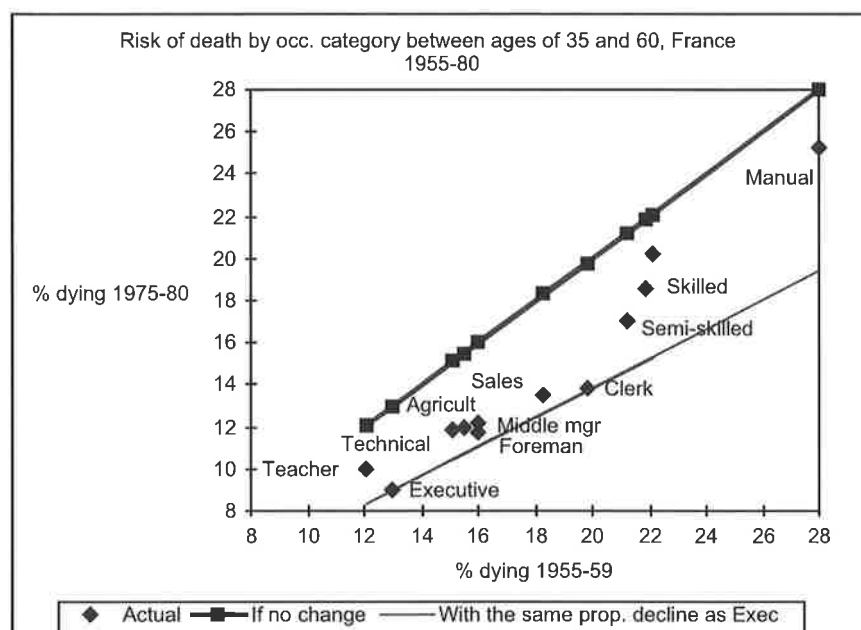
<sup>1</sup> The lack of success of behavioural intervention is explored further in Chapter 2, see page 63.

<sup>2</sup> For a brief note on the Whitehall studies see footnote 4 on page 11.

<sup>3</sup> Mustard, F., Health and social capital. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 303-313, Routledge, London (1996).

Kunst and Mackenbach are involved in continuing research that shows the expected gradient in non-manual and manual occupations in 11 European countries.<sup>1,2</sup> For men aged 45-59 they show large inequalities in health by occupation for Finland and, especially, France. For France, Mizrahi reproduced a diagram showing widening mortality by occupation from the early fifties to the late seventies.<sup>3</sup>

**Figure 7 Risk of death by occupational category 1980 c/f 1955, France.**



Source: Mizrahi 1994 Fig 9 - I have added the lines and text labels to aid interpretation.<sup>4</sup>

In this graph the percentage dying by occupation 1955-59 is scatter-plotted against the percentage dying by occupation 20 years later. If there had been no change in the proportion dying by occupation, the occupations would fall on the straight-line  $y=x$  leaving existing inequalities intact. An equal relative decline would have seen the slope of the new plot reduce: the 33% decline in deaths in the executive class, if experienced by the manual class, would see the latter's proportion dying at 19% rather than as it is at 25%. I have drawn the line representing an equal relative decline. So inequalities between occupations have risen in France.

<sup>1</sup> Kunst, A.E., Groenof, Mackenbach, J.P. and Health, E.W.G.o.S.I.i., Occupational class and cause specific mortality in middle aged men in 11 European countries: comparison of population-based studies. *British Medical Journal*, **316**, 1636-42 (1998).

Kunst, A.E. and Mackenbach, J.P., *An international comparison of Socioeconomic Inequalities in Mortality*, Erasmus University, Rotterdam (1992).

Mackenbach, J.P., Kunst, A.E., Cavelaars, A.E., Groenof, F. and Geurts, J.J., Socioeconomic inequalities in morbidity and mortality in western Europe. The EU Working Group on Socioeconomic Inequalities in Health. *Lancet*, **349**, 1655-9 (1997).

<sup>2</sup> EU Working Group on Socioeconomic Inequalities in Health

<sup>3</sup> Mizrahi, A. and Mizrahi, A., Demographic and socio-economic factors in health care in France. In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 67-84, Waxmann Publishing Company, Münster; New York (1994).

<sup>4</sup> Ibid.

## Work

Occupation is not necessarily a good descriptor of one's material circumstances, separately related to health status, and studies in the workplace have shown other impacts of work on health. The main part of this section therefore is about the influence of work on health, which Marmot and Feeney argue is important for three reasons:

- The production process may have physical and environmental impacts that may affect the worker and the physical environment,
- Work has a direct impact on the individual, the family and the social environment, and
- Work generates prosperity, which allows the development of social conditions conducive to health.<sup>1,2</sup>

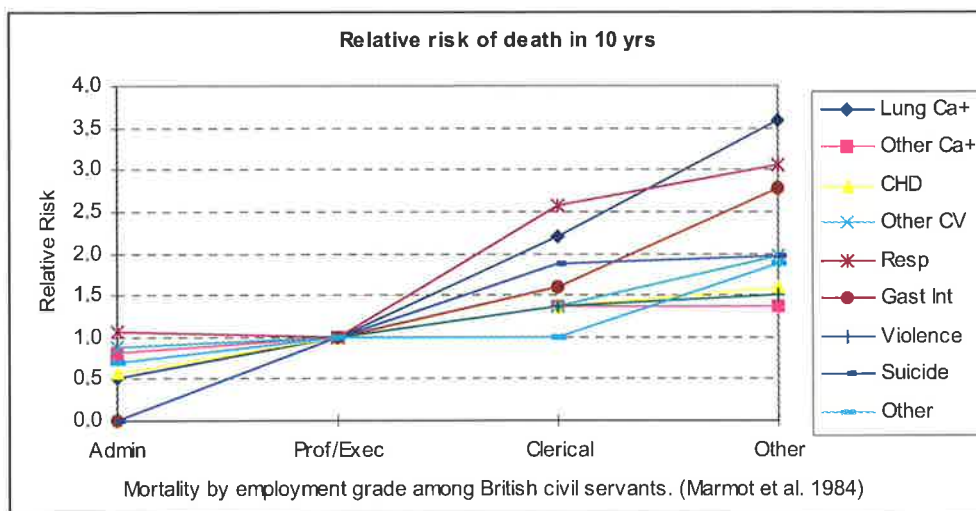
As to the production process, Marmot and Feeney state that, while there is a class gradient in mortality, physical hazard and environmental impact are not the main causes of ill health related to work. It is also difficult to consider the physical work environment as a cause of *widening* differentials in the face of improvements in this area in Western countries. Rather, they say, coronary heart disease (CHD), mental illness, and other conditions are influenced by aspects of work other than direct physical and chemical exposures. The evidence points instead to psychosocial aspects of work, which has been an area of expanding interest in the inequalities field. Earlier workplace studies in the United States, in the 1970s, associated stress with psychological profiles (for example 'Type A' personalities and 'executive stress'), but this work did not travel well out of the US and was contrary to the observed gradients in Whitehall, where executives with apparently high stress jobs had *lower* mortality. An example of the mortality gradient in the Whitehall study is at Figure 8, which shows the risk of death by grade, relative to the professional grade, by cause. Note that the overall relative risk within a non-hazardous work environment, at 3.0, is greater than the Social Class I to Social Class V relative risk of nearly 2.0.

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<sup>1</sup> Marmot, M. and Feeney, A., Work and health: implications for individuals and society. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 235-254, Routledge, London (1996).

<sup>2</sup> Note that this last category is explored in Chapter 3 - explanations for good health.

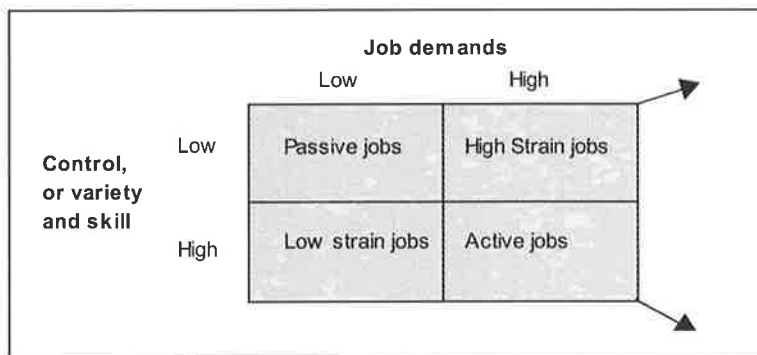
Figure 8 Relative risk of death by cause and employment grade among British civil servants.



Source: Marmot et al.1984<sup>1</sup>

Marmot accepted earlier notions that, since much social and psychological experience takes place in the occupational setting, occupation is likely to figure prominently among social determinants of health. In the Whitehall II study he looked to circumvent the debate on stress.<sup>2</sup> He drew on large-scale reviews of the occupational literature to examine the work environment, where he used the model of Karasek and Theorell to consider demand and control features of structure, as objective measures of work, shown at Figure 9.<sup>3</sup>

Figure 9 Karasek and Theorell's job/strain model



Source Marmot and Feeney<sup>4</sup>

Marmot used sickness absence by employment grade as a marker both for general susceptibility and to distinguish between types of illness. His assumption was that

<sup>1</sup> Marmot, M.G. and Morris, J.N., The Social Environment. In: W.W. Holland, R. Detels and G. Knox (eds.), *Oxford Textbook of Public Health*. Vol. 1, pp. 97-118 (1984).

<sup>2</sup> That is, the debate on stress as pressure or force, a characteristic of the structure of work, versus stress as the varied response to work, a characteristic of susceptible individuals

<sup>3</sup> Tors Theorell being from the Swedish National Institute for Psychosocial Factors and Health, and Robert Karasek from University of Massachusetts Lowell, Department of Work Environment.

<sup>4</sup> Marmot, M., The social pattern of health and disease. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 42-70, Routledge, London (1996).

short spells of certificated absence may represent decrements in psychological and social functioning, long spells may be more physical.<sup>1</sup> There is an inverse gradient by grade of employment for both. Marmot tested for attenuation by measures of material well-being and found little difference.<sup>2</sup> He also looked at demand/control within aggregated grades and found that:

- higher demands were associated with higher absence in lower grades;
- high control is protective in higher grades, but not low grades;
- high support is protective in low grades but not high.

He speculates high demands are associated with interesting work in high grade jobs, improving self-esteem, and concludes the relation between work characteristics, such as demand and control, and sickness, may be causal in the gradients in health in Whitehall.<sup>3</sup>

The question of generalising the Whitehall study is important. Marmot chose the civil service population for risk-factor study because follow-up and control of variables is easier in a stable workforce, which was the case at the time. Marmot argues that Whitehall is generalisable for white collar work, as total days absence and CHD is about the same as in other employment. Also, referring to his previous work on life expectancy in Japan, he looked at the structure of work in car manufacturers: Japanese firms in Japan, Japanese firms in America, American in USA and American in Europe.<sup>4</sup> He suggests Japanese management style has a higher degree of participation in decision-making, a more highly trained workforce and greater job stability, so work offers high social support in Japanese culture, consistent with the findings from Whitehall.

Support for generalising Whitehall in a different work environment also comes from Lynch and Oelman, who found a sixfold difference in CHD SMR between direct entry officers, (SMR=33), and private soldiers, (SMR=205).<sup>5</sup> Lynch et al also found an association between job demands, economic reward, and the 4-year progression of carotid atherosclerosis in a population-based sample of 940 Finnish men,<sup>6</sup> also

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<sup>1</sup> Note that 'general susceptibility' is part of the debate.

<sup>2</sup> This in itself is the subject of the debate about adjustment outlined on page 24. The adjustment here was by car ownership and education to try to adjust for class without employment grade.

<sup>3</sup> The general physiological response to stress, as distinct from a workplace gradient, has an interesting history. The related 'fight or flight' response was identified, as a positive survival response, by Walter Cannon (1871-1945), physiologist who also introduced the term 'stress' - see Richard L Gregory (Ed) Oxford Companion to The Mind OUP 1997. Hans Selye (1907-1982), endocrinologist, identified the stress response as harmful, if prolonged. See: History and Present Status of the Stress Concept. In S. Breznitz and L. Goldberger, editors: Handbook of Stress: Theoretical and Clinical Aspects. New York: The Free Press. A division of Macmillan, Inc. 1982, pp 7-20. Eric Brunner theorised physiological pathways in the Whitehall studies, see page 48.

<sup>4</sup> Marmot, M. and Feeney, A., Work and health: implications for individuals and society. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 235-254, Routledge, London (1996).

<sup>5</sup> Lynch, P. and Oelman, B.J., Mortality from CHD in the British Army compared with the civil population. *British Medical Journal*, **238**, 405-7 (1981).

<sup>6</sup> The data came from the Kuopio Ischemic Heart Disease Risk Factor Study in Finland.

not greatly attenuated by adjustment for risk factors.<sup>1</sup> For the social context of work Marmot argues that there may be a virtuous cycle for employment where higher control and support can improve productivity, which can feed into the state of the economy, which influences both the quantity and the quality of work available, reducing unemployment and job insecurity and improving working conditions.

### Unemployment

The conditions of work are important to health, and the social class gradient is derived from occupation, but the health consequences of not working also matter.

Moser, Fox and Jones looked at unemployment and mortality in the OPCS Longitudinal Study and found a 20-30% excess deaths over expected for socioeconomic position, with only a small part attributable to selection. They confirmed other findings of raised suicide rates with unemployment and, importantly, found that the mortality of women whose husbands were unemployed was also higher than that of all married women (SMR 120), and found that this excess also persisted after allowance for their socioeconomic distribution. Unemployment is associated with adverse effects on health but Bartley argues that the major stresses experienced, with loss of employment, occur *prior* to the loss of work, that is, the health effects are associated with insecurity.<sup>2</sup> Moreover she argues that, once unemployed, people's attachment to the workforce becomes tenuous as they take work that is insecure, particularly in low social class jobs. Power used longitudinal data from the 1958 British birth cohort to determine whether social differences in health persist or widen during early adulthood.<sup>3</sup> In the main, inequalities persisted but increased significantly between ages 23 and 33 for limiting illness in men. This is consistent with Bartley who shows a systemic and widening difference in occupations' tolerance for limiting illness, where non-manual occupations can tolerate higher levels; in 1973, 90% of managers with limiting chronic illness were in paid work and 70% of 'less skilled manual workers', compared with, in 1993, respectively 78% versus 42%, that is, a dramatic drop for the less skilled.

### Summary - Occupation and Work

Occupation, as a marker for socioeconomic position, shows an inverse and widening gradient with mortality across most Western nations. Longitudinal studies, particularly in Whitehall, show steep gradients within an employment sector and

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<sup>1</sup> Lynch, J., Krause, N., Kaplan, G.A., Salonen, R. and Salonen, J.T., Workplace demands, economic reward, and progression of carotid atherosclerosis. *Circulation*, **96**, 302-7 (1997).

<sup>2</sup> Bartley, M., Health and Labour Force Participation: 'Stress', Selection and the Reproduction Costs of Labour Power. *Journal of Social Policy*, **20**, 327-64 (1991).

<sup>3</sup> Power, C., Hertzman, C., Matthews, S. and Manor, O., Social differences in health: life-cycle effects between ages 23 and 33 in the 1958 British birth cohort. *Am J Public Health*, **87**, 1499-503 (1997).

point to the psychosocial effects of hierarchy both on the person and his partner. Similarly, unemployment and insecure employment have psychosocial health impacts on more than the affected person. The psychosocial effects become significant when looking at material circumstances as an explanation for inequalities in health.

### *Material*

In working through, in some detail, a taxonomy of explanations constructed in Figure 3, page 3, it is relevant to note that the material, or materialist, explanation is the one that the Black report favoured. However, of the four explanations offered in the Black Report, selection, artefact, behaviour/culture and materialist, the materialist explanation is the least investigated.<sup>1</sup> Most materialist explanation has focussed on inference from socioeconomic position, that is by looking at a continuum of measures, including income, within a country, and subdivisions of that continuum against a health measure such as mortality. These studies show the inverse gradient of mortality with socioeconomic position. Since the inequality research is about the gradient, I will not address those studies that examine poverty as a dichotomous variable (poor/ non-poor) in any detail but, rather, as an extension of the known gradient.

For income, Townsend argued for five categories: cash income from all sources, capital assets, the value of employment benefits in kind, the value of public social services in kind and, private income in kind.<sup>2</sup> Wilkinson notes that Social Class III non-manual income is less than social class III manual income, the opposite of the usual relationship with health.<sup>3</sup> However, he notes, consistent with Townsend's argument to include non-cash receipts, this relationship reverses to the expected one when differences in employees' fringe benefits and assets are taken into account.

### Income

Potential errors in establishing mortality relationships with income parallel those with class. The source of income information is usually different from mortality information, and is frequently subject to biases in reporting. Consequently the inverse relationships that do exist tend to be shown in ecological correlations, by area of residence.

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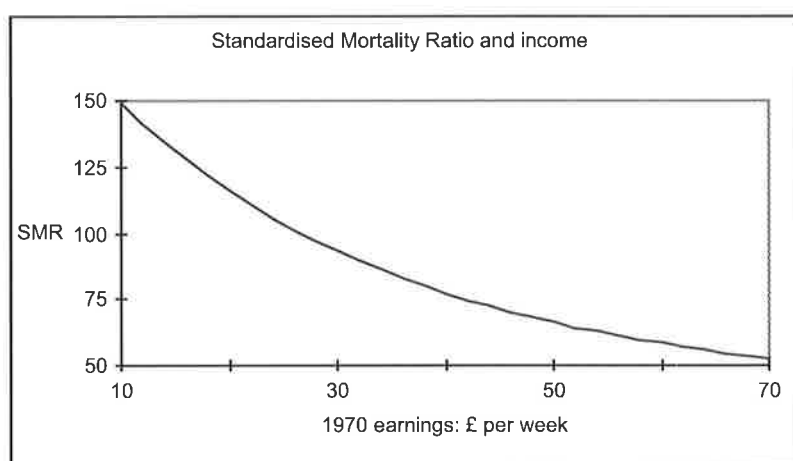
<sup>1</sup> Davey Smith, G., Blane, D. and Bartley, M., Explanations for socio-economic differentials in mortality. In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 105-146, Waxmann Publishing Company, Münster; New York (1994).

<sup>2</sup> Townsend, P. and Davidson, N., *Inequalities in Health: the Black Report*, Penguin, London (1982).

<sup>3</sup> Wilkinson, R.G., Class Mortality Differentials, Income Distribution and Trends in Poverty 1921 - 1981. *Journal of Social Policy*, **18**, 307-335 (1989).

Wilkinson in 1986 considered four relationships between income change and mortality change; in the first three: i) he found some evidence of an inverse association between changes in occupational income and age-specific death rates; ii) the changing real value of old age pensions and mortality of the elderly had strong correlations that he considered lent support to a causal relationship, and, iii) the contrary indicator, a narrowing of post-neonatal mortality in the 1970s, he argues, corresponds to a narrowing of female earnings and so the household environment after birth. In a fourth case he showed the cross-sectional relationship between earnings and Standardised Mortality Ratio as slightly curvilinear, Figure 10.<sup>1</sup>

**Figure 10 Income (1970) and Standardised Mortality Ratio, curvilinear?**



Source: Wilkinson 1986<sup>2</sup>

Lynch showed a linear, dose-response relationship between mortality and exposure to low income in the Alameda County Longitudinal Study.<sup>3,4</sup> This was also confirmed for non-occupational income, to remove confounders with occupation. Until 1986 most of the explanations, both for inequality and widening inequality in mortality focussed on characteristics of individuals, including aggregates of individuals, by occupation and by income. However in his 1986 article Wilkinson credits Mildred Blaxter with drawing his attention to the close association between the degree of income inequality and overall life expectancy or mortality of developed countries and says that this had a dramatic impact on research, which came to focus on the distribution of income, or relative income, rather than the absolute quantum.<sup>5</sup>

<sup>1</sup> Wilkinson, R.G., Income and mortality. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 88-114, Tavistock, London (1986).

<sup>2</sup> Ibid.

<sup>3</sup> This was measured by the number of times a person's income was below 200% of the poverty line.

<sup>4</sup> Lynch, J., Sustained economic hardship and physical, psychological, cognitive and social functioning after 29 years follow up in the Alameda County study, *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997).

<sup>5</sup> Wilkinson, R.G., Income and mortality. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 88-114, Tavistock, London (1986).

Inequality literature since then has been gripped by a debate about absolute material circumstances versus relative material circumstances. The absolute position is that successive increments in material circumstances buy successive increments in health, where relativists argue that it is one's relative material position in society that is important.

#### Income - relative

The argument for a relative materialist explanation for the social gradient in health is outlined in three steps:

a) McKeown demonstrated that declines in mortality, or gains in life expectancy ( $e_x^0$ ) occurred well in advance of medical advances, and he favoured 'a general rise in living standards' as the explanation.<sup>1,2</sup> McKeown's argument about the lack of importance of medical care is accepted in general for mortality, but his explanation for gains in  $e_x^0$  is an absolute material one and is contested. The relationship between life expectancy at birth ( $e_0^0$ ) and Gross National Product per capita (GNPpc) is curvilinear for a plot of countries at a given time, see Figure 11. Preston is the earliest reference for this shape but others have shown it.<sup>3</sup> Preston concluded that 'factors exogenous to a country's current level of income probably account for 75-90% of the growth in life expectancy for the world as a whole between the 1930s and the 1960s'.<sup>4,5</sup> Wilkinson argues that GNPpc ceases to be an important determinant of national mortality only among developed countries; few countries achieve a life expectancy at birth of 70 years until GNPpc reaches 'a threshold' of \$US5,000 (1992).<sup>6</sup> The lack of a relationship between life expectancy and GNPpc above the threshold is not consistent with McKeown's thesis of a general rise in living standards- for developed countries. The GNPpc/ $e_0^0$  relationship is represented by the schematic line in Figure 11.

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<sup>1</sup>  $e_x^0$  is the expectation of life at exact age x and is used here for the general term. Life expectancy at birth is  $e_0^0$ , (x=0)

<sup>2</sup> McKeown, T., *The modern rise of population*, Academic Press, New York (1976).

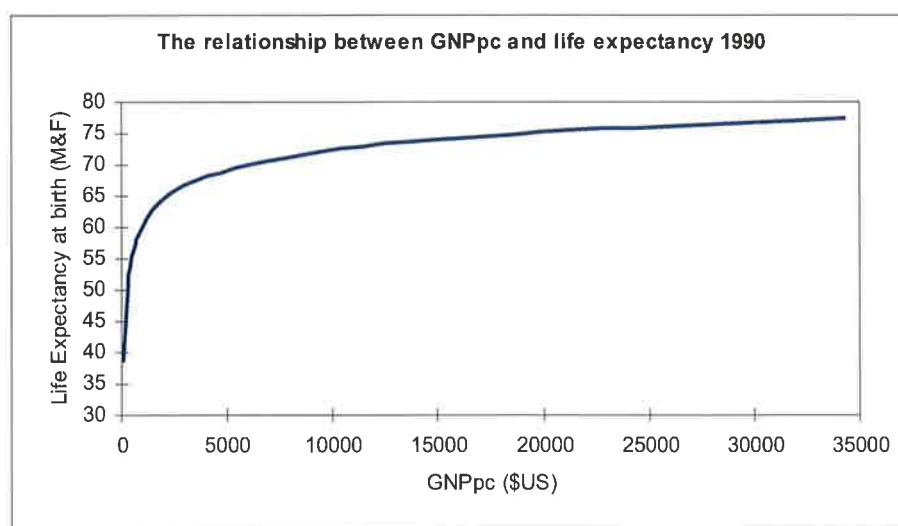
<sup>3</sup> Preston, S.H., Mortality Patterns in National Populations with special reference to recorded causes of death. In: H.H. Winsborough (ed.), *Studies in Population*, pp. 201, NY Academic Press, London (1976).

<sup>4</sup> Ibid.

<sup>5</sup> Up to 50% for developing countries and up to 88% for developed countries.

<sup>6</sup> Wilkinson, R.G., Income distribution and life expectancy. *British Medical Journal*, **304**, 165-168 (1992).

Figure 11 The relationship between GNPpc and life expectancy across nations.



Source: My schematic based on Preston 1976.<sup>1</sup>

Individual countries form a scatter plot around this schematic, which shows that national life expectancy rises steeply with small increases in GNPpc at low absolute levels, but much less with increments at higher absolute levels.<sup>2</sup> The point where the curve begins to level out roughly corresponds to the point of epidemiological transition, where so-called ‘diseases of affluence’ in developed countries become more important to mortality than infectious diseases. The curve looks asymptotic, which fits with absolute materialist explanations of diminishing returns, if true for individuals as well as countries. This has been the subject of many articles in the demographic literature, expressed in (absolute) materialist terms,<sup>3,4</sup> and in the socioeconomic literature.<sup>5</sup>

b) Over time, however, nations do not move along a fixed curve with changes in GNPpc as predicted by a diminishing returns model. Rather, while the shape of the curve tends to stay the same, it translates up and to the left, so all countries have shifted to higher curves over time (rationalised by qualitative/ technological change). This is contrary to absolute-materialist explanations because the gains in  $e_0^0$  over time are not a result of nations moving *along* a given curve as national

<sup>1</sup> Preston, S.H., Mortality Patterns in National Populations with special reference to recorded causes of death. In: H.H. Winsborough (ed.), *Studies in Population*, pp. 201, NY Academic Press, London (1976).

<sup>2</sup> See for example Wilkinson 1996 in Blane Bartley eds Wilkinson, R.G., How can secular improvements in life expectancy be explained? In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 109-124, Routledge, London (1996). Most refer back to Preston 1976 Preston, S.H., Mortality Patterns in National Populations with special reference to recorded causes of death. In: H.H. Winsborough (ed.), *Studies in Population*, pp. 201, NY Academic Press, London (1976).

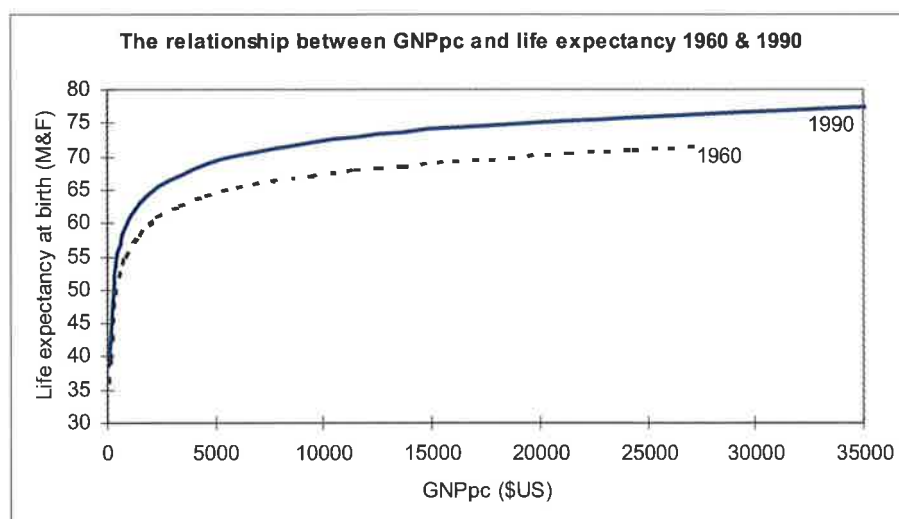
<sup>3</sup> Preston, S.H., The changing relation between mortality and level of economic development. *Population Studies*, **29**, 231-48 (1975).

<sup>4</sup> Rodgers, G.B., Income and inequality as determinants of mortality: an international cross-section analysis. *Ibid.*, **33**, 343-51 (1979).

<sup>5</sup> Silber, J., On measuring the effect of income on mortality., *Socioeconomic Determinants and Consequences of Mortality*, pp. 423-452, United Nations & World Health Organization, Mexico (1979).

income rises; the gains are as great or greater for higher income nations as they are for poorer ones.

**Figure 12 GNPpc and life expectancy over time**



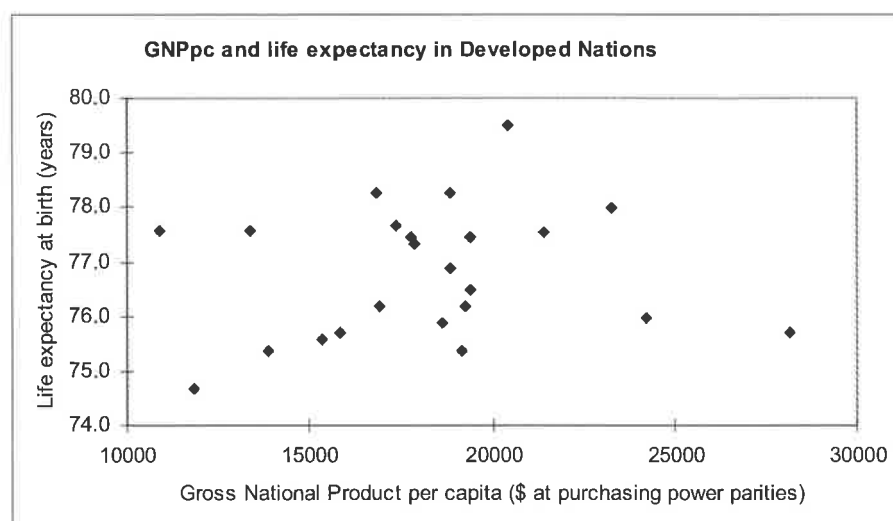
Source: Wilkinson 1989.<sup>1</sup>

c) Amongst developed countries only, where more of the economy is monetarised and more fully documented, and therefore better measured, there is no apparent relationship between GNPpc and  $e_0^0$ , shown in Figure 13. Similarly for the twenty years from 1970-1990 there is only very weak support for a relationship between increases in GNPpc at purchasing power parities and increases in  $e_0^0$  ( $r=0.3$ , ns).<sup>2</sup> This is consistent with GNPpc being a poor absolute predictor of the improvement in life expectancy.

<sup>1</sup> Wilkinson, R.G., Class Mortality Differentials, Income Distribution and Trends in Poverty 1921 - 1981. *Journal of Social Policy*, **18**, 307-335 (1989).

<sup>2</sup> Wilkinson, R.G., How can secular improvements in life expectancy be explained? In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 109-124, Routledge, London (1996).

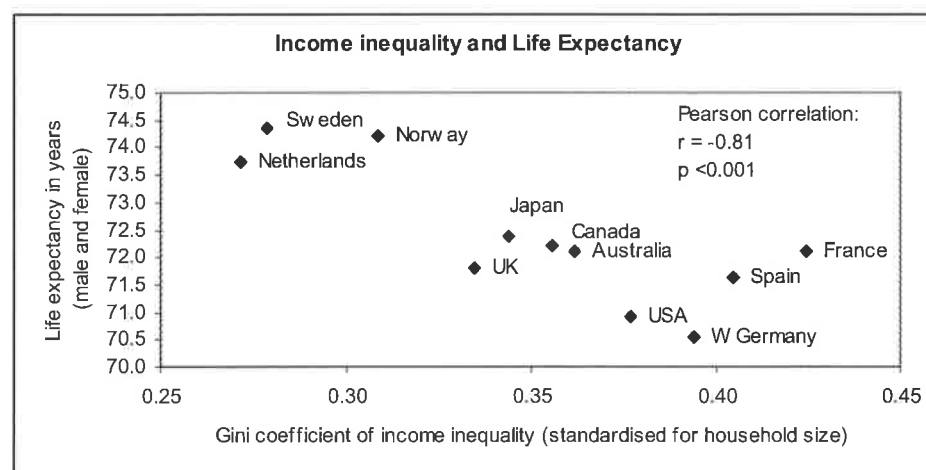
Figure 13 GNPpc and life expectancy 1990, developed countries



Source: Wilkinson 1992.<sup>1</sup>

The weak relationship of life expectancy with (comparable) income in developed countries is however replaced by a strong relationship when the *distribution* of income within the country is the independent variable, that is, the relative income. This appeared in a book by Wilkinson 1986 in the form at Figure 14 and in the *British Medical Journal* 1992 with the abscissa replaced by 'the percentage of income received by the least well-off 70% of families, 1981'.<sup>2,3</sup>

Figure 14 Life expectancy (male and female) and Gini coefficients of post-tax income inequality c1981.



Source: Wilkinson 1986 Fig 6.3.<sup>4</sup>

<sup>1</sup> Wilkinson, R.G., Income distribution and life expectancy. *British Medical Journal*, **304**, 165-168 (1992).

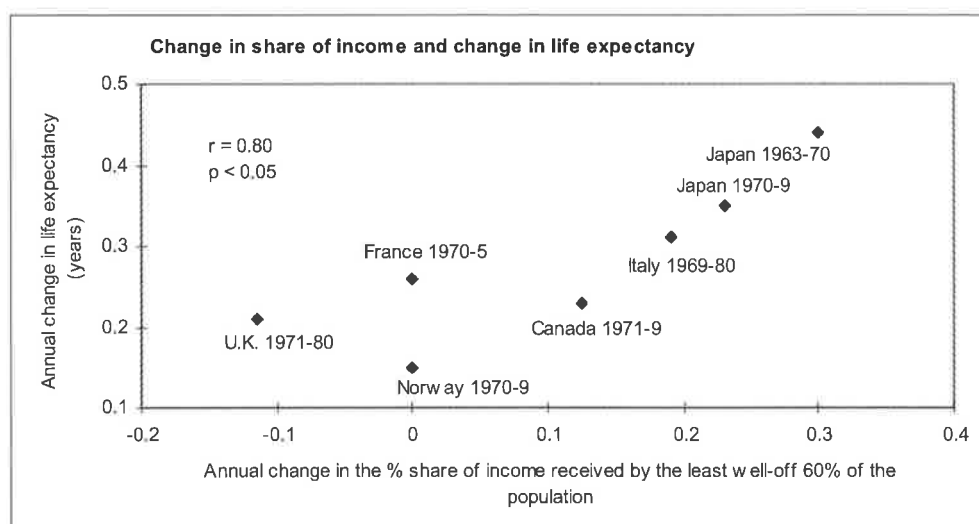
<sup>2</sup> Wilkinson, R.G., Income and mortality. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 88-114, Tavistock, London (1986).

<sup>3</sup> Wilkinson, R.G., Income distribution and life expectancy. *British Medical Journal*, **304**, 165-168 (1992).

<sup>4</sup> Wilkinson, R.G., Income and mortality. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 88-114, Tavistock, London (1986). See footnote on page 84 for a description of the Gini coefficient.

Similarly Wilkinson showed, in 1992, Figure 15, the *change* (improvement) in life expectancy is associated with the *change* (improvement = more equal) in distribution (relative income) to lower incomes.<sup>1</sup>

**Figure 15 Annual change in (both) life expectancy and percentage of income received by least well off 60% of population.**



Source: Wilkinson 1992.<sup>2</sup>

The poor relationship with life expectancy of both national income and national income over time, compared with the strong relationship, with  $e_0^0$ , of national inequality and changes in national inequality, is sufficient to provoke consideration of inequality as a determinant of health (life expectancy). After 1992 the closely related material explanations begin to diverge into materialist (absolute) and psychosocial (relative material) forms. The latter formulation is associated with Wilkinson's thesis in 1996.<sup>3</sup> The materialist (absolute) position assumes that a curved relationship between income and life expectancy is fixed for individuals and refutes psychosocial explanations on grounds that, if the true relationship of income to mortality is curved, it produces the relative relationship artefactually.<sup>4,5</sup> However, the curved, 'diminishing return' relationship is not widely found empirically.<sup>6</sup> Almost all studies show a stepwise gradient of health with income for individuals. Even if true, one would expect the strength of the relationship, between income and life expectancy, of a portion of the population to increase as that

<sup>1</sup> Wilkinson, R.G., Income distribution and life expectancy. *British Medical Journal*, **304**, 165-168 (1992).

<sup>2</sup> Ibid.

<sup>3</sup> Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).

<sup>4</sup> Rodgers, G.B., Income and inequality as determinants of mortality: an international cross-section analysis. *Population Studies*, **33**, 343-51 (1979).

<sup>5</sup> Gravelle, H., How much of the relation between population mortality and unequal distribution of income is a statistical artefact? *BMJ*, **316**, 382-5 (1998).

<sup>6</sup> Other than, ironically, to a small extent in Wilkinson's 1970 graph at Figure 10

portion moved closer to the poorer end of the distribution, but, as Wilkinson notes, this is not the case; the strongest relationship was with the least well off 60% of population, shown above in Figure 15.

Wilkinson made a case for the plausibility of changes in relative income by examining the UK mortality experience decade by decade from 1921 to 1981.<sup>1</sup> Some features of that analysis were the relative increase in welfare payments in the 1920s, narrowing of inequality in each of the two world wars and the impact of improved circumstances for women on infant mortality. A number of subsequent studies looked at income distribution and health within countries. In the United States widening mortality between socioeconomic groups in the period between 1960 and 1986 has been demonstrated, by Pappas, using matched data, in the United States.<sup>2</sup> This occurred during a period when male income distribution was widening.<sup>3</sup>

Kaplan, Lynch and Pamuk examined the relation between health outcomes and the equality with which income is distributed in the United States, for the 50 states in 1980 and 1990.<sup>4</sup> There was a significant correlation ( $r = 0.62$ ,  $P < 0.001$ ) between the percentage of total household income received by the less well off 50% in each state and all cause mortality, unaffected by adjustment for state median incomes. Income inequality was also significantly associated with age specific mortalities and rates of low birth weight, homicide, violent crime, work disability, expenditures on medical care and police protection, smoking, and sedentary activity. Rates of: unemployment, imprisonment, recipients of income assistance and food stamps, lack of medical insurance, and educational outcomes, were also worse as income inequality increased. They concluded that variations between states in the inequality of the distribution of income are significantly associated with variations between states in a large number of health outcomes and social indicators and with mortality trends.

Kennedy, Kawachi et al found cross-sectional associations at the state level between a measure of inequality and infant mortality ( $P = 0.013$ ); coronary heart disease ( $P = 0.004$ ); malignant neoplasms ( $P = 0.023$ ); and homicide ( $P < 0.001$ ).<sup>5,1</sup> Variations between states in the inequality of income were associated with

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<sup>1</sup> Wilkinson, R.G., Class Mortality Differentials, Income Distribution and Trends in Poverty 1921 - 1981. *Journal of Social Policy*, **18**, 307-335 (1989).

<sup>2</sup> Pappas, G., Queen, S., Hadden, W. and Fisher, G., The increasing disparity in mortality between socioeconomic groups in the U.S., 1960-1986. *New England Journal Of Medicine*, **329**, 103-09 (1993).

<sup>3</sup> Burtless, G., Work, Poorest Workers are Losing Out. *The Futurist*, **28**, 57-59 (1994).

<sup>4</sup> Kaplan, G.A., Pamuk, E.R., Lynch, J.W., Cohen, R.D. and Balfour, J.L., Inequality in income and mortality in the United States: analysis of mortality and potential pathways. *Bmj*, **312**, 999-1003 (1996).

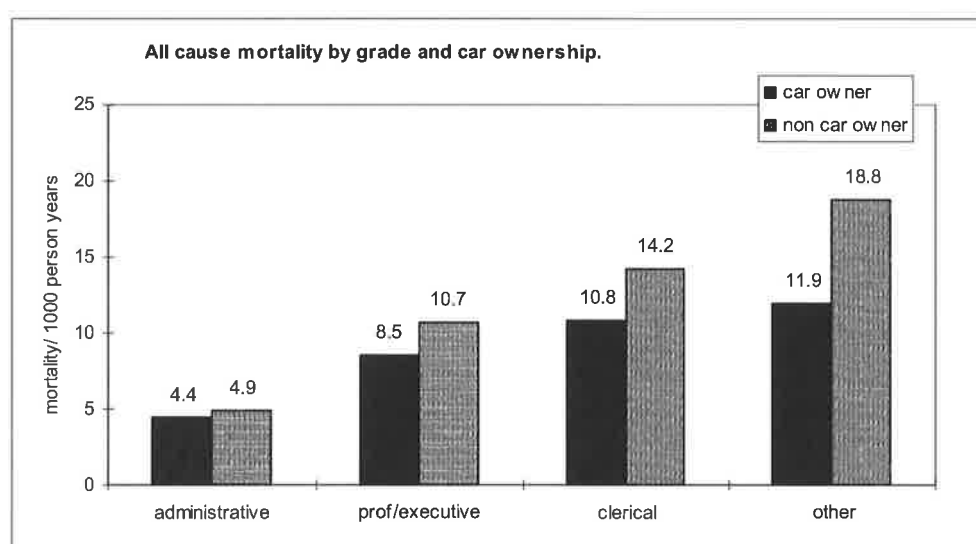
<sup>5</sup> In this case, the Robin Hood Index, the proportion of aggregate income that needs to be redistributed from the rich to the poor so as to achieve equality of incomes.

increased mortality from several causes. They concluded that the size of the gap between the wealthy and less well off, as distinct from the absolute standard of living enjoyed by the poor, seems to matter in its own right.

### Materialist - non-income

The principal materialist explanation is of the relation between income and health.<sup>2</sup> The materialist explanation, however, does not solely rely on income; other measures reveal relationships between material circumstances and health, independent of income. Car ownership, use of a garden and housing tenure are separately related to lower mortality within grades, for individuals in the Whitehall study, where the principal finding was an inverse gradient in mortality by grade of employment, see Figure 16 and Figure 17.<sup>3</sup>

**Figure 16 Whitehall, all cause mortality by grade and car ownership.**



Source: Davey-Smith, G 1994.<sup>4</sup>

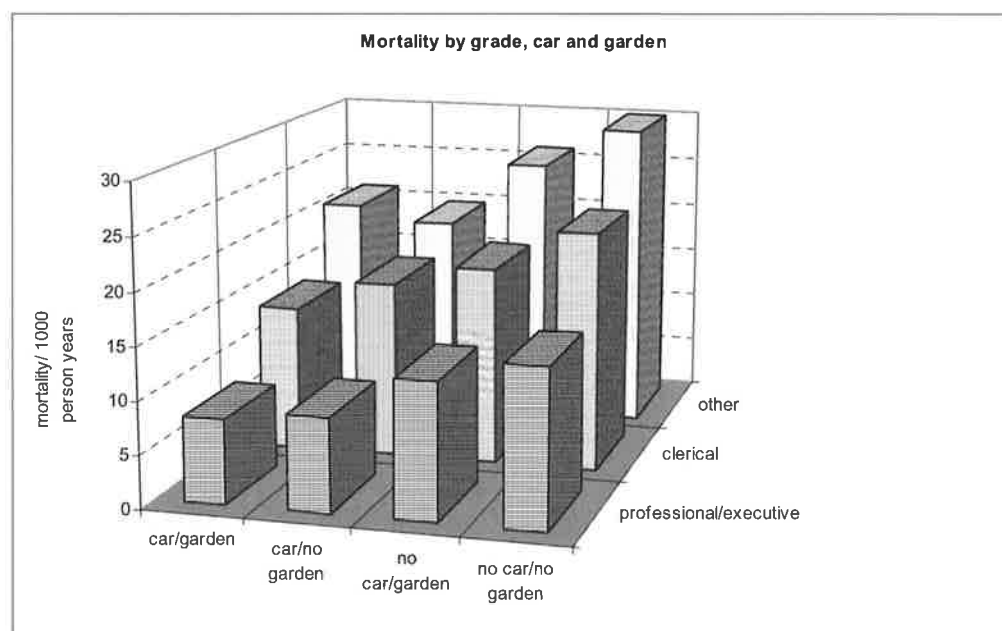
<sup>1</sup> Kennedy, B.P., Kawachi, I. and Prothrow-Stith, D., Income distribution and mortality: cross sectional ecological study of the Robin Hood index in the United States. *British Medical Journal*, **312**, 1004-7 (1996).

<sup>2</sup> See page 33 for Townsend's definition of income.

<sup>3</sup> Davey Smith, G., Blane, D. and Bartley, M., Explanations for socio-economic differentials in mortality. In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 105-146, Waxmann Publishing Company, Münster; New York (1994).

<sup>4</sup> Ibid.

Figure 17 Whitehall Mortality by grade, car and garden.



Source: Davey-Smith, G 1994.<sup>1</sup>

Other studies have also shown material relationships not relying solely on income. At the local authority level, Ben-Shlomo, White and Marmot aggregated 8464 wards into 369 local authorities and found a strong relationship between deprivation and mortality, using Townsend's index.<sup>2,3</sup> At the neighbourhood level, in Scotland, mortality differentials widened between the most affluent and deprived fifths of wards in all age categories under 75 years for the aggregated, individual variables of unemployment, car ownership, housing tenure and household overcrowding.<sup>4</sup> Similarly, an index of deprivation was associated with widening mortality in Scotland, attributed to increases in suicide.<sup>5,6</sup> The potential for spurious correlations for inequality to reflect individual circumstances was rejected by Ben Shlomo, and Lynch argues that adjusting for individual circumstances is wrong, as the same forces that produce mortality in area-based studies, produce it in

<sup>1</sup> Ibid.

<sup>2</sup> The Townsend Index has four variables for households: the percentage (%) of economically active in the household who are unemployed, the % with more than 1 per room, the % not owning a car, and the % not owner occupiers.

<sup>3</sup> Ben-Shlomo, Y., White, I.R. and Marmot, M., Does the variation in the socioeconomic characteristics of an area affect mortality? *British Medical Journal*, **312**, 1013-4 (1996).

<sup>4</sup> Phillimore, P., Beattie, A. and Townsend, P., Widening inequality of health in northern England, 1981-91. *Ibid.*, **308**, 1125-1128 (1994).

<sup>5</sup> This was the Carstairs Deprivation Index, used for individuals and unemployed men as distinct from households with the Townsend Index.

<sup>6</sup> McLoone, P. and Boddy, F.A., Deprivation and Mortality in Scotland, 1981 and 1991. *British Medical Journal*, **309**, 1465-70 (1994).

individuals according to the relative materialist argument.<sup>1</sup> Ecological fallacy associations were rejected.<sup>2,3</sup>

Kawachi and Kennedy found the spatial concentration of poverty in the US 1970-90 has increased sharply, that is, the proportion of people in poverty living in non-poor (<20% poverty) neighbourhoods declined from 45% to 31%.<sup>4</sup> This is a double burden; not only do the poor have to grapple with their own problems, they have the social effects of living in areas where their neighbours are poor, described as the 'concentration effect of cumulative disadvantage'. Kawachi and Kennedy found affluence (income > four times the poverty income) is even more concentrated; the typical affluent family lives in a neighbourhood where more than half the neighbours are also affluent, with better equipped public schools, higher quality public amenities, and more generous municipal services. The children mix with other successful children, ensuring the social reproduction of material and cultural advantage.

A review of studies on the relationship between area and health found that characteristics of the areas themselves had only rarely been examined.<sup>5</sup> The subsequent study compared two areas, in Scotland, suggesting that individuals with more personal resources such as access to a car, could avail themselves of opportunities outside the immediate neighbourhood.<sup>6</sup> Similar studies in Australia

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<sup>1</sup> For example Fiscella found community income inequality showed a significant association with subsequent community mortality, and with individual mortality after adjustment for age, sex, and mean income in the community of residence. After adjustment for individual household income, however, the association with mortality was lost, see Fiscella, K. and Franks, P., Poverty or income inequality as predictor of mortality: longitudinal cohort study. *BMJ*, **314**, 1724-7 (1997). He concluded, family income, but not community income inequality, independently predicts mortality. So, do ecological associations between income inequality and mortality represent confounding between individual family income and mortality- not if the same factors or forces produce both relationships.

<sup>2</sup> The ecological fallacy is that the association at the group level does not apply at the individual level, see Beaglehole, R., Bonita, R. and Kjellström, T., *Basic epidemiology*, p. 176, World Health Organisation (1993). For limitations of correlation studies, such as that link between the average exposure in the population and the individual exposure is unable to be established, see Hennekens p17,103, or Elwood p180.

Elwood, J.M., *Causal relationships in medicine; a practical system for critical appraisal*, 1992 ed., p. 332, Oxford University Press, Oxford (1988).

Hennekens, C.H. and J.E., B., *Epidemiology in Medicine*, First ed., p. 383, Little, Brown and Company Boston/Toronto (1987). None of these texts however makes a distinction between variables that are aggregated individual characteristics and those that are 'correctly' ecological', that is, not characteristics of individuals, such as income or material inequality.

<sup>3</sup> Blane, D., White, I. and Morris, J., Education, social circumstances and mortality. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 171-187, Routledge, London (1996).

Lynch, J., Sustained economic hardship and physical, psychological, cognitive and social functioning after 29 years follow up in the Alameda County study, *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997).

MacRae, K., Socioeconomic deprivation and health and the ecological fallacy. *British Medical Journal*, **309**, 1478-79 (1994).

<sup>4</sup> Kawachi, I. and Kennedy, B.P., Health and social cohesion: why care about income inequality? *British Medical Journal*, **314**, 1037-40 (1997).

<sup>5</sup> MacIntyre, S., MacIver, S. and Sooman, A., Area, class and health: should we be focussing on places or people? *Journal of Social Policy*, **22**, 213-234 (1993).

<sup>6</sup> They suggested five socio-environmental aspects of the physical, social and cultural environment that might promote or damage health: 1. Physical features shared by all residents in a locality. 2. The availability of healthy/unhealthy environments at home, at work, and at play: housing, secure work, nutrition, recreation. 3. Services provided, privately or publicly to support people in their daily lives. education, transport, policing, community orgs. 4. Socio-cultural features of a neighbourhood. :political, economic, ethnic, religious history community integration, crime. 5. The reputation of a neighbourhood, how it is perceived, who moves in and out.

show wide differences in housing, housing density, work, and ghettoisation, interpreted as the environment producing multiple risk behaviours.<sup>1</sup>

#### Relative versus absolute material

One of the key differences between absolute material and relative material explanations for the social gradient in health is the time over which they act. Absolute explanations are associated with long term effects, whereas relative material explanations include short-term health impacts. The relative material position is that long-term effects increase a population's sensitivity to short term changes.<sup>2</sup>

Bartley, Blane and Montgomery argue a life course model, where there are critical periods in which social policies defend individuals against an accumulation of risk.<sup>3</sup> They argue that most of the prevalent environmental hazards do their damage slowly and that social distribution is too finely graded to be produced solely by short-term factors. Similarly, Wadsworth discusses a notion of 'health capital' in which he suggests the social circumstances of the mother affect the development of the foetus, as Bartley argues, and then a combination of the circumstances of that cohort, in time and social capital, interact with biological capital, as Barker argues, via education, family life and occupation.<sup>4</sup> The health capital approach is thus linked with those who regard socioeconomic circumstances as having effects on individuals that only manifest in the long term, drawing a distinction between them and others who consider the relative position has additional short term impacts.

However, Wilkinson shows that mortality is responsive in the short term to changes in relative material circumstances. Psychosocial explanations lend support to this notion.

#### *Psychosocial*

Psychosocial explanations for the health gradient overlap relative materialist explanations.<sup>5</sup> The explanation places the individual in the context of hierarchical social relations, for which material measures are good markers. The Whitehall studies are an illustration in a workplace setting. In Whitehall a combination of

<sup>1</sup> Najman, J., The contribution of social, environmental, lifestyle and biological factors to inequalities in health, and public health strategies for the reduction of these inequalities, *Social Disadvantage and Health*, Queensland University of Technology-Brisbane (1997).

<sup>2</sup> Wilkinson, R.G., Long term effects of deprivation increase health's sensitivity to current policies. *BMJ*, **317**, 413 (1998).

<sup>3</sup> Bartley, M., Blane, D. and Montgomery, S., Health and the life course, why safety nets matter. *British Medical Journal*, **314**, 1194-6 (1997).

<sup>4</sup> Wadsworth, M., Family and education as determinants of health. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 152-170, Routledge, London (1996).

<sup>5</sup> Note the term 'psychosocial' had not warranted a separate entry in the Social Science Encyclopaedia 1985 or the Concise Oxford Dictionary of Sociology 1994 (except as opposed to psychosomatic) but see JonesJones, E.E., Social Psychology. In: A. Kuper and J. Kuper (eds.), *The Social Science Encyclopedia*, pp. 780-3, Routledge & Kegan Paul, London (1985)., Social Psychology in Kuper and Kuper eds, where the term in the sense used here is closer to the experiences of people in group settings ( the European school) than individual interactions (the American school)

individual risk factors only accounted for a quarter of the mortality gradient, so at least half the gradient in health has a pathway from social and material sources to morbidity and mortality. Note that the principal researcher, Marmot's, position is materialist and cumulative, favouring cumulative increased susceptibility to disease.<sup>1</sup> Others increasingly research psychosocial aspects of work including terms such as job strain, job demands, and decision latitude.<sup>2,3,4</sup> Bartley et al used longitudinal data to show that insecurity at age 23 predicts health at age 33 and refer to other research that shows early adult health is in turn related to unfavourable early family circumstances and associated deficits in physical growth, psychological development and educational attainment.<sup>5,6</sup> Similarly the strong ecological relationships of low mortality in the most egalitarian countries,<sup>7</sup> between states in the USA,<sup>8</sup> and between wards in Scotland,<sup>9</sup> is evidence for psychosocial forces at work in social relations outside the workplace.

For a pivotal issue of time- the time scale over which explanations have effect - psychosocial explanations hold that the health effects of a change in relative position may be contemporaneous, that there is little or no lag. Wilkinson says:

... national age and disease specific death rates reveal clear evidence of powerful cross sectional influences. Unrelated causes of death, and death rates in quite different age groups, show simultaneous ups and downs.<sup>10</sup>

Earlier research had identified similar time trends in mortality in specific areas; there was an international deceleration of infant mortality in the early 1950s, and again in the 1970s. The effect in the US was rationalised to Federal funding of maternal and child health, expansion of income-support and housing to poor

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<sup>1</sup> Marmot, M., The social pattern of health and disease. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 42-70, Routledge, London (1996).

<sup>2</sup> Karasek, R.A., Baker, D., Marxer, F., Ahlbom, A. and Theorell, T., Job decision latitude, job demands and cardiovascular disease: a prospective study of Swedish men. *Am. J. Public Health*, **71**, 694-705 (1981).

<sup>3</sup> Karasek, R.A., Job decision latitude, and mental strain: implications for job redesign. *Adm. Science Quart.*, **24**, 285-307 (1979).

<sup>4</sup> Hallqvist, J., Diderichsen, F., Theorell, T., Reuterwall, C., Ahlbom, A. and SHEEP Study Group, Is the effect of job strain on myocardial infarction risk due to interaction between high psychological demands and low decision latitude? Results from Stockholm heart epidemiology program (SHEEP). *Social Science and Medicine*, **46**, 1404-15 (1998).

<sup>5</sup> Bartley refers to the UK ESRC's Social Change and Economic Life Initiative (SCELI) , which examined work histories in six discrete geographical areas chosen to represent different economic patterns during the 1980s recession to develop models for her research.

<sup>6</sup> Bartley, M., Montgomery, S., Cook, D. and Wadsworth, M., Health and work insecurity in young men. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 255-271, Routledge, London (1996).

<sup>7</sup> Wilkinson, R.G., Income and mortality. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 88-114, Tavistock, London (1986).

<sup>8</sup> Kaplan, G.A., Pamuk, E.R., Lynch, J.W., Cohen, R.D. and Balfour, J.L., Inequality in income and mortality in the United States: analysis of mortality and potential pathways. *Bmj*, **312**, 999-1003 (1996).

Kennedy, B.P., Kawachi, I. and Prothrow-Stith, D., Income distribution and mortality: cross sectional ecological study of the Robin Hood index in the United States. *British Medical Journal*, **312**, 1004-7 (1996).

<sup>9</sup> McLoone, P. and Boddy, F.A., Deprivation and Mortality in Scotland, 1981 and 1991. *British Medical Journal*, **309**, 1465-70 (1994).

<sup>10</sup> Wilkinson, R.G., Class Mortality Differentials, Income Distribution and Trends in Poverty 1921 - 1981. *Journal of Social Policy*, **18**, 307-335 (1989).

families.<sup>1</sup> As noted above, Wilkinson in 1986 found relationships between relative changes in income and changes in death rates, and relative real value of old age pensions and mortality of the elderly.<sup>2</sup>

In 1989, in a longer article in the social policy literature, Wilkinson argued the plausibility of the relative material argument by tracing mortality changes in England and Wales by decade from 1921 to 1981, observing a consistency in movements in relative poverty and changes in class differences in mortality during 60 years 1921 to 1981. He concluded that 'changes in the extent of relative poverty have had a major impact on the scale of social class differences in health'.<sup>3</sup>

Wilkinson argues the GNPpc and life expectancy curve, Figure 12, does not apply by class. Given this curve one would expect increases in GNPpc to mean all people move along the curve, with greatest gains for the poorest but, instead, the curve moves upward, enabling richer people to reduce their death rates further than previously, while poorer ones have to pay more to keep themselves off the steeply rising part of the curve.<sup>4</sup> The materialist explanation would be that this is the cost of taking advantage of the changing material infrastructure in the country but Wilkinson argues that it is as likely to be a reflection of the psychosocial implications of relative poverty.

A 'natural experiment' in Central and Eastern Europe showed that every Warsaw pact country post-1989 saw real wages decline, and, by 1993, death rates had risen dramatically in all but Hungary.<sup>5</sup> This could not be predicted by explanations that socioeconomic influences have decades-long latent periods, or by behavioural explanations, which are also long-term. Many recent articles refer to psychosocial effects including rising crime, violence, homicide and suicide.<sup>6,7</sup> Using research in the industrial setting one writer suggested how this would work:

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<sup>1</sup> Moriyama, I.M., Public health uses of mortality data, *Socioeconomic Determinants and Consequences of Mortality*, pp. 8-25, United Nations & World Health Organization, Mexico (1979).

<sup>2</sup> Wilkinson, R.G., Income and mortality. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 88-114, Tavistock, London (1986).

<sup>3</sup> Wilkinson, R.G., Class Mortality Differentials, Income Distribution and Trends in Poverty 1921 - 1981. *Journal of Social Policy*, **18**, 307-335 (1989).

<sup>4</sup> Ibid.

<sup>5</sup> Hertzman, C., What's been said and what's been hid: population health, global consumption and the role of national health data systems. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 94-108, Routledge, London (1996).

<sup>6</sup> Roberts, H., Children, inequalities and health. *British Medical Journal*, **314**, 1122-5 (1997).

<sup>7</sup> Wilson, M. and Daly, M., Life expectancy, economic inequality, homicide, and reproductive timing in Chicago neighbourhoods. *Ibid.*, 1271-4.

... a general element of person's way of life is the satisfaction of needs that can only be understood in relation to others, and socially determined needs are first formed in the way-of-life of the highest class. From there they spread or are imposed downwards along the social hierarchy against a gradient of diminishing resources. People in each lower class are therefore in a state of increasing relative deprivation, having to make tension-inducing choices between aspects of the new set of needs.<sup>1</sup>

Note that this last explanation need not have a time dimension, and also note that the researcher's premise shifted during the course of research, as did Marmot's in Whitehall I.<sup>2</sup>

#### Discussion - Psychosocial- relative materialist.

Wilkinson's thesis gives a stronger role to relative social and material position than to absolute position.<sup>3</sup> It is supported by macro-scale ecological studies of cross-sectional and longitudinal relationships that are difficult to separate from other social forces. Nevertheless the strength of the relationships is intriguing. Wilkinson's thesis is also supported by natural experiments at the population level and the dilemma's arising from the Whitehall study at the individual level. Davey Smith argues that the wide range of gradients across disease- specific causes of mortality in Whitehall is evidence against a theory of general susceptibility.<sup>4</sup> An example within a cause of death is the range of rates across mortality from cancer, shown in Figure 18. The gradient is simplified to a ratio comparison in this figure, which compares the cancer rates of low employment grade in the Whitehall study to high employment grade. It can be seen that for prostate cancer and melanoma, low-grade employees have lower rates, where, for lung and liver cancer, the rates are higher. A general susceptibility model would see the ratios being similar.

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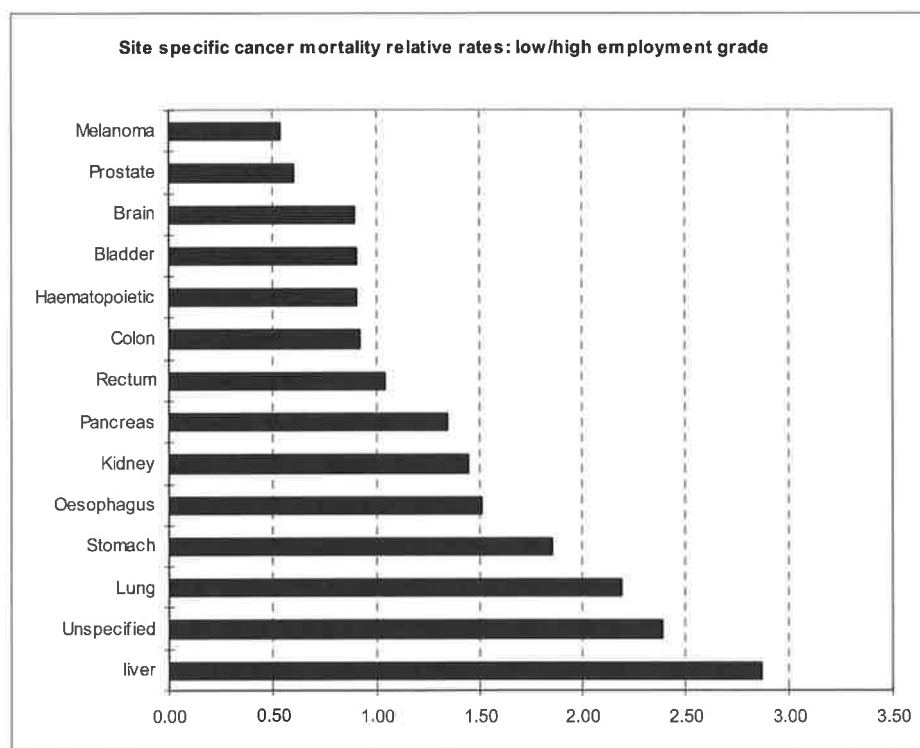
<sup>1</sup> Hasan, J., Growth, disease and length of life in a stratified society. In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 175-192, Waxmann Publishing Company, Münster; New York (1994).

<sup>2</sup> Hasan started his studies into stress (the Stress Symptoms Score), but, describing that approach as 'too meagre' prefers 'deprivation' or 'way-of-life' as an explanation for the social gradient in health.

<sup>3</sup> Wilkinson, R.G., Health inequalities: relative or absolute material standards? *British Medical Journal*, **314**, 591-5 (1997).

<sup>4</sup> Davey Smith, G., Blane, D. and Bartley, M., Explanations for socio-economic differentials in mortality. In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 105-146, Waxmann Publishing Company, Münster; New York (1994).

**Figure 18 The social gradient in health is differentiated by cause of death - an argument against general 'susceptibility'.**



Source: Davey Smith 1994.<sup>1</sup>

There is also some biological support from primate studies for the influences of social hierarchy on health, and Brunner proposes a model of how psychosocial forces might act to influence mortality in the physiology of individuals.<sup>2</sup> Perhaps as important is the lack of explanatory power of alternative explanations. The debate is quite intense, with some movement to the idea that both relative and absolute material explanations apply.

#### Explanations - mixed relative and absolute.

While it's probable that income distribution is a marker for some other process, it is still a valuable and measurable marker and is 'correctly ecological', that is, not an aggregate of individual characteristics.<sup>3</sup> Lynch and colleagues corroborated Wilkinson's international correlations at 0.6,<sup>4</sup> and looked at the neighbourhood level in the US for both absolute and relative income, illustrated schematically at Figure 19. They used a variety of inequality measures to show the deaths difference

<sup>1</sup> Ibid.

<sup>2</sup> Brunner, E., The social and biological basis of cardiovascular disease in office workers. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization: Towards a health policy for the twenty first century*, pp. 272-301, Routledge, London (1996).

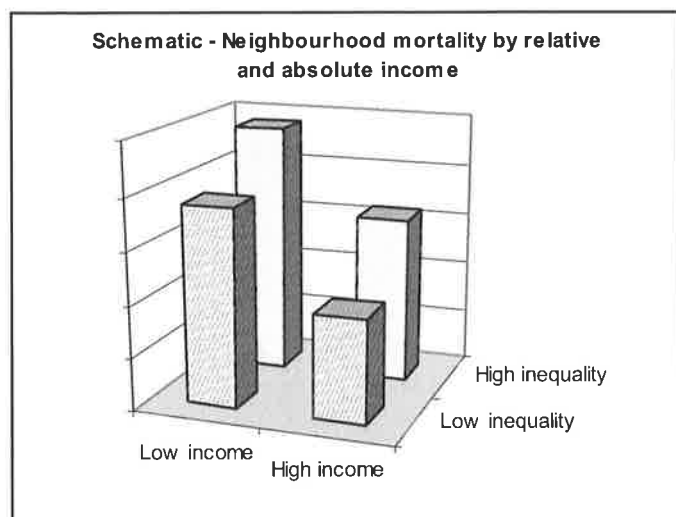
Brunner, E., Stress and the biology of inequality. *British Medical Journal*, **314**, 591-5 (1997).

<sup>3</sup> Lynch, J., Does it matter how rich are the rich and how poor are the poor? - Income inequality and health, *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997).

<sup>4</sup> c/f Wilkinson 0.8

from high inequality low income areas to low inequality high income equal to the combined total of death from causes of lung cancer, diabetes, motor vehicle crashes, HIV infection, suicide and homicide.

**Figure 19 Schematic of mortality by absolute and relative measures.**



Source: Based on Lynch 1997.<sup>1</sup>

Lynch used longitudinal data from the Alameda county study in the US to examine the reproduction of social disadvantage and concluded that sustained economic hardship leads to poorer physical, psychological, and cognitive functioning.<sup>2</sup> Similarly Lynch used longitudinal data from the Kuopio Ischaemic Heart Disease Risk Factor Study in Finland to examine the associations between measures of SES reflecting different stages of the life-course, health behaviours, and psychosocial characteristics in adulthood in a population-based study of 2674 middle-aged Finnish men. These studies overcome the problem of causal interpretation being hampered by contemporaneous observations that poor health, poor health behaviours and psychosocial characteristics cluster in low socioeconomic status (SES) groups.<sup>3</sup>

The finding by Lynch, that many adult behaviours detrimental to health are consistently related to poor childhood conditions, low levels of education, and blue-collar employment, is consistent with earlier speculation by others that it is the socioeconomic circumstances that produce the behaviour. Both the behaviour and the poor health are produced by the socioeconomic circumstances. Focussing on

<sup>1</sup> Lynch, J., Does it matter how rich are the rich and how poor are the poor?- Income inequality and health, *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997).

<sup>2</sup> Lynch, J., Sustained economic hardship and physical, psychological, cognitive and social functioning after 29 years follow up in the Alameda County study, *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997)., Lynch, J.W., Kaplan, G.A. and Shema, S.J., Cumulative Impact of Sustained Economic Hardship on Physical, Cognitive, Psychological, and Social Functioning. *The New England Journal of Medicine*, 337 (1997).

<sup>3</sup> Lynch, J.W., Kaplan, G.A. and Salonen, J.T., Why do poor people behave poorly? Variation in adult health behaviours and psychosocial characteristics by stages of the socioeconomic lifecourse. *Soc Sci Med*, 44, 809-19 (1997).

risk factors, treatment and behaviour change is not addressing the origins of poor health. Ironically, as if to reinforce this argument, researchers studying Type A behaviour in the US are now moving to investigate psychosocial characteristics, but still in an individualist, behavioural explanatory framework. A researcher interviewed on radio said that some former Type-A researchers were investigating hostility and cynical mistrust, noting that these clustered in low socioeconomic groups:

... what's beginning to emerge now is that these psychosocial risk factors like hostility, chronic anger, like depression, and like having fairly low levels of social support, or being socially isolated, ... tend to cluster in the same individuals, and especially do they tend to cluster in lower socioeconomic groups.<sup>1</sup>

The researcher's response, however, is not what materialist explanations suggest. Rather, an individualist behavioural intervention has been undertaken:

For the first time, the National Heart, Lung and Blood Institute is sponsoring a multi-centre trial in eight centres around the country, providing training in these cognitive skills..., of stress management training, ... with a large sample of over 3,000 patients who'll be randomised - half to the psychosocial intervention, half to usual care - to see if we can document once and for all in a way that will change the way heart attack patients are treated in this country, and hopefully around the world, forever, to get this kind of psychosocial intervention, to document the improvement in survival, the reduction in recurrence rates.<sup>2</sup>

The intervention is unlikely to work because it is not addressing the origins of the behaviour or the response and, to the small extent that it might work, it does not address the reproduction of behaviour in the next cohort experiencing the social stressors. Mixed material and relative material explanations seem much more likely to explain social gradients in health.

### *The Social environment*

Social associations with poor health similarly have overlaps with materialist explanations. Marmot and Syme found that men of Japanese ancestry living in the United States have rates of coronary heart disease intermediate between the low national rates in Japan and the high national rates in the US and that Japanese men in Hawaii have lower rates than those in California, indicating an influence of the environment in international migration.<sup>3</sup> The assumptions are that culture and genetics are constant and it is aspects of the environment that are impacting.<sup>1</sup> However, it is not clear which aspects are operating; they could be social, political or relative socioeconomic and psychosocial. Similarly, studies of migrant groups show a varied pattern. There is room for further research but there are some

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<sup>1</sup> Dr Redford Williams, Professor of Psychiatry and Director of the Behavioral Medicine Research Center at Duke University Medical Center in Durham, North Carolina, interviewed on the ABC health report- *Anger Kills*. First broadcast 7 April 1997. See <http://www.abc.net.au/rn/talks/8.30/helthrpt/index/hrChrono1997.htm>

<sup>2</sup> *ibid*

<sup>3</sup> Marmot, M.G. and Syme, S.L., Acculturation and coronary heart disease in Japanese-Americans. *American Journal of Epidemiology*, **104**, 225-247 (1976).  
Syme, S.L., Marmot, M.G., Kagan, H. and Rhoads, G., Epidemiologic studies of CHD and stroke in Japanese men living in Japan, Hawaii and California. *American Journal of Epidemiology*, **102**, 477-480 (1975).

potential confounders with self-selection of migrants, differences in diagnosis, and the precision with which the different populations can be identified.

Some recent research in inequalities in health is focussing on social cohesion and the idea of social capital, described for example by Putnam as those 'features of social organisation, such as network, norms, and trust, which facilitate coordination and cooperation for mutual benefit'.<sup>2</sup> Putnam measured citizen participation in community to predict local government performance in responsiveness and efficiency.<sup>3</sup> Citizens in high social capital areas were more likely to trust their fellow citizens and to value solidarity, equality and tolerance. Putnam's focus was not health, but he found civic participation was a stronger predictor of infant mortality than prosperity, with a high correlation with income distribution.

However, whether social capital explains the social gradient in health is doubtful; the meaning of the term 'social capital', and like terms, is contested, the operation of social capital may be mixed and its relationship with the social gradient in health uncertain. For the meaning of social capital, the debate may be characterised in two camps, European and North American drawing upon, respectively, social stratification versus individual networks.<sup>4</sup> Putnam's definition, given as an example in the paragraph above, is American, concentrating on individual networks. For the operation or effect of social capital, it is possible to conceive of an individual member of a group drawing upon other member's resources, for a positive effect of (North American) social capital. However the aims of the group may well be antisocial and/ or exclusive. Hence any positive gains to individuals may be counterbalanced by negative social outcomes (European). It seems unlikely that social capital can explain the social gradient in health, given these difficulties and much more likely that measures of social capital mark underlying material resource positions.<sup>5</sup>

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<sup>1</sup> Moriyama, I.M., Public health uses of mortality data, *Socioeconomic Determinants and Consequences of Mortality*, pp. 8-25, United Nations & World Health Organization, Mexico (1979).

<sup>2</sup> Putnam, R.D., Leonardi, R. and Nanetti, R.Y., *Making democracy work: civic traditions in modern Italy*, Princeton University Press., Princeton (1993).

<sup>3</sup> Ibid.

<sup>4</sup> The two camps have their origins with Pierre Bourdieu, European (anthropological approach) and J.S Coleman, North American (writer on rational choice theory). For an accessible account of, and a reading list for, social capital see Pope (2000). Pope, J., *Social capital and Social capital indicators; a reading list*. Vol. 2000, National Public Health Partnership (2000). For a short historical account of tension between North American and European social theory, see Blackwell's Companion pages 15-16, and separate accounts of European social theory, pages 23-41 and American pages 41-4. The Companion did not have the term 'social capital' in its index in 1996, while containing numerous references to Bourdieu and, less so, to Coleman. Turner, B.S. (ed.), *The Blackwell Companion to Social Theory*, 2nd ed., Blackwell Publishers inc, Massachusetts (2000)..

<sup>5</sup> Another interpretation of social relationships could come from the sociological literature with the idea of the importance, or 'strength' of 'weak' social ties. 'Weak ties' are those through which society channels information support and social control; relations of occupation, common interest and neighbourliness beyond 'strong ties' of kinship, ethnicity or peer group which bind tightly and exclusively into equivalence classes. Strong ties cannot easily serve larger community purposes- hence 'the strength of weak ties' (Granovetter) in WallaceWallace, R. and Wallace, D., *Community marginalisation and the diffusion of disease and disorder in the United States*. *British Medical Journal*, **314**, 1341-5 (1997).

In an investigation of some measures of social capital Kawachi et al, after showing a relationship between income inequality and mortality in the US in 1996, noted that socially isolated individuals die at two or three times the rate of well-connected people but argued that focussing on the effect on individuals neglects the possibility that entire communities or societies might be lacking in social connections.<sup>1</sup> Kawachi and Kennedy hypothesised, in 1997, that income inequality is related to reduction in social cohesion and that disinvestment in social capital is in turn associated with increased mortality.<sup>2</sup> In a cross-sectional ecologic study based on data from 39 states in the US, they measured social capital by responses to two items from a survey: per capita density of membership in voluntary groups in each state and; level of social trust, as gauged by the proportion of residents in each state who believed that 'people could be trusted'. Income inequality was strongly correlated with both per capita group membership ( $r = -.46$ ) and lack of social trust ( $r = .76$ ). In turn, both social trust and group membership were associated with total mortality, as well as rates of death from coronary heart disease, malignant neoplasms, and infant mortality. They concluded that income inequality leads to increased mortality via disinvestment in social capital.

Kennedy et al. (including Kawachi) in 1998 hypothesised that the effect of the growing gap between the rich and poor is mediated through an undermining of social cohesion, or social capital, and that decreased social capital is in turn associated with increased firearm homicide and violent crime.<sup>1</sup> Using the survey above for 50 states they found income inequality was strongly correlated with firearm violent crime (firearm homicide,  $r = 0.76$ ) as well as the measures of social capital: per capita group membership ( $r = -0.40$ ) and lack of social trust ( $r = 0.73$ ). In turn, both social trust (firearm homicide,  $r = 0.83$ ) and group membership (firearm homicide,  $r = -0.49$ ) were associated with firearm violent crime. The relationships held when controlling for poverty and a proxy variable for access to firearms, arguing separately that the issue of access focuses attention on behaviour, neglecting broader factors. Note that the absolute measure, poverty, captured material deprivation. This is consistent with Wilkinson's argument that at lower levels of aggregation, individual, or absolute income will matter more to health than income inequality; it is only within larger geographic areas that the social heterogeneity, which is necessary for the effect of income inequality to occur, that one finds a relationship between income inequality and health. As Wilkinson

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<sup>1</sup> Kawachi, I. and Kennedy, B.P., Health and social cohesion: why care about income inequality? *Ibid.*, 1037-40., Kennedy, B.P., Kawachi, I. and Prothrow-Stith, D., Income distribution and mortality: cross sectional ecological study of the Robin Hood index in the United States. *British Medical Journal*, **312**, 1004-7 (1996).

<sup>2</sup> Kawachi, I., Kennedy, B.P., Lochner, K. and Prothrow-Stith, D., Social capital, income inequality, and mortality. *Am J Public Health*, **87**, 1491-8 (1997).

points out it is not the inequality within Harlem that matters to its residents' health, but rather the fact that so many are poor relative to the rest of the US.<sup>2</sup>

It seems likely that certain measures of social cohesion are affected by material circumstances, rather than the opposite.<sup>3</sup> The materialist effect could be at the individual level, that is, via increasing deprivation, and lack of personal and material resources to participate, and/ or at broader social scales, connecting with other social disciplines via relative materialist effects.

The pathway from social and psychosocial determinants to biological disease in individuals is one strand of current research. Brunner, for example, working with the Whitehall data, accepts the importance of socioeconomic factors as primary determinants of cardiovascular risk, and looks to understand the biological pathways.<sup>4</sup> His argument does not rely necessarily on a time scale and so does not distinguish between absolute and relative material explanations. He examined data from the Whitehall II study, which was designed with expanded biomedical and psychosocial measures of 10,308 civil servants. He suggests differences in carbohydrate metabolism may be involved in the inverse social gradient of cardiovascular risk, acted upon by endocrinal responses to stress. Tarlov speculates that when the expectations and reality of inequalities clash, the dissonance between what a person would like to do or become and what seems accomplishable trigger biological signals that are antecedent of chronic disease, and the strength of the signal varies by class.<sup>5</sup>

However, while an elaboration of biological pathways is important, and inevitable, the probable policy outcome of such an elaboration is the pharmacological treatment of individuals. This is likely to occur in much the same way as individualist behavioural interventions follow behavioural explanations for a social gradient in health, with all the same limitations discussed under the behavioural explanation, the main one being the lack of any impact on the reproduction of the social gradient in health. That is, if the cause is social, attention to individuals will be ameliorative rather than preventative.

<sup>1</sup> Kennedy, B.P., Kawachi, I., Prothrow-Stith, Lochner, K. and Gupta, V., Social capital, income inequality, and firearm violent crime. *Social Science and Medicine*, **47**, 7-17 (1998).

<sup>2</sup> Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).

<sup>3</sup> Kawachi, I., Kennedy, B.P., Lochner, K. and Prothrow-Stith, D., Social capital, income inequality, and mortality. *Am J Public Health*, **87**, 1491-8 (1997).

Kennedy, B.P., Kawachi, I., Prothrow-Stith, Lochner, K. and Gupta, V., Social capital, income inequality, and firearm violent crime. *Social Science and Medicine*, **47**, 7-17 (1998).

<sup>4</sup> Brunner, E., The social and biological basis of cardiovascular disease in office workers. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 272-301, Routledge, London (1996).

Brunner, E., Stress and the biology of inequality. *British Medical Journal*, **314**, 591-5 (1997).

<sup>5</sup> Tarlov, A.R., Social determinants of health: the sociobiological translation. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 71-93, Routledge, London (1996).

### *Political Environment*

If one rejects artefactual explanations for widening inequalities in health and accepts that behaviour is a small part of the explanation, then one is left with an argument that the majority of the gradient is due to a combination of explanations that have their origins, to a greater or lesser extent, in political decisions about the structure of work and society. The topic of politics appears frequently in the health inequality literature in the policy consequences of the research. On the other hand it seems to receive less attention in the health inequality literature as the subject of an explanation for inequalities in health.

For the origins of political considerations of inequality, Rudolf Virchow c1848 is widely cited as arguing that democracy is the best social response to disease.<sup>1</sup> This seems unsatisfactory today as the relationships between national economic and health inequalities are observed in nations that identify as democracies. However, the argument is all in the content of democracy and Virchow was astute in the contention that anyone who presented the plain facts of social inequalities in health would be branded as 'a red republican of the purest water', as data that call attention to social inequalities in health potentially challenge the status quo.<sup>2</sup> Rosen chronicles parallel development of political and health theory, noting that Louis René Villermé's 1840 research influenced political decision making about child labour, and linking the term of 'social medicine', coined by Jules Guérin in 1848, with the passing of responsibility for health to the medical profession.<sup>3</sup> Rosen notes that France was the country most advanced in political and social theory during the first half of C19, and that from 1834 there was a recognition that the good of the society, the welfare of the individual and the interests of the state are not necessarily identical.

Terris detailed causes of cholera in the sub-continent as political:

'... British invasion and destruction of textile industries, archaic systems of land ownership and tillage, the caste system, poverty, hunger and crowding, unsafe water supply and sewage disposal and, almost incidentally, the presence of cholera vibriosis'.<sup>1</sup>

Caldwell, whose research ranged over South-East Asia and Southern Africa, considers politics as a determinant. Where Preston showed the lack of a relationship of GNPpc with life expectancy, see Figure 11 on page 3, Caldwell reversed the methodology and looked at the residuals from that graph, deviant

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<sup>1</sup> Lynch, J., Sustained economic hardship and physical, psychological, cognitive and social functioning after 29 years follow up in the Alameda County study, *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997)., Turner, B., Citizenship and Health as a Scarce Resource. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 302-314, Oxford University Press., Melbourne (1998).

<sup>2</sup> Krieger, N., The Making of Public Health Data: Paradigms, Politics, and Policy. *Journal of Public Health Policy*, **13**, 412-427 (1992).

<sup>3</sup> Rosen, G., The evolution of social medicine. In: Freeman et al (ed.), *Handbook of Medical Sociology*, pp. 23-50, Prentice Hall (1979).

instances of nations whose populations had much higher or lower mortality than that predicted by their economic status. Focussing on Sri Lanka, Costa Rica and Kerala, Caldwell demonstrated the critical importance for health breakthroughs of government interventions in health and nutrition, female autonomy, and the presence of an educated, capable and demanding public.<sup>2</sup> He said the presence of such a public reflected investment in schooling and the existence of a participatory, plural, political system with a tradition of egalitarian radicalism reinforced by pre-existing cultural attitudes. Kerala, for example, had India's first fully literate town, province and State,<sup>3</sup> with a life expectancy of 71.3 years, compared with India as a whole of 62.8.<sup>4</sup> Landers describes this as a 'socially -willed' process as distinct from a politically driven one.<sup>5</sup> Caldwell's focus is on development, particularly maternal education, rather than health but it seems generally the case that that researchers are more comfortable with political explanations for health in other than developed countries. Costa Rica is an agricultural economy where, following a successful banana strike in the 1930s, several social benefits, such as education and health, were markedly extended.<sup>6</sup> This is consistent with one of Wilkinson's observations, that improvements in life expectancy may well be a by-product of the (political) struggle for better conditions for workers generally. In Wilkinson's trace through time in the UK, observing parallel movements in inequality and mortality, he noted that, in the 1920s, the insistence that an able bodied worker could be relieved only in the workhouse, or at the price of daily attendance at a labour yard, cost more in political and social disharmony than the relief given in social good. The change in political attitude was attributed to the extension of the franchise in 1918, where the new electoral roll included the precariously employed and the paupers.<sup>7</sup>

Political decisions about education feature in the literature. Kunst and Mackenbach argue that differences between countries in levels of inequality in mortality may be partially explained by the countries' different levels of egalitarian social and economic policies, mediated through educational achievement.<sup>1</sup>

In one study that included political factors, Chao modelled life expectancy across 39 nations against a number of ecological factors, including: a) technological change,

<sup>1</sup> Terris, M., The development and prevention of cardiovascular disease risk factors. *Journal of Public Health Policy*, **14**, 426-41 (1996).

<sup>2</sup> Caldwell, J.C., Education as a factor in mortality decline: an examination of Nigerian data., *Socioeconomic Determinants and Consequences of Mortality*, pp. 172-192, United Nations & World Health Organization, Mexico (1979).

<sup>3</sup> In Kerala literacy is 90%, (m94.5 and f 86.9), differing markedly from India as a whole, 52% (m64.3 f 36.0).

<sup>4</sup> Mathew, K.M. (ed.), *Manorama Year Book 1998*, 33rd ed., Malayala press, Kottayam (1998).

<sup>5</sup> Landers, J., Historical epidemiology and the Health Transition. *Health Transition Review*, **2**, 1-19 (1992).

<sup>6</sup> Behm, H., Socioeconomic determinants of mortality in Latin America, *Socioeconomic Determinants and Consequences of Mortality*, pp. 139-165, United Nations & World Health Organization, Mexico (1979).

<sup>7</sup> Wilkinson, R.G., Class Mortality Differentials, Income Distribution and Trends in Poverty 1921 - 1981. *Journal of Social Policy*, **18**, 307-335 (1989).

and b) GNPpc, and other factors that included proxies for political decisions: c) the Gini coefficient, arguing that, for a given total resources, the more equally the resources are distributed the higher the average efficiency of resources in promoting good health; d) Government expenditure as a proportion of GDP, used as a proxy for the distribution of human resources, on the assumption that the larger this proportion, the more equal the distribution of human resources over economic classes and geographic regions; e) literacy; and f) population per physician.<sup>2</sup> This was a 'successful' model, in that  $R^2 = 0.98$ , and is an interesting use of political variables in health research.<sup>3</sup> While his conclusion, that GNPpc is the best predictor in the long term, was contested at the time, and the assumptions in the model might be different now, twenty years later, his summary point was that life expectancy is quite amenable to political decisions about the distribution of resources, and this is supported by relative materialist arguments.

Marmot and Davey Smith, in 1989, took an approach that was similar to Chao in that it looked at alternate policy options.<sup>4</sup> They asked rhetorically if Britain could, within two decades, improve life expectancy to the point that would be achieved by abolishing heart disease and most cancers. Their point was that this is what Japan achieved so as to have the longest life expectancy in the world; from 1965 to 1986 it rose by 7.5 years for men and 8 years for women.<sup>5</sup> They noted that, if heart disease were abolished, and other causes of death remained constant, life expectancy would increase only 4.7 years in England and Wales, illustrating the dramatic size of Japan's gain. They examine social and economic forces, where there is also a sharp contrast between Japan's economic performance and that of Britain during 1965-86. In the OECD countries Japan was fourth in gross national product per person after Switzerland, North America and Norway, with the United Kingdom 15<sup>th</sup>.<sup>1</sup> More interestingly for theory, when income distribution was compared by quintiles the lowest earning fifth of households in Japan had a higher share of total household income than any country reporting to the World Bank (8.7%). Similarly Japan's top fifth of households (37.5%) was bettered (in the sense of less inequality) only by Belgium (36%) and The Netherlands (36.2%). Marmot and Davey Smith argued that

<sup>1</sup> Kunst, A.E. and Mackenbach, J.P., The size of mortality differences associated with educational level in nine industrialized countries. *Am J Public Health*, **84**, 932-7 (1994).

<sup>2</sup> Chao, D.N.W., National resources and life expectation, *Socioeconomic Determinants and Consequences of Mortality*, pp. 453-482, United Nations & World Health Organization, Mexico (1979).

<sup>3</sup> For illustration only, in the final model, an increase in  $e_x^0$  of one year could be attained by an increase in GNPpc of \$10/week, or an increase in literacy of 1.9% or an improvement in population per physician of 3,000 persons or a 0.01 decrease in inequality or an increase of 1.3% in the proportion of government expenditure. For developed countries the best approach was to improve technology while all measures were effective in developing countries.

<sup>4</sup> Marmot, M.G. and Smith, G.D., Why are the Japanese living longer? *British Medical Journal*, **299**, 1547-1552 (1989).

<sup>5</sup> One aspect Marmot and Smith note is Japan's large companies' lifelong commitment to their workers, but they explore gender difference too, and note that working conditions and participation in the labour force are rarely the same for men and women. They conclude that as women show the same mortality trends as men it means either that improvements have affected both genders similarly or that factors outside work are more important.

on the basis of these figures income inequality does not seem to be a necessary ingredient of economic success, contrary to Friedman-like economic models. Every occupational group in Japan except for miners showed an improvement in mortality between 1970 and 1980, and this improvement was greatest among blue-collar workers. Marmot had separately with Morris also listed politics in the determinants of health.<sup>2</sup>

The work of Erikson and Goldthorpe on social mobility has strong links to inequality research, and they explicitly examine international variations in mobility to test political theories of industrialism.<sup>3,4</sup> They find, among others, that economic inequality is inverse to mobility, the lower the inequality the higher the social fluidity. Examining a 'political regime' category, they find an association between mobility and state socialist economies but this disappears with the inclusion of an economic inequality measure. They conclude that:

... whatever increment in inequality of chances in class mobility may be associated with state socialist regimes, this follows from what they achieve in reducing economic inequality of condition.

Erikson and Goldthorpe argue that measures to reduce inequalities of condition and opportunity are highly likely to make a difference to social mobility but are not pursued uniformly, or with equal vigour, or with the same goals, or with equal success, so the differences are nation specific. So the notion of a political regime category is rejected in favour of a nation-specific political commitment to reducing inequality of condition. The overall 'hypothesis is that nations have more open class structures, the lower the level of economic inequality among their populations'.<sup>5</sup>

A political explanation, both for the existence and widening of inequalities in health, is not a current feature of inequalities research. Yet the differences between developed nations' life expectancies, and their changes over time, point to political decisions having made an impact. If the level of inequality in a society is an outcome of a 'socially-willed' political process, then it seems possible that pursuit of particular political goals is effective in attenuating the social gradient and increasing life expectancy.

<sup>1</sup> OECD is an acronym for Organisation for Economic Cooperation and Development

<sup>2</sup> Marmot, M.G. and Morris, J.N., *The Social Environment*. In: W.W. Holland, R. Detels and G. Knox (eds.), *Oxford Textbook of Public Health*. Vol. 1, pp. 97-118 (1984).

<sup>3</sup> The authors state that, compared with pre-industrial society, liberal theory holds that a) rates of social mobility are high, and upward mobility predominates over downward, b). mobility opportunities are more equal, in the sense that individuals of different social origins compete on more equal terms, to attain or avoid particular destinations, c). both rates of mobility and the degree of equality of opportunity tend to increase. This should be the case in liberal theory because: 1. structural and technological change requires skill change to higher levels and managerial positions multiply, society becomes more middle class. 2. merit and achievement predominate, so education increases so as not to waste human resources, and 3. social movement up is more available in new technologies.

<sup>4</sup> Erikson, R. and Goldthorpe, J.H., *The constant flux*, Clarendon, Oxford (1992).

<sup>5</sup> *Ibid.*

### *Summary*

A detailed examination of the evidence for a range of explanations, both for the social gradient in health and its widening over the period from about 1980 to 1998, might be summarised as follows:

- a) Artefactual explanations are rejected;
- b) Health related mobility, or selection, may reach say a few percentage points of the whole of the gradient;
- c) Behaviour explains a minor part of the gradient but cannot be regarded as an explanation without an explanation in turn for how behaviour is produced and reproduced, and the evidence points to psychosocial forces related to material inequality;
- d) There is an accumulation of evidence for a powerful effect of materialist explanations, both absolute and relative;
- e) There is very good evidence at the individual level for a strong effect of work-related demand, control, and support;
- f) The variation of mortality and life expectancy across nations, independent of income, suggests that the social gradient in health can be affected by other national characteristics and so is amenable to national policy.

The idea of 'control', in a wide social/ environmental sense, may serve as a rubric for this list. Control varies with material resources, enabling control over both health damaging and health enhancing living circumstances. Being 'in control' in a social setting may enable a citizen's participation in community life, and may mean an expectation that one can act with others to have an impact on one's social circumstances. In this sense control is not a characteristic of the individual but a social/structural feature.

This first chapter explored a range of reasons for the existence of the social gradient in health, beginning with the Black Report, which had four explanations: selection, artefact, behaviour/ culture, and material, and which also showed inequalities in health (mortality) to be widening. I detailed research since Black that was conducted to overcome potential sources of error in that finding, that is, to address the possibility that there was nothing real going on, with the first two of those explanations.<sup>1</sup>

I then offered a new set of categories of explanation for the existence of the social gradient, expanding on Black. These 'determinant' categories have moved in the past twenty years from the explanation preferred by Black, the 'material' explanation, to consideration of relative material and political explanations, which

have different implications for policy action. I described differences between an absolute material explanation and a relative material explanation. An absolute model has two conceptual streams: the older one is that there is a threshold of material circumstances beyond which health is determined by behaviour, the other is that successive increments in material circumstance buy increments in health, with diminishing returns. A relative material explanation was originally proposed following observations that health (life expectancy) is more closely related to the *distribution* of income within a developed nation than to its per capita income level. This relationship has since been shown at lower levels of social structure.

I have intentionally presented the determinant explanations for the social gradient in health- the diagram is repeated here for convenience- in an order that ranges from the biological through the individual to workplace, neighbourhood, and polity. That is, to increasing levels of social organisation. This approach has not only covered the explanations in detail, and introduced the main 'players' in the field, it has also, from a technical standpoint, described an underlying story about the development of epidemiology, ranging from individual level epidemiology (clinical measures), through to epidemiology with defined aggregates of individuals (disease groups), through to ecological relationships. This will be elaborated in later chapters.

A common, significant feature of the work I have covered is that the main measure was the absence of health, mainly early mortality. The flip side of explanations for the social gradient in early mortality is then explanations for improvements in health, or decreases in mortality, and this is the topic of the next chapter. These explanations for health 'creation' largely mirror the explanations in chapter one, and so are covered in less detail, while there are important differences that will be elaborated. Consideration of these explanations for improving health is important because it will be shown that attempts to improve health that are based more or less explicitly on particular explanations for poor health, can have the unintended effect of contributing to a steepening the social gradient in health, rather than attenuating it.



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<sup>1</sup> This covers the period 1980 to 1998.

## Chapter 2. Explanations for good health

According to William Farr, the primary question for health is 'How to live a longer healthier and happier life'. Some of the post-Black debate over widening inequalities in health, measured by mortality, occurred because life expectancy increased, over time, for all groups, so improvements in health could be demonstrated for people in the lower social strata. That increase, however, was mixed in with widening inequalities because the biggest increases in life expectancy were in the higher social strata.

Explanations for increases in life expectancy, or good health, over time, in developed countries, beg attention. This is because action to address the social gradient in health requires a focus on how to raise health outcomes for all population groups to the highest possible level. Most of the inequalities research, however, focuses on the gradient in ill-health rather than the drivers of good health, both in individuals and in populations.

In this chapter I will outline a number of explanations for good health, defined mainly as increasing life expectancy, which are substantially a mirror of explanations for the social gradient in early mortality, developed in Chapter 1. This is set out, in Figure 20, as an addition to the taxonomy in Chapter 1, Figure 3. Explanations for increases in life expectancy are therefore also set out on a scale from individual to social levels.

**Figure 20 Explanations for the rise in life expectancy in developed countries**

	Explanation	Level	Explanation	
Non- determinant explanations	Selection		for good health (life expectancy)	
	Artefact			
Determinant explanations	Genetic	Personal/ Individual	Medicine	
	Biologic			
	Behaviour	Work	Health Promotion (individualist)	
	Occupation/ class			
	Culture	Household	Education	
	Income	Neighbourhood	Rising living standards	
	Status			
	Environment	Physical setting	Community	Health Promotion (structuralist)
		Social		
	Ecology	Psychosocial	Society	Low material inequality
Political				

Explanations for increases in life expectancy, or health gain, are loosely linked to explanations for the social gradient in mortality, or health loss. If the explanation of choice for inequalities in mortality is biologic, then medicine and medical care would represent the best investment to attenuate the social gradient in health and

improve life expectancy. Similarly if the explanation of choice is behaviour, then therapies and behavioural change programs ought to reduce the gradient, and so on. Although these explanations for good health are covered in less detail than in the previous chapter they are important for selecting between policy options.

## Explanations:

### *Medicine and Health care*

Just as a biological explanation fails to explain the social gradient in health, its counterpart, medicine and health care do little to attenuate the social gradient in health, and do not have the required relationship with increases in life expectancy.

McKeown, in 1976, demonstrated that improvements in  $e_x^0$  (life expectancy) and reduction in mortality occurred in Western Europe in the eighteenth and nineteenth centuries in advance of improvements in medicine.<sup>1</sup> His critical appraisal of the effective agents of improved health suggests that clinical medicine continues to contribute little to reductions in mortality in developed countries in C20/21. As Milio says, medicine 'at best, has only a limited set of tools to prevent modern health problems'.<sup>2</sup> Twenty years after McKeown, Tarlov estimated the contribution of medical care to be 'say 5 of the 30 years increase in life expectancy in C20, or 17%'.<sup>3</sup> Nonetheless the Secretary of State's response to the Black report, in 1980, still held high expectations of health services:

It will come as a disappointment to many that over long periods since the inception of the NHS there is generally little sign of health inequalities in Britain actually diminishing and, in some cases, they may be increasing.<sup>4</sup>

On the contrary, Wilkinson, in 1986, noted unpublished research findings that inequalities actually increased slightly faster among those causes of death that are amenable to medical care than among those that are not, such as most cancers.<sup>5</sup> Mackenbach, in 1989, compared mortality from causes of death amenable and not amenable to medical care, in the UK and Netherlands, and found that '... medical care contributed to widening of mortality differences between socioeconomic groups', see Figure 21 below.<sup>6</sup> As Marmot et al note, the majority of the differences are a result of the decline in non-amenable causes in higher classes and a lack of

<sup>1</sup> McKeown, T., *The modern rise of population*, Academic Press, New York (1976).

<sup>2</sup> Milio, N., Commentary: Creating a Healthful Future. *Community Health Studies*, **9**, 185-192 (1983).

<sup>3</sup> Tarlov, A.R., Social determinants of health: the sociobiological translation. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization: Towards a health policy for the twenty first century*, pp. 71-93, Routledge, London (1996).

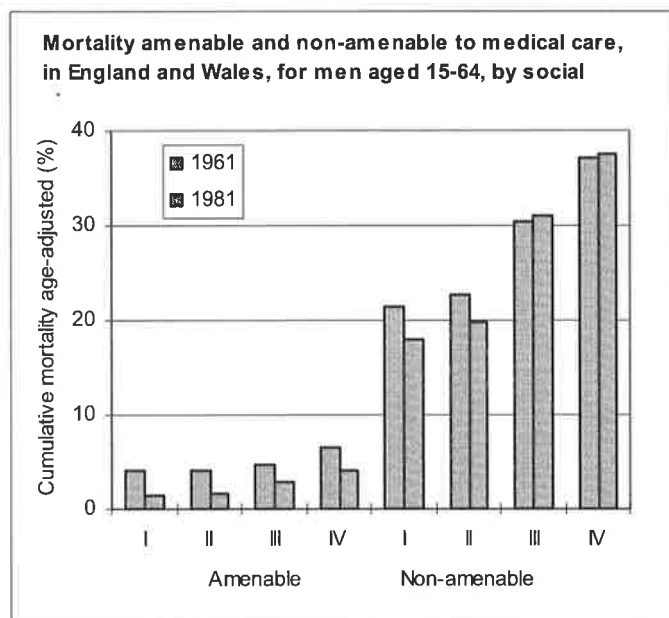
<sup>4</sup> Black, D., Morris, J.N., Smith, C. and Townsend, P., *Inequalities in Health*, Report of a Research Working Group, Department of Health and Social Services, London (1980).

<sup>5</sup> Wilkinson, R.G., Socio-economic differences in mortality: interpreting the data on their size and trends. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 1-20, Tavistock, London (1986).

<sup>6</sup> Here medical means the broad range of interventions including surgery. One example of a condition amenable to medical care is appendicitis, where surgery and anaesthesia have improved. Another is maternal and peri-natal care, where general care has improved. Non-amenable causes include violent death and many cancers. See Mackenbach, J.P., Stronks, K. and

decline in the lower classes.<sup>1</sup> Similarly they observe there are no links between developed nations' expenditure on medical care and their life expectancy.

**Figure 21 Mortality amenable to medical care, England and Wales, men aged 15-64, by social class, 1961 and 1981.**



Source: Mackenbach et al 1989.<sup>2</sup>

Infectious diseases with which medicine has had success, and which remain prevalent in developing countries, are returning to developed countries where there is high use, but declining effectiveness, of antibiotics.<sup>3</sup> This phenomenon, possibly influenced by cutbacks in public infrastructure and more international travel also has a socioeconomic gradient.<sup>4</sup>

There is a political implication to the debate about medicine's contribution to good health. The lack of any relationship between mortality and medical care expenditure could potentially be used as a justification to reduce 'health' (medical) and other service provision, which would disproportionately affect the quality of life of the lower socioeconomic groups.<sup>5</sup> There is care in the literature not to undervalue the

Kunst, A.E., The contribution of medical care to inequalities in health: Differences between socioeconomic groups in decline of mortality from conditions amenable to medical intervention. *Social Science & Medicine*, 29, 369-76 (1989).

<sup>1</sup> Marmot, M.G., Bobak, M. and Davey Smith, G., Explanations for social inequalities in health. In: B.C. Amick III, S. Levine, A.R. Tarlov and D. Chapman Walsh (eds.), *Society and Health*, pp. 172-211, Oxford University Press, New York (1995).

<sup>2</sup> Mackenbach, J.P., Stronks, K. and Kunst, A.E., The contribution of medical care to inequalities in health: Differences between socioeconomic groups in decline of mortality from conditions amenable to medical intervention. *Social Science & Medicine*, 29, 369-76 (1989).

<sup>3</sup> da Silva, W., Virus Bomb, *The Advertiser*, pp. Weekend magazine, 7-10, Adelaide (1995).

<sup>4</sup> Heuveline, P., Guillot, M. and Gwatkin, D., The uneven tides of the health transition. *Social Science & Medicine*, 55, 313-22 (2002).

<sup>5</sup> See for example Poland Poland, B., Coburn, D., Robertson, A., Eakin, J. and et al, Wealth, equity, and health care: a critique of a "population health" perspective on the determinants of health. *Social Science and Medicine*, 46, 785-98 (1998). and Blaxter Blaxter, M., The significance of socioeconomic factors in health for medical care and the National Health Service. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 32-41, Routledge, London (1996).

contribution of medical services to the amelioration of the circumstances of disease, and it is widely noted that use of medical services is inversely associated with social class, because the lower the class, the higher the morbidity.<sup>1,2</sup>

Wilkinson argues that adding more services is not the solution:

In almost every sphere of social policy we imagine that services and interventions are more important than they are. ... the influence of medical services on survival (is) dwarfed by the influence of social and economic circumstances, ... Evaluations ... provide evidence of what is, at best, only marginal effectiveness.<sup>3</sup>

Medical care does not explain the majority of the rise in life expectancy in C20 and, while it may ameliorate the circumstances of disease, it has contributed a little to the social gradient in mortality. More medical care is not a sound policy response to the social gradient in health.<sup>4</sup>

### *Health promotion*

Efforts specifically designed to improve health frequently fall under the heading of health promotion. The agencies that operate under this heading do so in two main categories, an individual or group-of-individuals category focussing on 'lifestyle' and health education, and a social/structural category focussing on regulation and public policy. These categories are useful for a short description of some of the approaches, but both are only a sub-set of the approach envisaged by the World Health Organisation in 1978, in its Primary Health Care policy. Neither category is an explanation for good health, and both have failed to reduce inequalities in health.<sup>5</sup>

#### Individualist health promotion

The popular explanation for poor health and early mortality in English-speaking countries is behaviour/ lifestyle. However, just as behaviour explains only a minor part of the social gradient in health, and there is no satisfactory explanation for how behaviour is reproduced, most examples of the failure of health promotion to impact substantially on inequalities in health fall into the individualist category. They

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<sup>1</sup> Note that there is research on use of health services, and diagnosis of cause of death, by class; for example some of the variation by class in type of cancer is attributed to greater effort to identify the type in higher social classes.

<sup>2</sup> Carr-Hill, R.A., Rice, N. and Roland, M., Socioeconomic determinants of rates of consultation in general practice based on fourth national morbidity survey of general practices. *Bmj*, **312**, 1008- 12 (1996).

<sup>3</sup> Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).

<sup>4</sup> Needs-based access to medical care is warranted, to overcome the social gradient in causes of death amenable to medical care..

<sup>5</sup> This is a view of health promotion deliberately limited to activities that would self-identify as such. There are texts that aim to bring a wider range of activity within the heading; see for example Green and Kreuter's USA textbook: Green, L.W. and Kreuter, M.W., *Health Promotion Planning An Educational and Environmental Approach*, Second ed., p. 506, Mayfield Publishing Company, Toronto (1991). O'Connor and Parker, in the Australian context, describe seven categories of health promotion and practice: health education programs, preventive health services, community-based work, organisational development (healthy canteens), healthy public policies (housing employment transport and leisure), environmental health activities (clean water, controlling pollution), economic and regulatory activities (food labelling), the last six of which fit the social category, see: O'Connor, M.L. and Parker, E., *Health Promotion Principles and Practice in the Australian Context*, Allen & Unwin, St. Leonards (1995).

include a large number of risk factor studies and interventions that produced little discernible effect.

One major example is the Framingham Study, which began in the 1950s to look at heart disease risk factors, including diet.<sup>1</sup> In 1970 heart disease and fat consumption were linked, from the Seven Countries Study begun in 1957.<sup>2</sup> The Alameda County Study, in northern California 1965-74, studied behavioural factors, and the important Whitehall I, 1968, was specifically established to study risk factors for coronary heart disease.<sup>3</sup> Notwithstanding the lack of clarity in associations between behavioural risk factors and health, the studies were used to justify intervention trials to effect behavioural change. These trials expected to quantify health gains from changing behaviour for established risk factors, of which, for example, for coronary heart disease, there are now more than 270(!). The results were 'unimpressive'.<sup>4</sup>

From the Framingham results, Rose calculated that if Framingham men modified their diet, enough to reduce their cholesterol levels by 10 per cent up to the age of 55, 49 out of 50 would eat differently every day for forty years without having avoided a heart attack.<sup>5</sup> The amount of behavioural change required, in relation to the benefit for most men (that is, nil) did not look like a strong motivator for long term dietary change. One of the most important risk factor interventions was the 361,662-strong Multiple Risk Factor Intervention Trial (MRFIT) in the USA, established in the early 1970s, which confidently predicted reductions in mortality. The results were disappointing on three counts: sustained behaviour change was difficult to achieve, even among highly motivated individuals; even when behaviour changed the improvement in mortality was smaller than predicted, and; each individual adopting desired behaviour was quickly replaced by a new-recruit to health damaging behaviours.

Bartley argues persuasively that the prevailing UK health education philosophy of the 1980s can be traced in direct line of descent to the belief that pre-war poverty and inequality, that is, material explanations, had been banished by the welfare state and new explanations were needed for the social class differences that

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<sup>1</sup> Framingham is a small town near Boston in the USA. The Framingham Heart Study was started to study the incidence and determinants of cardiovascular disease in a longitudinal study design. The original cohort was enrolled in 1948, with follow-ups every two years. The offspring of the original cohort was enrolled in 1972, with four-year follow-ups. The website is <http://www.nhlbi.nih.gov/about/framingham/index.html>

<sup>2</sup> The Seven Countries Study was a collaborative study of heart disease and stroke in relation to lifestyle, particularly diet. It began in 1958 after earlier pilot studies. Ancel Keys was the principal investigator and the countries were America, Japan, Greece, Italy, former Yugoslavia, Holland and East Finland. Links to the countries can be found at: <http://www.epi.umn.edu/about/7countries/index.shtml>

<sup>3</sup> For information on the Alameda County Study see footnote 2 on page 12.

<sup>4</sup> Blane, D., Brunner, E. and Wilkinson, R., The evolution of public health policy: an anglocentric view of the last fifty years. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 344, Routledge, London (1996).

<sup>5</sup> Rose, G., Sick individuals and sick populations. *International Journal of Epidemiology*, 14, 32-8 (1985).

remained.<sup>1</sup> Health became the exclusive province of medical science, and prevention was directed to behaviour following studies of bus conductors and postmen, that conductors had better health than drivers, attributed at the time to the difference in activity or exercise.<sup>2</sup>

There are a number of arguments against individualist approaches to both causes of disease and interventions. Blane argues that:

- a) the gains from intervention are small in important causes of death, that is, behavioural intervention is inefficient;
- b) more money has gone into research into the causes of heart disease than into any other illness, and more research will not solve the problem;
- c) the risk factor/behaviour approach is a development of earlier attempts to combat disease through hygiene, and;
- d) it has a strong resonance with morality; the ideology is of behaviours freely chosen and of victim blaming, with the health implications of social and economic organisation, beyond the individuals' control, hidden from view.<sup>3</sup>

Syme and Lynch echo the argument about inefficiency and add:

- e) interventions don't stop fundamental forces from sending the next person to the interventionist's door, both within and between generations, while Syme also looks to the forces that produce the risk-factor approach.<sup>4,5</sup>

Godin adds to d) that, in fact, health education aims to change behaviour by promoting guilt.<sup>6</sup>

Studies that separate behaviour and class, such as Whitehall, show the majority of the gradient is unrelated to behaviour, and others argue that the interpretation of behaviour, as if it were unrelated to the social environment, is wrong. The effect of the risk factor intervention approach on inequality is paradoxically negative. Health education and screening *increase* socioeconomic differences because the response is almost always related to the socioeconomic gradient, that is, lower in lower

<sup>1</sup> Bartley, M., Coronary heart disease and the public health, 1850-1983. *Sociology of Health and Illness*, 7, 289-313 (1985).

<sup>2</sup> A more recent explanation is the structural lack of control over impossible timetables faced by drivers, see for example Syme, S.L., To prevent disease: the need for a new approach. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization: Towards a health policy for the twenty first century*, pp. 21-31, Routledge, London (1996)..

<sup>3</sup> Blane, D., Brunner, E. and Wilkinson, R., The evolution of public health policy: an anglocentric view of the last fifty years *Ibid.*, pp. 344.

<sup>4</sup> Lynch, J., Does it matter how rich are the rich and how poor are the poor?- Income inequality and health, *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997), Syme, S.L., To prevent disease: the need for a new approach. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization: Towards a health policy for the twenty first century*, pp. 21-31, Routledge, London (1996).

<sup>5</sup> Lynch noted, as others have, the case fatality rate on the Titanic by travel class and asked what health promotion could offer; future prevention could have included better navigation, or alternative forms of travel, but he concluded ironically that we probably would have taught the third class to swim.

<sup>6</sup> Godin, I. and Lagasse, R., Culture and health. What role does culture play in the development and maintenance of social disparities in health? In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 163-174, Waxmann Publishing Company, Münster; New York (1994).

socioeconomic groups. This leads us to a conventional wisdom that it is harder to improve health in lower socioeconomic groups, according to Godin, who puts the public health perspective: 'for a preventive program to reap rewards in inverse proportion to the distribution of disease is a serious weakness'.<sup>1</sup> The correct public health strategy would make the most gains where health is worst and individualist/behavioural approaches fail this test.

Individualist health promotion fits well with current political and economic ideas; responsibility and freedom of choice imply a moral responsibility to act on that choice, and a faulty choice is 'corrected' through education.<sup>2</sup> The assumption is that changing risk behaviour is an easy choice and that we are all equally in a position to make the choice. It is necessary to ask, if rhetorically, 'why do nurses smoke more than doctors; are they stupid? Or is it something else?'<sup>3</sup> Clearly, nurses are not stupid; equally clearly, underlying individualist health promotion assumptions are missing powerful structural influences on health behaviour across social strata. Individualist health promotion does not have the tools to address the social gradient in health.

#### Structuralist health promotion

The structuralist category of health promotion includes action at a larger scale to promote health in workplaces (a 'settings') approach, regions and society-wide changes often driven by legislation.

There are larger ideological choices in the structuralist position: legislation restricts freedom of choice and assumes law-makers know more about the costs and benefits than the individuals, which reduces individuals' autonomy and control. Also where legislation affects market transactions it can affect the poor more. It is argued that such interventions are acceptable only when they're demonstrably effective and the control is exercised according to three explicit principles: large numbers of people are affected; control over life is limited to a small part, and; it is shown that reduction in harm doesn't happen voluntarily.<sup>4</sup> By contrast, individualist health education requires less ethical justification, and so is an easier political choice.<sup>1</sup> It is also argued that structural approaches are effective when they gain wide political support and become part of the infrastructure, such as with car and road safety, or gain high compliance in individuals, as with seat-belts and gun control in Australia.

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<sup>1</sup> Ibid.

<sup>2</sup> Knight, J., *Models of Health. In: J. Germov (ed.), Second Opinion An introduction to health sociology*, pp. 136-155, Oxford University Press., Melbourne (1998).

<sup>3</sup> Ibid.

<sup>4</sup> Sanson-Fisher, R. and Turnbull, D., 'To Do or Not to Do?': Ethical Problems for Behavioural Medicine. *In: S. Fairbairn and G. Fairbairn (eds.), Psychology, ethics and change*, pp. 191-211, Routledge and Kegan Paul, London (1987).

While structural approaches promise gains in life expectancy, they do not necessarily attenuate the social gradient in health, and can contribute to its steepening. For example action on tobacco has been an area of public policy change, contested by the market, but regarded as an area of success for health promotion, with public policy action. Nevertheless cigarette smoking among adults increases progressively from the top social class I down to social class V in England and, while the 20 year decline in smoking in Australian households was 50% for the richest 10%, it was only 10% for the poorest 20%, which reversed the social class rates of smoking over the period.<sup>2,3,4</sup> This has had the effect of increasing the social gradient in smoking related mortality.

### *Education*

Formal education, as distinct from behavioural education, is an attractive explanation for improvements in health in western countries because it is individualist and connected with self-improvement. It is also related to socioeconomic status.

Formal education is related to lowering of infant mortality in poorer countries and so has a relatively high impact on life expectancy, due to the way  $e_x^0$  is calculated. In particular maternal education is strongly related to lowering child mortality in developing countries.<sup>5</sup> Of a variety of ecological variables, the most important simple relationships with mortality are female primary education followed by adult literacy.<sup>6,7</sup> These relationships are suggestive of maternal education being a determinant of improving infant survival.

However, maternal education itself, its influence on family dynamics, and whether education mediates another relationship with infant mortality are contested ideas. Caldwell, in 1979, rejected high mortality as a reflection of a low standard of living, and gave Kerala and Sri Lanka as contrary examples of jurisdictions where low mortality was achieved with low GNPpc.<sup>8,1</sup> He looked at Nigeria, and three

<sup>1</sup> Ibid.

<sup>2</sup> Beecham, L., Smoking decline in England reversed. *British Medical Journal*, **316**, 315 (1998).

<sup>3</sup> Fraser, J., As the rich give up, the poor light up, *The Australian*, pp. 3, Adelaide (1998). 16 February.

<sup>4</sup> Beecham says the general decline in smoking may be reversing, in England, which she attributes to the power of advertising.

<sup>5</sup> Arriaga, E.E., Infant and child mortality in selected Asian countries, *Socioeconomic Determinants and Consequences of Mortality*, pp. 98-118, United Nations & World Health Organization, Mexico (1979).

<sup>6</sup> The variables were GNPpc (weak), population density, index of food production, growth of urban pop, growth of labour force, %pop in Urban, %pop in Agriculture, crude birth rate, %pop 0-4yrs in 1970, population per physician, %female enrolled in primary school, Adult literacy rate. Stepwise regression had crude birth rate explaining 85.4% of the variance, the addition of adult literacy made 90.0% then urban population then female school, to 92.5%. His policy recommendation was for special efforts to reduce fertility, after Notestein and this is contested.

<sup>7</sup> Hashmi, S.S., Socioeconomic determinants of mortality levels in Asia and the Pacific, *Socioeconomic Determinants and Consequences of Mortality*, pp. 119-136, United Nations & World Health Organization, Mexico (1979).

<sup>8</sup> At the time Caldwell speculated that McKeown's thesis on nutrition may reflect not just an increase in the volume of food per head or an improvement in its quality, but a movement towards greater equality in its distribution between social classes and families in the community as a whole and also within the family itself.

explanatory hypotheses, favouring a change in power relationships between the mother and, respectively, the father and the grandparents, particularly the paternal ones.<sup>2</sup> Part of the reasoning was that paternal education had much less impact on infant mortality, so health knowledge itself couldn't explain the difference. Instead the issue was control and responsibility, of both fertility and child-rearing, being shifted from the wider family, with education showing, in particular, a relation with birth control. Caldwell reasoned that maternal education strengthened the nuclear family, to child centredness, and reversed the flow of intergenerational wealth (capital) away from the old towards the child.<sup>3</sup> He speculated that the timing of western mortality decline would similarly be related to mass-education moving individuals varying distances into new cultures for intra-family and intergenerational relationships.

For developed countries Wilkinson argues that education may appear to be a determinant of mortality, but that the effect of education on an individual is to move him up the social hierarchy, but the same addition to everyone's education would not have the same effect, that is, a fallacy of composition in relative terms.<sup>4</sup> Similarly, Blane et al argue that, while there may be an independent effect of education on health, health differences appear prior to education and so they 'postulate that our education measure is indexing some characteristic of the community which is important to its members' health'.<sup>1</sup> They conclude that school systems don't mitigate underlying material factors. It is also clear that, across time, so-called diseases of affluence have reversed their class distribution in developed countries, so the relationship between diseases and education is doubtful.

So education, on its own, is not a satisfactory explanation either for increases in life expectancy or to attenuate the social gradient in health.

#### *A rise in living standards*

'A rise in living standards' is the most common explanation for improvements in nations' life expectancy. It is a materialist explanation - that successive increments in national living standards accrue increments in national health measures. Its popularity is not surprising because it is difficult to envisage gains in life

<sup>1</sup> Caldwell, J.C., Education as a factor in mortality decline: an examination of Nigerian data., *Socioeconomic Determinants and Consequences of Mortality*, pp. 172-192, United Nations & World Health Organization, Mexico (1979).

<sup>2</sup> These were: 1. A break with tradition and adoption of modern medical treatment. eg. differential preparation of food, differential sanitary practices. 2. More likely to be listened to by medical personnel. 3. Education greatly changes the traditional balance of family relationships

<sup>3</sup> Caldwell: Traditional: male gets more than female, old get more than young, babies are weaned cheaply, small children struggle for a share of the food, greater expense and effort is borne to heal the old. Education changes all of this, possibly reducing child mortality relative to adult. While educated women leave their children in the care of the less well educated, they retain control over decision-making

<sup>4</sup> Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).

expectancy *not* being connected in some way to material standards. Sanitation, health care, health promotion and education are all more able to be supplied as national incomes increase. This is one reason why a widening social gradient in health is hard to reconcile with increasing material wealth in developed countries. McKeown put forward 'a rise in living standards' as an explanation for increased life expectancy, and lower infant mortality, arguing that it enabled better nutrition. However this was the explanation of elimination, as was Black's materialist position, and lacked empirical support.<sup>2</sup>

Those things that absolute material gains supply, however, lack the expected relationship with gains in health in developed countries. An improvement in sanitation, as an explanation, was questioned a long time ago. Neison, in 1845, challenged the doctrine that sanitation was the paramount factor in determining rates of mortality, based on the greater variation in mortality for different occupations than for different areas, and that the diseases with the highest mortality had airborne vectors.<sup>3</sup> McKeown challenges medical care and I have outlined the failure of individualist health promotion, and the problems with education. The main difficulty with this explanation, however, is the empirical work that has been performed since McKeown, with better international information, illustrated by the lack of a relationship between GNPpc and life expectancy in Figure 13, page 3. A rise in living standards is not an explanation shown empirically.

By 1992, Landers described the mixed experience of countries, of mortality decline and economic development, as 'The failure of simple 'standard of living' determinism ...'<sup>4</sup> Caldwell examined the residuals from the GNPpc/LE relationship, shown in chapter one, Figure 12, page 3. These were deviant instances of populations, which had much higher or lower mortality than that predicted by their economic status. Focussing on Sri Lanka, Costa Rica and Kerala, Caldwell demonstrated the critical importance for health breakthroughs of government interventions in health and nutrition, female autonomy, and the presence of an educated, capable and demanding public.<sup>5,1</sup> Landers, drawing on Caldwell, argues that:

<sup>1</sup> Blane, D., White, I. and Morris, J., Education, social circumstances and mortality. *In*: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 171-187, Routledge, London (1996).

<sup>2</sup> Thiltgès, E., Duchêne, J. and Wunsch, G., Causal theories and models in the study of mortality. *In*: A.D. Lopez, G. Caselli and T. Valkonen (eds.), *Adult mortality in developed countries: from description to explanation*, pp. 21-36, Clarendon Press, Oxford (1995).

<sup>3</sup> Fox, A.J., Prospects for change in differential mortality, *Socioeconomic Determinants and Consequences of Mortality*, pp. 515-561, United Nations & World Health Organization, Mexico (1979).

<sup>4</sup> Landers, J., Historical epidemiology and the Health Transition. *Health Transition Review*, 2, 1-19 (1992).

<sup>5</sup> Note the Sri Lankan situation was also noted by Hashmi, so this information was widely known.

'the presence of such a public reflected investment in schooling and the existence of a participatory, plural, political system with a tradition of egalitarian radicalism reinforced by pre-existing cultural attitudes to health and hygiene'.

That is, Landers describes, a 'socially -willed' process, as distinct from a 'politically imposed' path.

Interestingly the examination of factors associated with good health, or life expectancy, comes from demographic studies, which have tended not to focus on the social gradient in health.<sup>2</sup>

### *Qualitative social change*

Wilkinson argues that there are qualitative differences in what a given income will buy over time; a car in 1990 is not equal to a car in 1950.<sup>3</sup> However, the impact of taking quality into account would be to further weaken the apparent log-linear relationship between GNPpc and life expectancy shown in chapter one, in Figure 11 and Figure 12; rich countries would move to the right as the dollar value of quality was added to GNPpc, so that apparently enormously large increases in GNPpc would be needed in rich countries to gain health, which is not the observation over time.<sup>4</sup> Wilkinson argues instead that the rise in life expectancy has been due to qualitative social change, in particular a) successive interactions between parent and child, (similar to Caldwell), and enabled by material circumstances, and b) the strength of community life, (similar to Putnam), where he draws a distinction between the 'civic', characterised by engagement of the community in public issues, and the 'uncivic', where public affairs is hierarchical, the responsibility of the higher classes, and public participation is based on self-interest. Wilkinson also speculates whether a stronger civic community provides a more favourable basis for economic growth.

<sup>1</sup> Note here the similarity with early Notesteinian demographic transition theory as described by SzreterSzreter, S., The idea of demographic transition and the study of fertility change: a critical intellectual history. *Population and Development Review*, 19, 659 - 701 (1993), who argues that later formulations owed too much to policy imperatives and were empirically untestable.

<sup>2</sup> A recent text in the demographic literature, on explanations for mortality change, favours behavioural change as an explanation for decreasing mortality but states 'health policies and strategies will need to continue to address what it is about social class that affects survival', see Lopez, A.D., Caselli, G. and Valkonen, T., Moving from description to explanation of adult mortality: issues and approaches. In: A.D. Lopez, G. Caselli and T. Valkonen (eds.), *Adult mortality in developed countries: from description to explanation*, pp. 3-20, Clarendon Press, Oxford (1995). One contributor says there is scope for research into socioeconomic circumstances but supports McKeown as the more plausible explanation, despite the lack of data, and argues that the lack of an empirical relationship between GNPpc and life expectancy found by Preston is 'simplistic' see Thiltgès, E., Duchêne, J. and Wunsch, G., Causal theories and models in the study of mortality. In: A.D. Lopez, G. Caselli and T. Valkonen (eds.), *Adult mortality in developed countries: from description to explanation*, pp. 21-36, Clarendon Press, Oxford (1995). The relative material explanation is not mentioned in theories and models, but is mentioned in consideration of vascular disease in an article by an epidemiologist, see Beaglehole, R., Conceptual frameworks for the investigation of mortality from major cardio-vascular diseases. In: A.D. Lopez, G. Caselli and T. Valkonen (eds.), *Adult mortality in developed countries: from description to explanation*, pp. 37-56, Clarendon Press, Oxford (1995). It seems the recent literature on relative material circumstances has not impacted on this important related field.

<sup>3</sup> Refrigeration, unleaded petrol, central heating vs coal smoke,

<sup>4</sup> Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).

*A sense of control*

The idea of 'control', a psychosocial concept, is one stream that runs through the inequality literature. Marmot identifies three major psychosocial hypotheses: 1) job strain, which is associated with Karasek and Theorell, and which was used by Marmot in Whitehall II; 2) social support, identified with Berkman, and; 3) low control, associated with Marmot and Theorell.<sup>1</sup> The overall idea comes from direct associations, such as are shown by the respective authors, but can also be read more positively into some of the unusual or unexpected findings, for example, Marmot's finding that car ownership was separately associated with lower mortality in Whitehall II. Some feel this finding adds little to explanation.<sup>2</sup> However the value of the car relationship is important for two reasons: first, it is a marker for material circumstances, which applies to a larger proportion of deaths than does social class relationships;<sup>3</sup> second, others (such as Berkman and MacIntyre) ask why car ownership should be related, whether it enables improved social contact, and/or access to recreation and health services. They don't mention control as such but this is the implication, that ready access to a car improves control in a directly positive way, via social contacts and, as MacIntyre has argued previously, it could act to enable the owners to avoid potentially harmful local social environments.<sup>4</sup> Syme says many scholars have studied mastery, self efficacy, locus of control, learned helplessness, controllability, predictability, desire for control, sense of control, powerlessness, hardiness and competence.<sup>5</sup> Further, he says, while we shouldn't assume they are variations on a theme, its interesting that so many different investigators, from different backgrounds, with different research objectives, should come up with ideas that are so similar to one another.<sup>6</sup>

So the extent to which relative material circumstances influence 'control' may be a candidate for policy consideration. One risk with the term 'control' is that the concept can too easily be interpreted as a characteristic of individuals, and therefore amenable to individual therapeutic intervention, where its elaboration in the research is clearly as a relative material concept. The individualist interpretation ignores the 'social' part of the term 'psychosocial'. This tension in

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<sup>1</sup> Marmot, M.G. and Feeney, A., General explanations for social inequalities in health. In: M. Kogevinas, N. Pearce, M. Susser and P. Boffetta (eds.), *Social inequalities and cancer, IARC Scientific Publications No. 138*, pp. 207-228, International Agency for Research on Cancer, Lyon (1997).

<sup>2</sup> Thiltgès, E., Duchêne, J. and Wunsch, G., Causal theories and models in the study of mortality. In: A.D. Lopez, G. Caselli and T. Valkonen (eds.), *Adult mortality in developed countries: from description to explanation*, pp. 21-36, Clarendon Press, Oxford (1995).

<sup>3</sup> Including a separate relationship for women

<sup>4</sup> MacIntyre, S., MacIver, S. and Sooman, A., Area, class and health: should we be focussing on places or people? *Journal of Social Policy*, **22**, 213-234 (1993).

<sup>5</sup> Syme, S.L., To prevent disease: the need for a new approach. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization: Towards a health policy for the twenty first century*, pp. 21-31, Routledge, London (1996).

<sup>6</sup> Syme is looking at control in bus drivers in San Francisco with a view to changing the structural features of the job, the tyranny of the schedule that can't be met.

interpretation, and associated implications for policy, is behind much debate as to the value of the 'psychosocial' descriptor.

### *Reduction of material inequality*

There is some evidence that narrowing material inequality has produced gains in health. Winter showed that life expectancy improved the most in the period of the two world wars:

... the worse off a section of society was in 1914 the greater were the gains registered in life-chances in the war years.<sup>1</sup>

Winter's argument is that it's the development of the concept of citizenship as carrying entitlement to certain minimum standards, which makes the difference. This is an absolute material argument. The relative material argument is that rationing was applied to all at the same time as minimum standards were enforced, therefore narrowing material inequality.

Marmot and Davey Smith, in 1989, pointed to dramatic differences between the rise of life expectancy in Japan and that of the UK from 1965 to 1986 and speculated that economic inequality was causal.<sup>2</sup> The size of the gain was dramatic; the rise in life expectancy in Japan, accompanied by reductions in material inequality was 7.5 years, greater than would have been achieved in the UK by the complete elimination of heart disease (4.5 years).

Blane, Brunner and Wilkinson compared the USA's experience, of life expectancy improvement over time, with Canada's; in 1950 life expectancy was higher in the US, but over the following decades this relationship reversed, such that, by 1987, Canadians, with a more egalitarian distribution of resources, had 1.6 years more life expectancy.<sup>3</sup> They, too, suggest that levelling incomes benefits health, and note that the levelling of material circumstances during the second world war, while intended to gain the cooperation of the masses, had the unintended consequence of an increase in life expectancy. Erikson and Goldthorpe, in studying mobility, also assert that periods of social upheaval, like war or revolution, mark surges of social mobility in employment, and therefore social class.<sup>4</sup> The example of war is a 'natural experiment', in which observations can be made about social circumstances that are nearly impossible to create experimentally. There is, however, one example of a randomised trial for individual income change program

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<sup>1</sup> Winter, J.M., Public health and the extension of life expectancy in England and Wales 1901-1960. In: M. Keynes, D.A. Coleman and N.H. Dimsale (eds.), *The Political Economy of Health and Welfare. Twenty Second Annual Symposium of the Eugenics Society 1985, Studies in biology, economy and society*, pp. 184-203, The Macmillan Press LTD, London (1988).

<sup>2</sup> Marmot, M.G. and Smith, G.D., Why are the Japanese living longer? *British Medical Journal*, **299**, 1547-1552 (1989).

<sup>3</sup> Blane, D., Brunner, E. and Wilkinson, R., The evolution of public health policy: an anglocentric view of the last fifty years. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 344, Routledge, London (1996).

<sup>4</sup> Erikson, R. and Goldthorpe, J.H., *The constant flux; a study of class mobility in industrial societies.*, p. 429, Oxford University Press, Oxford (1992).

that is referred to in the literature – the Gary Experiment, named after the town, Gary, Indiana in the US.<sup>1</sup> A group was randomised to receive negative income tax or normal welfare, the former with about 50% more income than the latter. The outcome measures were limited to pregnancy and birthweight, with the higher income group having higher birthweight babies, a measure of better health. So this is some evidence of improvement in material circumstances, both relative and absolute, having a positive impact on health outcomes.

Longitudinal research in the US is now leading researchers to conclude: ‘the income distribution of a nation is an important determinant of its mortality’.<sup>2</sup> As a light aside, an article on happiness and wealth in the US reported that steady improvements in the American economy have not been accompanied by steady increases in people's self-assessments of their own happiness.<sup>3,4</sup> There has been no improvement in average happiness in the United States over almost half a century, a period in which real GDPpc more than doubled. It seems money can buy happiness, but only if the amount gets bigger and other people aren't getting more, so that we feel rich if we have more than our neighbours, poor if we have less, and feeling relatively well-off is equated with being happy. This is consistent with Wilkinson's relative material thesis.

### *Political*

Landers argues a political explanation for the social gradient in health. He rejects the Notestein(ian) theory of demographic transition- that it was the agricultural, industrial, and sanitary revolutions which boosted living standards, ameliorated the consequences of urbanisation, and endowed human populations with a hitherto unprecedented degree of control over their collective and personal environments.<sup>5</sup> He regards these as truisms, arguing that direct political intervention played ‘perhaps the major role’ in furthering mortality decline. In refuting the pursuit of individual income as a driver of life expectancy in the UK, he argues for political factors, both government spending - redistribution and the direct provision of goods and services -, and the role of local government in re-distributing wealth, in pre-transition England.<sup>6</sup>

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<sup>1</sup> Kehrer, B.H. and Wolin, C.M., Impact of maintenance on low birthweight: Evidence from the Gary experiment. *The Journal of Human Resources*, **14**, 434-62 (1979). For its relevance to the social gradient in health see also Roberts, H., Children, inequalities and health. *British Medical Journal*, **314**, 1122-5 (1997)., Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).

<sup>2</sup> Duleep, H.O., Mortality and income inequality among economically developed countries. *Soc Secur Bull*, **58**, 34-50 (1995).

<sup>3</sup> The article was based on a book by Richard A Easterlin, an economist at the University of Southern California and former president of the Economic History Association and of the Population Association of America: *Growth Triumphant: The Twenty-First Century in Historical Perspective*, p. 216, University of Michigan Press (1996)

<sup>4</sup> Cornish, E., Happiness and Wealth, *The Futurist*. Vol. 31, pp. 13-16 (1997).

<sup>5</sup> Landers, J., Historical epidemiology and the Health Transition. *Health Transition Review*, **2**, 1-19 (1992).

<sup>6</sup> Landers argues that the Poor Law was an efficient redistributor.

### *Summary*

A limited examination of explanations for increases in life expectancy within and between developed nations reveals that medical care and improved health behaviour do not explain rises in life expectancy; mortality has declined for diseases where little prevention can be taken, and declined in places and time where smoking increased.<sup>1</sup> Gains in life expectancy in developed countries show little or no relationship with living standards as measured by increases in per-capita income, but moderate to strong relationships with levelling incomes within countries. These relationships occurred independent of health care, but related to the long-term pursuit of egalitarian policies, of which universal health care is a part, as is the creation of an educated, capable and demanding public described by Landers. Narrowing income inequality may be tentatively interpreted as enabling an overall increase in social control, or 'socially-willed' participation.

### Conclusion

It seems that, when comparing explanations for the social gradient in mortality, and its increase, as I elaborated in chapter one, with explanations for increases in life expectancy, in this chapter, one is drawn to similar conclusions. Individualist explanations, favoured by western, particularly Anglophone, nations, do not have explanatory power. The evidence instead points to relative material explanations, if not as causal, then as powerful markers for a society's will, or otherwise, to produce a socially healthy environment. Most of the material I have drawn upon is outside of Australia, and it is necessary to consider its relevance in Australia, which is the subject of the following chapter.



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<sup>1</sup> Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).

### Chapter 3. Australia: the social gradient in health and material inequality

In chapter one I discussed in some detail a range of explanations both for the existence of a social gradient in health and for its steepening over the latter part of the twentieth century, particularly in Anglophone countries. In chapter two I reviewed a range of explanations for an increase in health in the twentieth century, particularly in developed countries. There are substantial parallels between the two sets of explanations. The 'relative material circumstances' explanation is, if not itself causal, a powerful marker for the slope of the social gradient in health, and is strongly associated with rising life expectancy.

The bulk of the research in chapter one was from European (UK) and US sources, and it is necessary to address the question of its relevance to Australia. Does Australia have a social gradient in health, and, if 'relative material circumstances' is explanatory, what is the distribution of material resources in Australia?

#### *A brief outline of Australian studies*

McMichael, in 1985, compared deaths by occupation in the 1970s and found that, for every death from any cause in professional or executive levels, two deaths occur in unskilled or manual workers; these findings applied across a range of causes of death.<sup>1</sup> McMichael also specifically referred to the Whitehall study in using a measure of occupational prestige to find a gradient in mortality across occupations similar to overseas data.<sup>2</sup> Broadhead, also in 1985, accepted the gradient in mortality in Australia, and used new data from an Australian Health Survey to show a social gradient for morbidity by occupation.<sup>3</sup> Nevertheless it was reported in 1987 by Siskind, Copeman and Najman, in an area-based study in Queensland that:

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<sup>1</sup> McMichael, A.J., Social Class and Mortality in Australian Males in the 1970's'. *Community Health Studies* 9, 220-229., 9, 220-229 (1985).

<sup>2</sup> McMichael, A.J., Social Class (As estimated by occupational prestige) and mortality in Australian males in the 1970's. *Community Health Studies*, IX, 220-230 (1985).

<sup>3</sup> Broadhead, P., Social Status and Morbidity in Australia. *Ibid.*, 87.

The paucity of relevant Australian data is illustrated by the fact that only one of the Poverty Commission reports specifically discussed the health consequences of inequality in Australia and it relied for its documentation largely upon overseas reports or poorly controlled and largely anecdotal Australian studies.<sup>1,2,3</sup>

In a discussion on explanations the authors drew on the Black report, under the heading of social and political factors, and invoked the World Health Organisation's 'Health For All by the year 2000' strategy to ensure interventions reduced inequalities in 'property and resources'.<sup>4</sup> Echoing UK research into early life influences, there are several Australian studies of poverty and maternal and child health, in the individualist stream, providing longitudinal information important to the issue.<sup>5,6</sup> One such study showed inequalities in pregnancy outcomes narrowed to the 1960s and then widened.<sup>7</sup>

Since I began this work a detailed inventory of research projects of national significance has been collated, with the researchers involved noting the studies were mainly descriptive with explanatory data 'missing'.<sup>8</sup> This is also my interpretation of the studies so I will draw attention to only a few publications, with a national perspective, to highlight a lack of theory, before moving to consider some measures of the distribution of resources in Australia.

#### *Commonwealth publications*

A significant reference point for reporting on Australia's health gradient is the Commonwealth's National Health Strategy, which commissioned papers on a variety of aspects of the health system in the early 1990s<sup>9</sup>. The 1992 paper on inequality

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<sup>1</sup> Najman refers to The Poverty Commission Report. This report was commissioned by the government in to which Najman refers was the Henderson Inquiry Into Poverty and the volume was Martin, GS, *Social/Medical Aspects of Poverty in Australia*, AGPS Canberra 1976. Henderson, R.F., Australian Government Commission of Inquiry into Poverty. First Main Report April 1975, pp. 363, Commonwealth of Australia, Canberra (1975). Martin, R.G.S., Australian Government Commission of Inquiry into Poverty. Third Main Report March 1976. *Social/Medical Aspects of Poverty in Australia*, pp. 310, Commonwealth of Australia, Adelaide (1977).

<sup>2</sup> The article also cites Taylor, R. in a joint publication of the Health Commission of Victoria and Department of Social and Preventative Medicine, Monash University.

<sup>3</sup> Siskind, V., Copeman, R. and Najman, J.M., Socioeconomic status and mortality: a Brisbane area analysis. *Community Health Studies*, XI, 15-23 (1987).

<sup>4</sup> Ibid.

<sup>5</sup> Siskind, V., Najman, J.M. and Copeman, R., Infant mortality in socioeconomically advantaged and disadvantaged areas of Brisbane. *Ibid.*, 24-30.

<sup>6</sup> Najman, J., The contribution of social, environmental, lifestyle and biological factors to inequalities in health, and public health strategies for the reduction of these inequalities, *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997).

Najman, J., Social class and child mental health: data from a longitudinal study (MUSP), *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997).

<sup>7</sup> Siskind, V., Najman, J.M. and Copeman, R., Infant mortality in socioeconomically advantaged and disadvantaged areas of Brisbane. *Community Health Studies*, XI, 24-30 (1987).

<sup>8</sup> Turrell, G., A project funded by the Commonwealth- The nature and extent of health inequalities research and future directions, *Fifth International Health Summer School- Exploring New Horizons in Public Health*, Queensland University of Technology (1998).

<sup>9</sup> The National Health Strategy was established by a Labor government and its Director, Jenny Macklin, was later to enter parliament as a Labor member. At the time this research was undertaken, she was the Labor Shadow Minister for Health, see <http://www.aph.gov.au/house/members/biography.asp?id=PG6>

was called *Enough to Make You Sick: How Income and Environment Affect Health*.<sup>1,2,3</sup>

The paper summarised a range of inequalities by cause of death:

There are overwhelming inequalities in the health of Australians. Again and again, similar themes emerge when the inequalities for the most disadvantaged are examined: They have the poorest health; they make most use of primary and secondary health services, but they are the lowest users of preventive services. Their poorer health status largely explains their greater use of primary and secondary health services.

In the same year the Australian Bureau of Statistics (ABS) published its fifth edition of *Social Indicators*. This publication also refers to WHO 'Health for All' and the need to increase equity. It makes reference to variation 'by group', such as by socioeconomic differences, but then states its intention to summarise the Australian 'population'.<sup>4</sup> Here, however, summarising the Australian population means a summary by four lifestyle factors of diet, exercise, smoking and the consumption of alcohol, 'which are considered to be ... responsible for a large proportion of preventable deaths'. As an interesting aside, in the four leading causes of death for age groups 15-24, 25-34, and 35-44, suicide, an indicator of psychosocial forces, rather than lifestyle risk factors, ranks as respectively third, second and third.<sup>5</sup>

The idea of 'a population' is a recurring issue. Researchers interested in the social gradient in health are inclined to view populations as collections of people geographically or with continuous variables such as income; this is an environmental or ecological perspective. However, 'population' from a medical perspective tends to mean the group of people with a particular disease/ medical condition, an individualist perspective. In the *Social Indicators* fifth edition, 1992, the choice of risk factors as the descriptive unit implies an underlying individualist, behavioural explanation, by the ABS, for the social gradient in health.

The main source of published statistics about health and 'health care', or medical care, is the Australian Institute of Health and Welfare (AIHW). Its third biennial report in 1992 paid 'special attention' to differentials (sic) in health status and the incidence of health risk factors between various sub-groups of the Australian population. In evidence of inequalities it reported for example, for males 25-54, by 'occupational prestige':

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<sup>1</sup> For clarity, while I have argued for using 'the social gradient in health', in preference to inequality, I will use 'inequality' when discussing publications that use the term.

<sup>2</sup> This publication also summarises Australian and overseas literature in Appendix 1 page 118.

<sup>3</sup> Commonwealth of Australia, *Enough to Make You Sick. How income and environment affect health. National Health Strategy Research Paper No 1 September 1992*, p. 144, Canberra (1992).

<sup>4</sup> Page 67

<sup>5</sup> Commonwealth of Australia and Australian Bureau of Statistics, *Social Indicators Australia Number 5*, p. 383, Australian Government Publishing Service, Canberra (1992).

- 'consistent differences' across eight of the nine major causes of death groupings;
- more than two-fold differentials for circulatory diseases and injuries, the major causes of death in this age group, and 'of greatest importance at the population level' and;
- differentials more than ten-fold for deaths due to mental and genito-urinary disorders, 'responsible for only small numbers of deaths'.<sup>1</sup>

The report also grouped residential localities according to socioeconomic criteria, analysing age standardised death rates by quintile of socioeconomic disadvantage, showing the expected gradient, consistent with overseas studies. For males and females, there is a clear gradient of increasing mortality with increasing level of socioeconomic disadvantage of area of residence for all age groups, up to 67% higher for working males. Older people had lower gradients in mortality, with those in the quintile of greatest socioeconomic disadvantage having death rates around 10% higher than older people in the quintile of least disadvantage. However, as the majority of deaths occur in that age group, this small percentage differential translates into a large difference in the absolute number of deaths. The Institute found:

By all measures of socioeconomic status there is a consistent relationship in Australia between socioeconomic status and health. For all age groups, males and females with lower socioeconomic status have higher death rates (up to two-fold differences for all-causes mortality and three-fold or four-fold differences for some major causes of death), and report higher levels of illness and reduced activity due to illness. Education level and family income appear to be independently associated with health status.

The AIHW concluded, in 1992, that:

- socioeconomic differentials are 'real', that is, they reject artefactual explanations;
- health selection effects are important at some stages of the life cycle and in relation to some aspects of health, but do not explain most of the observed differences between population sub-groups;
- the process by which socioeconomic status and behaviour and lifestyle influence health is a complex one;
- individual behaviour has important social dimensions.

The AIHW's fourth and fifth biennial reports, in 1994 and 1996, however, had no separate section on health differentials.<sup>2</sup> The fourth report acknowledged 'material conditions' as determinant of health, referring back to the Black Report findings, in a three-page discussion of 'health and its determinants' but no Australian data on material conditions and health was presented.<sup>3</sup> The fifth report included two, one-page summaries of 'health differentials according to socioeconomic disadvantage'

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<sup>1</sup> Australian Institute of Health and Welfare, Australia's health 1992: the third biennial report of the Australian Institute of Health and Welfare, Australian Institute of Health and Welfare, (1992).

<sup>2</sup> Australian Institute of Health and Welfare, Australia's health 1994: the fourth biennial report of the Australian Institute of Health and Welfare, Australian Institute of Health and Welfare, (1994).  
Australian Institute of Health and Welfare, Australia's health 1996: the fifth biennial report of the Australian Institute of Health and Welfare, Australian Institute of Health and Welfare, (1996).

<sup>3</sup> Pages 1-4

under subheadings of two (of seven) special population groups: Australian youth and, older Australians. The Australian youth section showed a gradient of mortality by quintile of an area-based index of disadvantage.<sup>1</sup> This small sub-section is a small indicator that area-based studies feature in Australia.

A 1992 paper by Taylor et al gave a history of area studies back to the 1960s, noting the variation in analysing socioeconomic relationships.<sup>2</sup> Their own contribution, explicitly in the evaluation framework provided by Health for All targets, shows 'considerable differences in mortality and hospital morbidity ... in small area populations in Sydney 1995-8'. Studies in Brisbane found a mortality gradient and a potential- years- of- life- lost gradient, and estimated, for urban Australia, an additional 2000 male and 1000 female deaths under 65 due to socioeconomic circumstances; mortality gradients did not change from 1976-79 to 1980-87.<sup>3,4</sup> A separate, Australia-wide study compared social class with area indices within an industry, and another compared occupational prestige with suburb, highlighting Marmot's point about measurement precision, that more accurate measures of hierarchy show stronger relationships, see chapter one, page 3.<sup>5,6</sup> Others urged caution in interpreting area-based indices for women.<sup>7</sup>

The major recent work has however been the production of 'Social Health Atlases', by Glover, in which a wide range of data has been mapped to geographic areas, first in South Australia then for Australia.<sup>8</sup> The later versions include matrices of relationships between variables, presented as tables in appendices. These area-based publications of the social gradient in health are descriptive, with the explanation, for the health gradients shown, being 'the socioeconomic environment'. Apart from being an information source, the relation between socioeconomic indices and health is intended: 'to broaden the use and understanding ... beyond the health

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<sup>1</sup> Page 51

<sup>2</sup> Taylor, R., Quine, S., Lyle, D. and Bilton, A., Socioeconomic correlates of mortality and hospital morbidity differentials by Local Government Area in Sydney 1985-1988. *Australian Journal of Public Health*, **16**, 305-14 (1992).

<sup>3</sup> Siskind, V., Najman, J.M. and Veitch, C., Socioeconomic status and mortality revisited: an extension of the Brisbane area analysis. *Ibid.*

<sup>4</sup> *Ibid.*

<sup>5</sup> Gordon, I., Christie, D. and Robinson, K., Social class as indicated by area of residence: a mortality study within an Australian industrial population. *Community Health Studies*, **XIII**, 170-176 (1989).

<sup>6</sup> Quine, S. and Lancaster, P.A.L., Indicators of social class- relationship between prestige of occupation and suburb of residence. *Ibid.*, 510-18.

<sup>7</sup> Byth, K., McIntosh, J.H. and Piper, D.W., A note on sex-specific mortality and social class in Sydney, 1979 to 1983. *Australian Journal of Public Health*, **16**, 321-23 (1992).

<sup>8</sup> Glover, J., *Adelaide ... a Social Atlas*, p. 52, Australian Bureau of Statistics (1991),

Glover, J., *A Social Health Atlas of South Australia*, SA Health Commission, Adelaide (1990),

Glover, J., Shand, M., Forster, C. and Woollacott, *A Social Health Atlas of South Australia*, Second ed., p. 440, SA Health Commission, Adelaide (1996),

Glover, J. and Tennant, S., *A Social Health Atlas of Australia*, 2nd ed., p. 400, Commonwealth of Australia, Public Health Information Development Unit., Adelaide (1999),

Glover, J. and Woollacott, T., *A Social Health Atlas of Australia*, p. 320, Commonwealth of Australia, Adelaide (1992),

Glover, J. and Woollacott, T., *A Social Health Atlas of Australia Volume 2*, p. 320, Commonwealth of Australia, Adelaide (1992).

system into areas where decisions are made which impact on the health of the population'.<sup>1</sup> The underlying explanation is materialist.

However, part of the rationale of some area-based studies, internationally, particularly in the US, is an hypothesised lower structural access to goods and services. For example a potential behavioural explanation for poor nutrition, that is, the observation that low socioeconomic groups are least likely to purchase food that accords with recommendations in dietary guidelines, can be countered by an hypothesised structural lack of access to nutritious food.<sup>2</sup> In Australia, however, there is little support for the proposition that food choices are a function of the availability, accessibility and affordability of food recommended by dietary guidelines.<sup>3</sup> In Australia therefore, we must explain differences in nutrition behaviour via mechanisms other than access.

### *Conclusion*

Studies in Australia show the gradient in mortality by measures of socioeconomic status is similar to other, particularly Anglophone, developed countries. The Australian work, however, is predominantly descriptive, rather than theoretical. The tacit explanatory framework in government publications is predominantly behaviourist. Impressive area-based studies, non-government, have an underlying materialist framework, that is, successive increments in material resources bring successive increments in health outcome. Relative materialist explanations have not been explored.<sup>4</sup>

If relative material explanations apply in Australia it is worth looking at the distribution of material resources in Australia.

## **Australia and material inequality**

The relative materialist research on the social gradient in health points toward a policy priority for equality of condition, or life- prospects. In most of the work cited

<sup>1</sup> The quotation is from page 4 of the 1999 edition.

<sup>2</sup> Turrell, G., Influences on food-purchasing choices of socioeconomic groups. *Australian and New Zealand Journal of Public Health*, **20**, 611-617 (1996).

<sup>3</sup> Ibid.

<sup>4</sup> The theoretical background to this thesis was prepared in 1998. Additional reading included research published in 1999 and 2000. The relative material theory holds that material inequality produces a reduction in social cohesion. While the relative material thesis has not been explored in Australia, 'social cohesion', and variants, have attracted attention as a distinct topic. Baum, S., Stimson, R., Mullins, P. and O'Connor, K., Profiling vulnerable and expanding communities: a national study, *Social Policy for the 21st Century. Justice and Responsibility.*, Social Policy Research Centre, University of New South Wales (1999).

Bullen, P. and Onyx, J., Measuring Social Capital: Social Capital: Family Support Services and Neighbourhood and Community Centres in NSW. Vol. 1999, Neighbourhood and Community Centres in NSW and Family Support Services in NSW (1999).

Siahpush, M. and Singh, G.K., Social integration and mortality in Australia. *Australian & New Zealand Journal of Public Health*, **23**, 571-6 (1999). My view is that the topic is sometimes treated as if it were an independent variable, rather than either produced by material inequality or by the same forces that produce material inequality. A useful contribution to the history of the concept is provided by PopePope, J., Social capital and Social capital indicators; a reading list. Vol. 2000, National Public Health Partnership (2000).

in chapter one health is measured by mortality and life expectancy, and, it is argued, these measures are also markers for quality of life. Arneson, in a reference work elaborating various positions on the subject of equality, argues that 'equality of life-prospects, is an elusive ideal'.<sup>1</sup> He canvasses a 'resourcist' view of equality of condition in some detail, but, in many cases, the difficulties he describes with this view are with the use of economic utility as the measure of welfare. It is argued that, in maximising total welfare, there is no a priori reason to favour a unit increase in a poor person over one well-off in calculating net welfare gain. However the research on relative material effects on health refutes several classical scenarios that use such a formulation, because one's individual setting rank (per Marmot) and a social rank (per Wilkinson) become determinant in measuring welfare, of which life expectancy must be regarded as a substantial component. As a self-described egalitarian, Arneson speculates ultimately that the underlying value that supports equality (and giving priority to the worst-off) is the idea that the *moral* benefit of conferring a given benefit on a person is greater, the worse off the person is prior to receipt of the benefits. The research instead points to tangible benefits, in reduced mortality, of material redistribution(s). The Rawlsian formulation, in particular, of moral tolerance for inequality, is described by Arneson:

... to the extent that inequalities were found to be maximally productive for those who suffer inferior prospects, the inequalities would not be morally regrettable.

This apparently divides the population into the haves and 'have-nots', and, in an economic interpretation of 'productive', an absolute material gain for the 'have-nots' is morally valued above a simultaneous rise in inequality. Such an interpretation does not take into account a gradient in material circumstances and, if either a material or relative material explanation for health applies, the health impact of that gradient is felt across all but the uppermost group. So this formulation does not take into account materialist explanations for inequalities in health<sup>2</sup>.

The existence of a social gradient in health in Australia does not seem to be the subject of much discussion, whereas the topic of whether Australia is a particularly unequal society, which offends a treasured, if mythical, value, is debated with much heat. If a relative material hypothesis explains social gradients in health then the extent of Australian material inequality matters.

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<sup>1</sup> Arneson, R.J., Equality. In: R.E. Goodin and P. Pettit (eds.), *A Companion to Contemporary Political Philosophy*, pp. 489-507, Blackwell Publishers, Oxford (1993).

<sup>2</sup> Note that, at the time this research was undertaken there had been a Rawlsian approaches to health care *services*, rather than health per se. Also, since this material was prepared, the absence of 'disease' or health status in Rawls' account was confirmed by Daniels, Kennedy and Kawachi, who have made a case to extend the Rawlsian framework to include health. Daniels, N., Kennedy, B.P. and Kawachi, I., Justice, Health and Health Policy. In: M. Danis, C. Clancy and L.R. Churchill (eds.), *Ethical Dimensions of Health Policy*, pp. 19-47, Oxford University Press, New York (2002).. Another formulation using Rawls includes health as a basic freedom but assumes, openly, for the argument, that 'endowments' are equal at birth, which is demonstrably not the case. Bommier, A. and Stecklov, G., Defining health inequality: why Rawls succeeds where social welfare theory fails. *Journal of Health Economics*, 21, 497-513 (2002)..

*Australia's material inequality, compared internationally*

The international reputation Australia has for egalitarianism is not reflected by the available data on material circumstances.<sup>1</sup> Rather, in international comparisons using the Luxembourg Income Study (LIS),<sup>2</sup> Australia fares badly with data showing that Australia is one of the most unequal societies in the OECD.<sup>3</sup> Only the USA had a more unequal distribution of income in 1993.<sup>4</sup>

It is argued that the Luxembourg Income Study comparisons between countries may be distorted by differences in the tax system, social security transfers, housing, wealth, and incomplete accounting of government tax and spending programs as well as the failure to distinguish between redistribution across the lifecycle and redistribution between income groups.<sup>5</sup> An example is that Australia has the 'highest and most equally distributed home ownership in OECD' and this distributes (imputed) income across the life course to old age, where Australia has 'very low incomes'.<sup>6</sup> However home ownership provides greater benefits to higher income groups, and the gains therefrom ought to be part of capacity to pay for issues such as wealth and inheritance taxes, which Australia does not have.<sup>7</sup> A review of the LIS data found that the non-cash results were not markedly different from LIS research based on income alone.<sup>8</sup>

One oft-repeated remark is that the majority of unit income comes from wages and one of the best ways of avoiding poverty is to have paid employment. However, 'working poverty', that is, people in work who have incomes which are low or below poverty lines,<sup>9</sup> while relatively insignificant in the 1970s, became a real problem by the end of the 1980s and may be set to increase in the future.<sup>10</sup> Between 1976 and 1990, employment increased by 1,379,000 jobs but 983,000 of these were in the

<sup>1</sup> Nor, apparently do people believe it, as four-fifths of the Australian population believe that social classes exist, and have no trouble placing themselves into a class. Only one in ten believes that Australia is classless – see Germov, J., *Class, Health Inequality and Social Justice*. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 20-38, Oxford University Press., Melbourne (1998).

<sup>2</sup> The LIS is a cooperative research project with a membership of 25 countries, including Australia, which houses a collection of household income surveys. (See website at <http://lis.ceps.lu/>)

<sup>3</sup> In this case of 9 OECD countries.

<sup>4</sup> Stillwell, F., *Economic Inequality: Who Gets What in Australia*, Pluto Press, Leichhardt (1993)., Stillwell, F., Our egalitarian society is just a debating point., *Sydney Morning Herald*, Sydney (1994)., and Australia was described in 1997 as an 'extreme case' for inequality in 1997 Smith, L., Health inequalities: national and global perspectives, *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997).

<sup>5</sup> Whiteford, P., Is Australia particularly unequal?, *Social Policy and the Challenges of Social Change*, University of New South Wales, Sydney (1995).

<sup>6</sup> Ibid.

<sup>7</sup> Burbidge, A., Capital gains and economic inequality., *1997 National Social Policy Conference: States Markets Communities - Remapping the Boundaries*, Social Policy Research Centre, University of New South Wales (1997).

<sup>8</sup> Smeeding, T.M., Saunders, P., Coder, J., Jenkins, S., Fritzell, J., Hagenaars, A.J.M., Hauser, R. and Wolfson, M., Poverty, inequality, and family living standards impacts across seven nations: the effect of noncash subsidies for health, education, and housing. *Review of Income and Wealth*, **39**, 229-56 (1993).

<sup>9</sup> Poverty lines themselves are relative measures in many cases.

<sup>10</sup> Eardly, T., Does Australia have a problem of working poverty? An examination of the trends since the mid-1970s, *1997 National Social Policy Conference: States Markets Communities - Remapping the Boundaries*, Social Policy Research Centre, University of New South Wales (1997).

lowest paying 20% of jobs, and both the real wage and social wage declined 1985-1990.<sup>1</sup> Paid employment, if in low-income jobs, will not reduce the health effects of material inequality.

Commenting on the 1998 release of a UN Development Report, that showed Australia had taken a slide in its world standing, a deputy director in the UN was reported as saying: 'Australia is slipping behind other industrialised countries in achieving income equity in the general population'.<sup>2</sup> One of the measures used is the ratio of income of the top quintile of income earners to the bottom, which in Australia widened to 11, about the same as Russia, compared with 9.6 two years prior.<sup>3</sup> Investment in social infrastructure is also being neglected as the proportion of GDP spent on social infrastructure has been dropping over the last 30 years (to 1995) from 10 % to 6.5%, while the age of infrastructure is increasing.<sup>4,5</sup> The trend is similar to other OECD countries but the fall is much greater in Australia, which has the lowest expenditure per student in the OECD. There are other indicators of inequality, across nations, which include a time dimension, and one is the study of social mobility.

*Australian social mobility, compared internationally*

The study of social mobility is relevant to the inequality debate because high social mobility is an indicator of an open society, rather than one in which stratification persists. In Erikson and Goldthorpe's examination of political theories of social mobility, the Australian situation warranted separate analysis, along with the USA, as 'they share distinctive, historically formed cultural features that could show a different pattern to European countries'; that is they see themselves, and are seen by other countries as more open, classless meritocracies.<sup>6,1</sup> It was predicted variously that Europe would become more like the US in achievement and mobility (the liberal theory) and, on the contrary, that the US would over time become a class system like Europe (Marx). Drawing on Australian literature, Erikson and Goldthorpe noted, about Australia, expressions of similarities and differences with the USA; the difference was not to fully embrace equality of opportunity but rather equality of condition- to emphasise needs more than capacities. Some Australian

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<sup>1</sup> Germov, J., Class, Health Inequality and Social Justice. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 20-38, Oxford University Press., Melbourne (1998).

<sup>2</sup> Ellicott, J., Gadgets leave us poorer., *The Australian*, pp. 3, Adelaide (1998). 10 September.

<sup>3</sup> Ibid.

<sup>4</sup> Public and private; private expenditure, at 1% point, is mostly in private schools.

<sup>5</sup> Johnson, M., The forgotten half of the infrastructure debate: social infrastructure in economic and social development., *Social Policy and the Challenges of Social Change*, University of New South Wales, Sydney (1995).

<sup>6</sup> This USA self image is refuted by the authors, and hotly disputed by Krieger, see Krieger, N., The Making of Public Health Data: Paradigms, Politics, and Policy. *Journal of Public Health Policy*, 13, 412-427 (1992)., who argues this idea has limited the data collection that would clearly demonstrate otherwise. The latest USA health information, posted on the internet, now has a section devoted to inequalities, written by Elsie Pamuk, whose work is included at page 16.

writers, reviewed by Erikson and Goldthorpe, saw a highly mobile and open society from Australian egalitarianism, others argued it wasn't real mobility, it was the way mobility was perceived- as affirming openness rather than indicating persisting inequality. Erikson and Goldthorpe found that Australian mobility was within the European range, 'a Swedish pattern without the same degree of social-democratic political dominance'. In general, Australian social mobility was similar to other countries.<sup>2</sup> The comparison with other nations shows that, on a number of measures, Australia's experience is unexceptional, so research into the health effects of material inequality is likely to travel well to Australia. I now turn to the levels of inequality within Australia.

#### *Material inequality within Australia*

The level of income inequality has grown over time within Australia. The Australian Bureau of Statistics reported that between 1981-82 and 1989-90 the degree of inequality in income distribution among income units, as measured by the Gini coefficient of concentration, increased from 0.4 to 0.43.<sup>3,4</sup> Income units in the highest decile increased their income share of the total from 27 percent to 29 percent, more than the six lowest deciles put together. The lowest decile received less than 2 percent of total income.<sup>5</sup>

In Table 5 the progression of income distribution over the years 1994 – 1998 is shown in quintiles, together with the corresponding Gini coefficient for all income units. Compared with 1996/7, in 1997/8 there was a transfer of about 0.7 percentage points of income from quintiles two, three and four to quintile five. Quintile one remained at 3.8% and each of quintiles two three and four had a reduced share of total income, all of which went to quintile five, the top income category. The changes are referred to as a 'hollowing out of the middle', where the poorest are protected, middle groups lose share, while the highest incomes gain share. While the one-year changes produced an apparently minor change in the Gini coefficient of 0.002, it is calculated in Table 6 that 0.7 percentage points of national income was \$A2.2 billion. So apparently small changes in the Gini over

<sup>1</sup> Erikson, R. and Goldthorpe, J.H., *The constant flux; a study of class mobility in industrial societies.*, p. 429, Oxford University Press, Oxford (1992).

<sup>2</sup> It is worth recording that both Marxist and liberal theorists are impugned by the authors, Erikson and Goldthorpe, as they found mobility increased up to World War I then decreased, where both theories propose unidirectional change.

<sup>3</sup> The Gini coefficient, named after its creator Corrado Gini 1884-1965, is a measure of maldistribution of an element, mainly income. The calculation involves ranking individual income units (frequently quantiles) lowest to highest, then summing twice the differences between a completely egalitarian distribution and the cumulative percentage of income by unit. It takes a unit-less value between zero and one, the higher the more unequal.

<sup>4</sup> 'An income unit is defined as: one person, or a group of related persons, within a household, whose command over income is shared'. For more detail, see Australian Bureau of Statistics: *A Provisional Framework for Household Income, Consumption, Saving and Wealth* (1995) Chapter 7. Statistical units.

<sup>5</sup> Australian Bureau of Statistics, *Social Indicators Number 5*, Australian Bureau of Statistics, (1992).

many units represents large transfers of income, equivalent to \$A240 per income unit pa.

**Table 5 Australia's income distribution 1994-8 and Gini coefficient.**

<i>Australia's income distribution – quintiles</i>					
<i>Quintile</i>	<i>1994/5</i>	<i>1995/6</i>	<i>1996/7</i>	<i>1997/8</i>	
<i>1</i>	3.6	3.8	3.8	3.8	
<i>2</i>	9.3	9.1	9.4	9.0	} -0.7
<i>3</i>	15.2	15.0	15.2	15.0	
<i>4</i>	24.0	23.7	24.0	23.9	
<i>5</i>	47.9	48.3	47.5	48.3	+0.7
<i>Gini</i>	0.443	0.437	0.444	0.446	

Source: ABS 6523.0 1997/8 p4

**Table 6 Calculation of income shift in Au dollars 1996/7 to 1997/8**

<i>Income units</i>	9,129,400
<i>Mean income</i>	\$658.00 /week
<i>Total weekly income</i>	\$6.01 billion /week
<i>Total annual income</i>	\$313 billions /year
0.7% =	\$2.2 billions

Material inequality of incomes is relatively high in Australia and there is not, so far, any evidence to suggest that the situation is likely to be different for its relationship with health outcome. This work has yet to be done but the question remains about Australia's internal relative material relationship with health, found within some nations, notably the USA.

#### *Income inequality and Australian States*

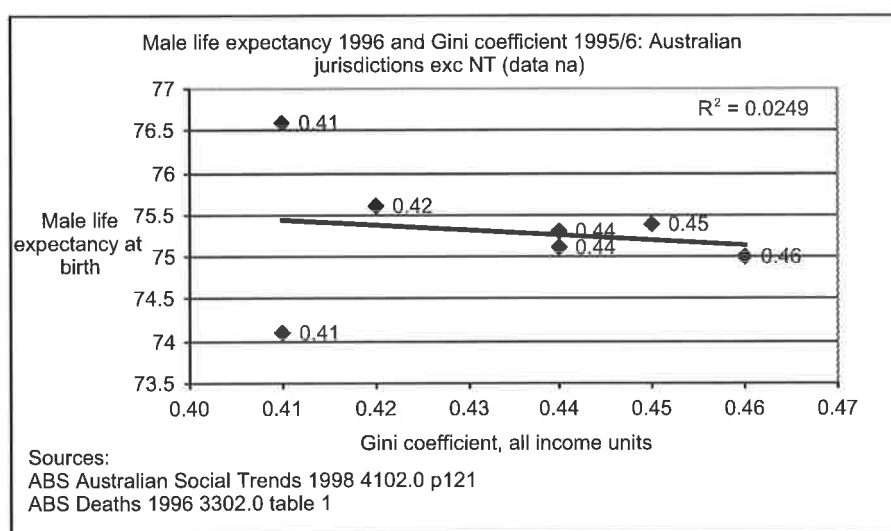
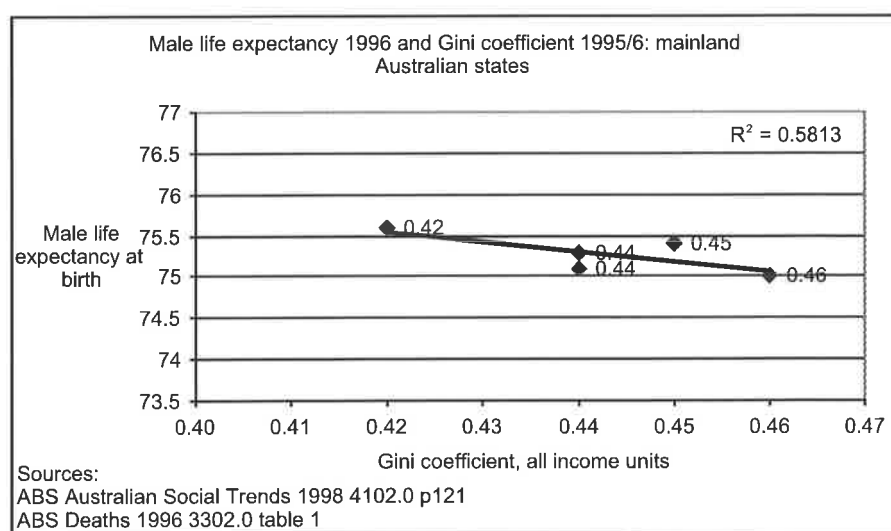
A full investigation of the relative material hypothesis in Australia is beyond the scope of this policy-oriented thesis but the following data are interesting given the small number of jurisdictions. I plotted cross sectional data from the Australian Bureau of Statistics on life expectancy dependent on the jurisdiction's Gini coefficient, based on income units see Table 7 and Figure 22. None of the regression was significant at the 0.05 level.<sup>1</sup>

<sup>1</sup> These charts were plotted using Microsoft Excel spreadsheet and the Excel regression function was used to calculate p values.

**Table 7 Australian jurisdictional Gini coefficients 1995/6 and male life expectancy at birth.**

State	$e_x^0$ (male)	Gini
NSW	75.2	0.46
Vic	75.6	0.42
Qld	75.1	0.44
SA	75.3	0.44
WA	75.4	0.45
ACT	76.2	0.41
Tas	73.9	0.41
NT	na	na

Source: ABS 6523.0 Income distribution.

**Figure 22 Australian jurisdictional Gini coefficients and male life expectancy at birth, cross sectional relationship 1996.****Figure 23 Australian mainland state Gini coefficients and male life expectancy at birth, cross sectional relationship.**

For male life expectancy and income inequality there is a weak relationship, not significant, with two large outlying figures for the ACT (high life expectancy) and

Tasmania. These are the smaller populations and the ACT would be expected to be different due to a strong, healthy and educated worker effect of migration into the capital. The result for Tasmania may also have to do with healthy migration out of the State but is less clear. The remaining, larger, states however show a moderate inverse relationship between inequality and life expectancy, also not significant at the 0.05 level ( $p=0.13$ ), see Figure 23. This follows the pattern for international variation, shown by Wilkinson, see Figure 14, on page 3 of this thesis and state differences in the US.<sup>1</sup>

Also, the change in Gini coefficient was inversely related (not significant) to the change in life expectancy in Australian jurisdictions, also consistent with the relative material hypothesis, see Figure 15, on page 3. In Table 8 and Figure 24, a reduction in the Gini coefficient, that is a move towards a more equal distribution of income, was weakly associated with greater gains in life expectancy over a recent three-year period. This relationship also strengthened when just considering the mainland states, see Figure 25.

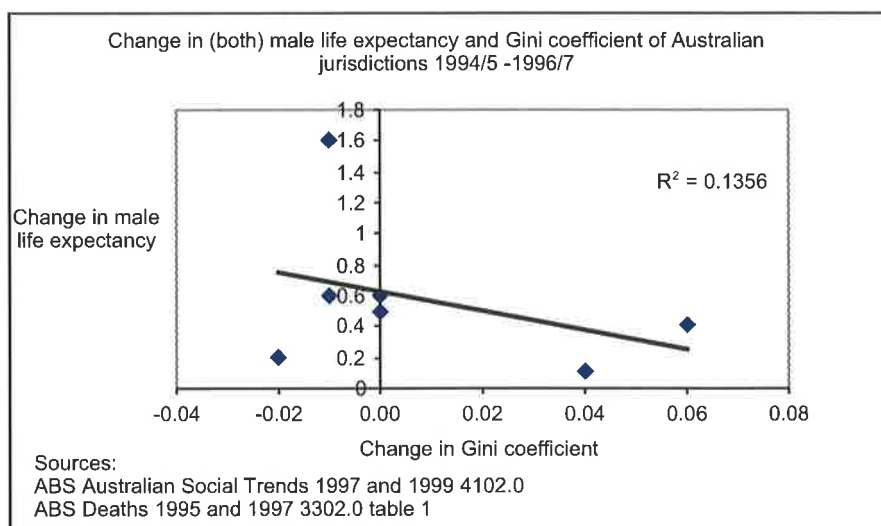
**Table 8 Australian jurisdictions: male life expectancy at birth and Gini coefficient of income (all income units)**

<i>State/ Territory</i>	<i>Gini 1994-5</i>	<i>Gini 1996-7</i>	<i>ΔGini</i>	<i>Δe<sub>x</sub><sup>0</sup></i>	<i>e<sub>x</sub><sup>0</sup> male 1995</i>	<i>e<sub>x</sub><sup>0</sup> male 1997</i>
<i>NSW</i>	0.45	0.45	0.00	0.5	74.9	75.4
<i>VIC</i>	0.44	0.42	-0.02	0.2	75.6	75.8
<i>QLD</i>	0.44	0.44	0.00	0.6	74.80	75.40
<i>SA</i>	0.43	0.42	-0.01	0.6	75.10	75.70
<i>WA</i>	0.42	0.46	0.04	0.1	75.60	75.70
<i>TAS</i>	0.41	0.40	-0.01	1.6	73.20	74.80
<i>NT</i>	<i>na</i>	<i>na</i>		0.9	69.10	70.00
<i>ACT</i>	0.38	0.44	0.06	0.4	76.70	77.10
<i>AU</i>	0.44	0.44	0.00	0.6	75.00	75.60

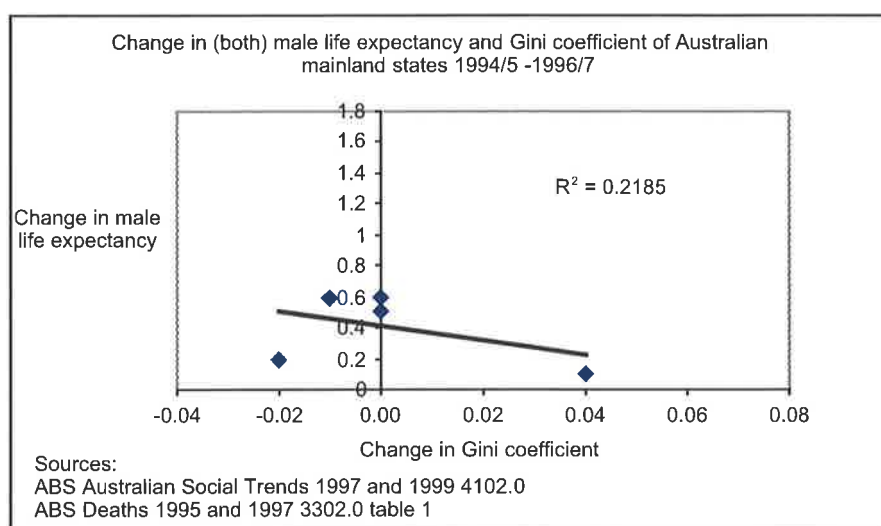
Source: Australian Social Trends 1998 4102.0 p121 and ABS Deaths 1996 3302.0 Table 1.

<sup>1</sup> Kawachi, I. and Kennedy, B.P., The relationship of income inequality to mortality: does the choice of indicator matter? *Soc Sci Med*, 45, 1121-7 (1997).

**Figure 24 Australian jurisdictions: change in Gini coefficient of income (all income units) and change in male life expectancy at birth 1994/5 to 1996/7**

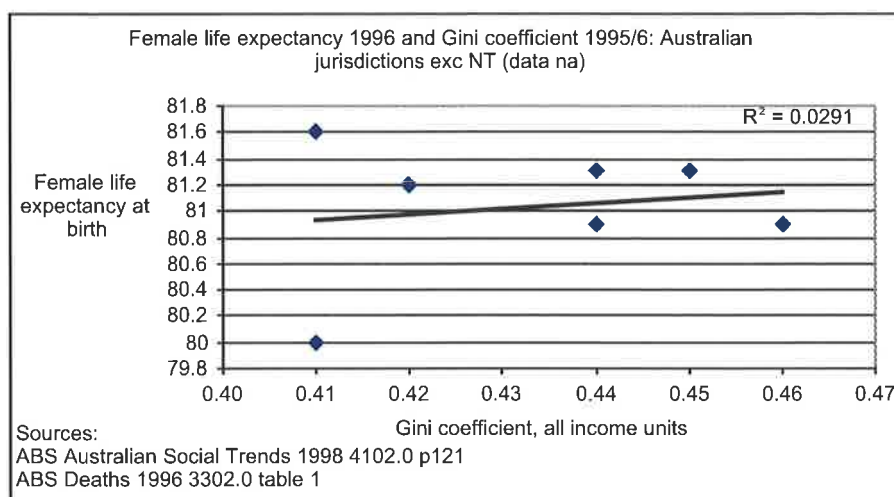


**Figure 25 Australian mainland states: change in Gini coefficient of income (all income units) and change in male life expectancy at birth 1994/5 to 1996/7**

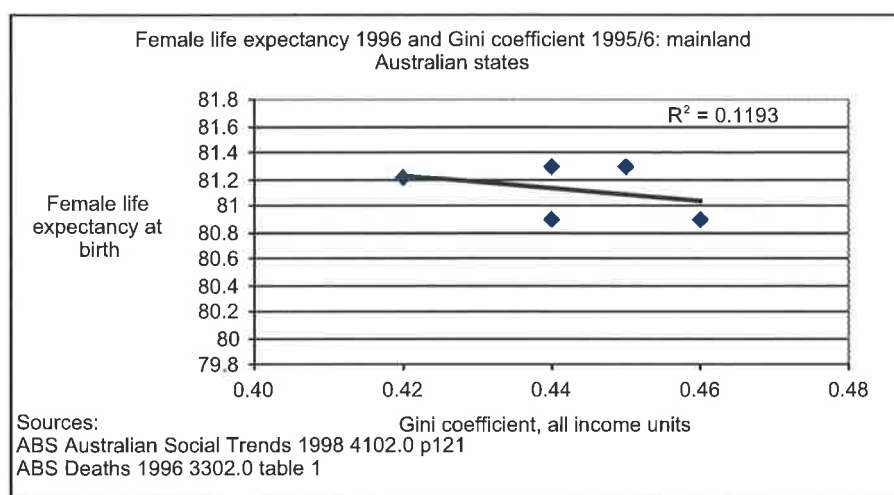


From these analyses, the null hypotheses, that there is no cross-sectional relationship between income inequality and life expectancy, and no relationship between increasing income inequality and slower growth in life expectancy, could not be rejected. It is worth noting only that the overall trends are consistent with each other and consistent with the relative material hypothesis, for males. The picture, for females, however, is a little different. Again, no relationships reached statistical significance at the 0.05 level. The equivalent analysis for females shows that greater material inequality is very weakly associated with greater life expectancy, see Figure 26. However, this reverses to a weak expected relationship when the smaller jurisdictions are removed, for the healthy worker migration reasons stated above, see Figure 27.

**Figure 26 Australian jurisdictional Gini coefficients and female life expectancy at birth, cross sectional relationship 1996.**

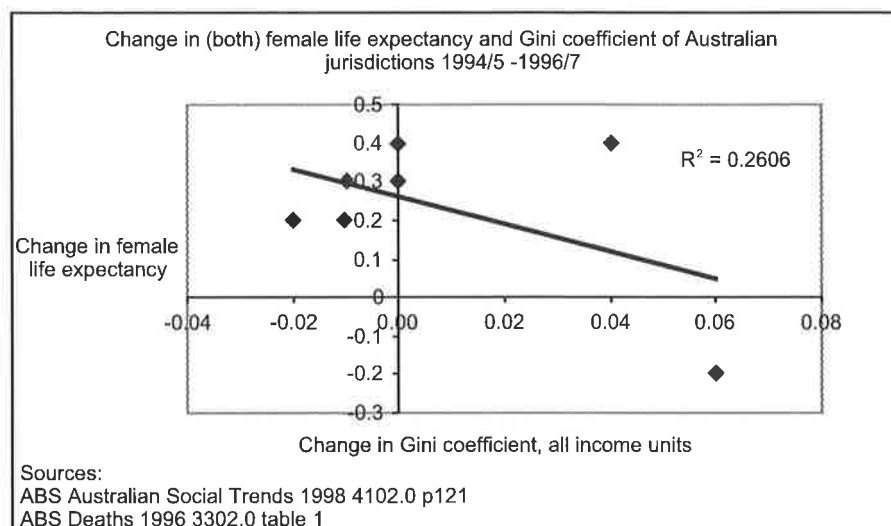


**Figure 27 Australian mainland Gini coefficients and female life expectancy at birth, cross sectional relationship 1996.**

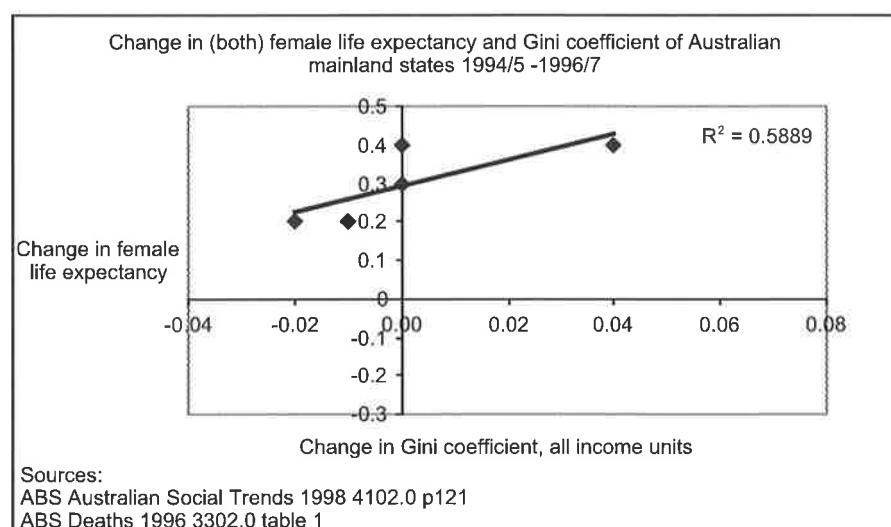


The time relationship is more problematic. For all jurisdictions there is a weak relationship between an improvement in life expectancy and movement to a more equal distribution of income, as predicted by the relative material hypothesis, see Figure 28. However this changed to a moderate relationship between an increase in inequality and an increase in life expectancy when the smaller jurisdictions were removed, see Figure 29. The pattern for females is internally inconsistent, and does not support a relative material thesis. A more detailed investigation, beyond the scope of this thesis, would include obtaining income inequality data for a longer period and an investigation of any time lag relationships.

**Figure 28 Australian jurisdictions: change in Gini coefficient of income (all income units) and change in female life expectancy at birth 1994/5 to 1996/7**



**Figure 29 Australian mainland states: change in Gini coefficient of income (all income units) and change in female life expectancy at birth 1994/5 to 1996/7**



### Summary

There is no reason to believe that Australia's experience is different to other, particularly Anglophone, nations with regard to the social gradient in health. A variety of descriptive studies shows the expected relationships between measures of material circumstances and measures of health, consistent with descriptive studies in the US and UK. There has been much less effort in advancing explanations for the social gradient in health in Australia. It is salient that the theoretical work, both in refuting selection and artefactual explanations, and in advancing new theories for the impact of work, has come from longitudinal studies around the world, and there have been very few such studies in Australia.

If relative material circumstance is a marker for causal relationships generating the social gradient in health, then there is cause for concern, as there is evidence that Australia has internationally high levels of income inequality. In the 1990s there were large transfers of income out of the middle quintiles to the top quintile, while the bottom quintile has been protected. A limited examination of the relative material hypothesis by Australian jurisdictions is consistent, *prima facie*, with international studies of Anglophone countries for males; gains in life expectancy tended to be greatest where income inequality, measured by the Gini coefficient, narrowed. The thesis was not supported for females.

In chapters one to three I set out a taxonomy of explanations for the social gradient in health, and for the production of good health, both internationally and for Australia. I have shown that there is no reason to think Australia's experience differs markedly from other developed nations. These explanations, however, do not exist side by side over time; they vary over time. So it is illuminating, in the next chapter, to put the various pivotal studies into an historical perspective, as an aid to conceptualising the trends in various theories and to predicting its future directions.



### Chapter 4. A history of ideas about inequalities in health

In chapter one I set out a taxonomy of explanations for the social gradient in health against a social scale ranging from the biological to the political, or from the individual to the eco-social in a narrower range on the same scale, see Figure 3, on page 3, and repeated here for convenience. In chapter two I set out explanations for rising life expectancy in

a similar fashion, drawing parallels between the two sets of explanations. In chapter three I showed that there is a social gradient in health in Australia, consistent with overseas research, and that there is rising

Figure 3, page 8, A taxonomy of explanations for the social gradient in health

	Explanation	Level	Black Report
Non- determinant explanations	Selection		Selection
	Artefact		Artefact
Determinant explanations	Genetic	Personal/ Individual	
	Biologic		
	Behaviour	Work	Behaviour/Culture
	Occupation/ class		
	Culture	Household	
	Income		Material
	Status	Neighbourhood	
	Physical setting	Community	
	Social		
	Psychosocial	Society	
Environment			
Ecology	Political		

material inequality which, if a relative material explanation applies, will steepen the gradient.

In this final chapter of the first section I describe the dominant ideas which apply, over time, in the debate about the social gradient in health, as an aid to conceptualising the external influences on theory building. These dominant ideas tend to constrain explanations for the social gradient in health toward one end of the social scale of the taxonomy in Figure 3, on page 3, that is toward either of the individual or the eco-social ends. I then set out key research, by explanatory category, as a history of ideas, against the taxonomy I developed in chapter one. The history shows that explanations for the social gradient in health have varied over time and that the outcome of particular research has shifted explanatory ideas within the extremities of that taxonomy.

On a summary view of this time-trend map I overlay the current contest between the various explanations as a tension between the individualist and eco-social extremities of the taxonomy. This is presented as a force field analysis, in order to visualise future directions. A force field analysis conceptualises any ‘current’ position as an equilibrium of competing forces. The balance point may be shifted by adding to or removing forces from either side of the ‘current’ position. The map of research over time and dominant forces is at Figure 30 on page 3 and may be read in conjunction with the text.

## **Forces that push a prevailing view toward individualist explanations for, and solutions to, the social gradient in health**

A combination of ideas drives explanations toward the individual end of the taxonomy of explanations that I developed in chapter one. That is, toward the idea that the explanation for the social gradient, and so the means to conceive of its amelioration, lies with characteristics of individuals, their behaviours, their biology and their genetic make-up.

### *Individualism*

The rise of *individualism*, to ‘excessive levels’ in the United States, is a major thread in the health literature.<sup>1</sup> Tesh, the American historian of ‘hidden arguments’ in the history of public health policies, notes that, in the nineteenth century, a ‘personal behaviour theory’ of disease was associated with an anti- authoritarian, anti doctor, pro- nature movement, which made disease a personal event, not a political phenomenon requiring government action.<sup>2</sup> This theory ignored poverty and blamed the victims for their poor habits. It supported the economic liberalism of an expanding country and the chief American offering to modern political ideas, belief in the primacy of individual freedom and autonomy.

The United Kingdom Undersecretary of State for Health and Social Security, Sir George Young, in his 1980 response to the Black Report, espoused an individualist doctrine to address inequalities in health:

‘I see progress being made by encouraging health education, personal responsibility for health, and encouraging voluntary organisations to help in the personal social services and helping to complement the NHS’.<sup>1</sup>

Individualist ideas dominate research today, wrongly dominate explanations for inequalities and therefore wrongly dominate the policy process. Behaviour is now often referred to as ‘lifestyle’, with the latter term being understood to include positive or health-promoting behaviour, also emphasising individual autonomy and responsibility. Tesh argues that lifestyle theory is popular today because it stands for individualism and upward mobility- it is chic to exercise, not to smoke and to eat low cholesterol. These behaviours now signal membership of the affluent classes, and a willingness to work to improve yourself; whether or not it wards off disease, you feel good about yourself. Lifestyle theory also emphasises personal control over disease and suggests health can be secured without major changes in industry, the economy or government. So lifestyle change may act to reduce medical care expenditure and, even better, at no cost to the government.

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<sup>1</sup> See Marshall, G. (ed.), *The Concise Oxford Dictionary of Sociology*, Oxford University Press, Oxford (1994), or Etzioni, A., *The Community in an Age of Individualism. The Futurist*, **25**, 35-39 (1991).

<sup>2</sup> Tesh, S.N., *Hidden Arguments Political Ideology and Disease Prevention Policy*, p. 215, Rutgers University Press (1988).

Similarly, the biomedical model focuses on diseases in individuals or aggregates of individuals. The origins of medical dominance may lie with the replacement of the church by medicine as the institution of social control in the nineteenth century.<sup>2</sup> For example, it is argued that definitions of mental illness around the turn of the twentieth century owed more to governments' incapacity to systematically address and solve poverty than to medical diagnosis.<sup>3</sup> Antonovsky points out that individualism, as the dominant ideology, determines the way medical problems are defined, and the way strategies are implemented, as the dominant ideology is invariably internalised by the dominant elements of the medical establishment.<sup>4</sup>

The belief that poverty accounted for the social gradient in health, and had been solved by the welfare state reforms post World War 2, resulted in the separation of health from welfare, and health became the exclusive province of medical science. Medicine is struggling, however; it is unable to alter behaviour/lifestyle, unable to alter socioeconomic disadvantage, and ill equipped to deal with chronic/degenerative diseases.<sup>5</sup> This challenge faced by individualist medicine is shown in the field of clinical epidemiology.

#### *Clinical epidemiology*

Epidemiology itself has been a force both for individualist explanations of disease and, more recently, for research into ecological and social causes of disease and mortality.

Individualist research, relying on a threshold model of causation, has focussed on the identification of (individualist) risk factors under the premise that a group of necessary factors, in combination, reaches sufficiency for a particular outcome.<sup>6</sup> Prevention can then focus on eliminating just one factor. A metaphor is the 'web of causation', where breaking one strand of the web is enough to prevent the outcome.<sup>1</sup> Krieger argues that the web model focuses attention on the risk factor closest to the outcome, that is, the biological outcome of disease, and that the 'hidden' theory behind this is biomedical individualism, which obscures the pursuit of root causes. Clinical epidemiology presupposes variance within relatively small

<sup>1</sup> Black, D., Morris, J.N., Smith, C. and Townsend, P., *Inequalities in Health*, Report of a Research Working Group, Department of Health and Social Services, London (1980).

<sup>2</sup> '... it was far easier for Poor Law doctors to tackle the problem of pauperism by treating illnesses than it was for doctors and sanitary officials to tackle the problems of public health by drawing attention to poverty'. Wohl, A.S., *Endangered Lives: Public Health in Victorian Britain*, Methuen (1983).

<sup>3</sup> Roach Anleu, S., *The Medicalisation of Deviance*. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 96-120, Oxford University Press., Melbourne (1998).

<sup>4</sup> Antonovsky, A., *Implications of socioeconomic differentials in mortality for the health system*, *Socioeconomic Determinants and Consequences of Mortality*, pp. 483-49, United Nations & World Health Organization, Mexico (1979).

<sup>5</sup> Blaxter, M., *The significance of socioeconomic factors in health for medical care and the National Health Service*. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 32-41, Routledge, London (1996).

<sup>6</sup> Rothman, K.J., *Causes*. *American Journal of Epidemiology*, **104**, 587- 592 (1976).

aggregations of individuals with a particular condition and as such is unable to reveal factors affecting the whole aggregation, or 'population'. The implication is, for example, that variation in mortality by relative material circumstances is a measure of an underlying constant that is only partially revealed by analyses by social class. Even where researchers acknowledge eco-social forces it remains to understand how these act at an aggregated individual level to affect mortality. It is not surprising that there have been numerous studies of the endocrine system and the effect of cortisol, serotonin, interleukin-I etc., all trying to find the strand where intervention can break the pathway to differential mortality, at the same time as any success these efforts have is unlikely to address the root causes.

Individualist clinical epidemiology looked promising, to understand the social gradient in disease, by extending behavioural lessons from apparently successful studies reporting in the 1950s: Doll and Peto's famous studies of smoking in 1954, the Seven Countries Study in 1957 and, studies of bus conductors and drivers already noted.<sup>2</sup> There is accumulating evidence, however, that socioeconomic determinants are at the root of other apparently individual risk factors, such as smoking. Clinical (medical) epidemiology tends to focus on smoking behaviour, without asking what produces different patterns of the behaviour across the socioeconomic spectrum or why smoking does not produce the same effects in countries where tobacco consumption does not have an inverse association with socioeconomic status. Similarly, some researchers who had been involved in personality research (Type-A) are now looking into cynical hostility and anger.<sup>3</sup> While finding, almost as an aside, that these 'cluster' in low socioeconomic *groups*, the researchers are devising large trials to examine the effect of training *individuals*, in whom coronary heart disease is present, in cognitive behavioural skills, to re-interpret situations that make them angry, so that they don't become as angry, or they don't act as aggressively in those situations. The emphasis is on treating the effects rather than the origins of the hostility.

Syme says one of the main tasks for epidemiology is to identify risk factors, but its failure to do so is illustrated by coronary heart disease (CHD).<sup>4</sup> CHD is one of the 'best' diseases for risk factor epidemiology, in the sense that risk factor analysis explains more of the variance in CHD than it does in other diseases. However, while

<sup>1</sup> MacMahon, B. and Pugh, T.F., *Epidemiology: Principles and methods*, 1970 ed., Little Brown and Co, Boston, Mass. (1960).

<sup>2</sup> See page 65.

<sup>3</sup> Swan, N., Anger kills, *Radio National* (1997).

<sup>4</sup> Syme, S.L., To prevent disease: the need for a new approach. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 21-31, Routledge, London (1996).

many risk factors have been identified for CHD,<sup>1</sup> the preponderance of writers concur on only three and, even when all are considered together, they only account for 40% of the disease.<sup>2</sup> Syme points out that the relative risk of the missing factors would have to be enormous to account for the remaining 60% and asks how it is possible to have missed them after fifty years of research. He says almost all epidemiologists study large numbers of individuals, which is not epidemiology, but clinical medicine in large groups, and that this is due to both the pervasiveness of the clinical tradition and the difficulty of devising community responses to social patterns of disease.

Longitudinal studies about individual risk factors, which have provided rich data for subsequent decades, began in the late 1940s. In the UK the first National Child Development Study began with a 1946 cohort to study factors associated with perinatal mortality.<sup>3</sup> Two more cohorts were selected in 1958 and 1970. By the early 1960s, when a social class difference in mortality was rediscovered in the UK, it was understood to reflect remnant poverty. The Whitehall I study began in 1968, with civil servants chosen for reliable follow-up of a stable workforce. Longitudinal individual risk factor studies also began in the late 1940s in the United States with the 1948 Framingham Heart Study,<sup>4</sup> to examine cardiovascular disease, in 1960s with the Roseto study in 1961, named after the Pennsylvania town with low heart disease, and the Alameda County Study in 1965 in the US. In the late-1960s stress, as a risk factor for heart disease, became the subject of scrutiny in the US. It was in the mid 1970s that questions about the origin of gains in life expectancy began to impact in the health literature but McKeown, despite countering medicine's claim to this phenomenon, also favoured an individual behavioural explanation - nutrition-enabled by a rise in living standards.

By the late 1970s attention had shifted to intervention with the 361,662 strong Multiple Risk Factor Intervention Trial, but already there were signs of trouble for risk factor study; Whitehall I reported in 1978 that risk factors only accounted for a minority of the difference in coronary heart disease in civil servants, and ideas of stress in Type-A individuals were found to have limited application, and were contradicted by Whitehall. This might have led to developments in a different direction but, by then, political parties of all descriptions had adopted neo-classical economic policies, which took over as dominant forces in the polity.

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<sup>1</sup> Up to 280 have been identified Davey Smith, G., Blane, D. and Bartley, M., Explanations for socio-economic differentials in mortality. In: A. Mielck and M.d.R. Giraldez (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 105-146, Waxmann Publishing Company, Münster; New York (1994).

<sup>2</sup> The three agreed risk factors are cigarette smoking, high blood pressure and high serum cholesterol

<sup>3</sup> These were designed to examine, for 1 week's births in Great Britain, the social and obstetric factors associated with perinatal mortality, see: <http://www.cls.ioe.ac.uk/Ncnds/nintro.htm>

<sup>4</sup> 5,209 men and women 30-62 years in the town of Framingham Massachusetts, see website at: (cont over)

*Political forces*

Neo-classical economics holds that it is the creation of inequality, through capitalism, which creates incentives for people (individuals) to work harder resulting in a more productive 'efficient' economy. The political reaction to the release of the Black Report characterises the neo-classical response to calls for reduction in inequality:

The newly elected government's priority was to make Britain industrially competitive again; Britain's trading position was not what it had been and the answer was industrial efficiency, which was being sapped by monopolies in the supply of goods, services and labour, and serious high-quality competition. To continue the pursuit of equality in the circumstances that faced Britain would actually hinder growth; what was needed was greater inequality. However unfair it might initially seem, this strategy would benefit all in the long run. With a bigger cake, everyone could have more, even though the shares were less equal. What really mattered were absolute gains.<sup>1</sup>

Erikson and Goldthorpe argue that the theory that inequalities are necessary to motivate individuals to enter and perform in demanding positions has no causal feedback loop; there is no process indicated to ensure that if the needed inequality doesn't exist then the society fails to survive. They argue that the so-called necessary inequalities that exist, lead to them being maintained, as ... 'those who write the rules, write rules that enable them to continue to write the rules'. They point to various research indicating that, while inequalities in the market appear to be the result of supply and demand, supply is determined by inequalities *before* the market, that is by the economic, cultural and social resources of families acting purposively in pursuit of their interests and goals or to maintain their position.<sup>2</sup> The writing of rules is of course a political act and brings us to consideration of political forces acting to push our understanding about the determinants of the social gradient in health and its exposition. For an understanding of recent political forces the Black Report is a case study. The Report was never published through the usual official channels. Instead the Department of Health and Social Services produced 260 roneoed copies, releasing them during the week of an August bank holiday in 1980. In his brief introduction to the report, Patrick Jenkin, the Secretary of State for the Social Services, didn't mention the new Tory Government's more-inequality-with-a-bigger-cake thesis, (see Strong's quote above), but focussed on method and cost:

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[www.nhlbi.nih.gov/about/framingham/design](http://www.nhlbi.nih.gov/about/framingham/design)

<sup>1</sup> Strong, P.M., Black on class and mortality: theory, method and history. *Journal of Public Health Medicine*, **12**, 168-80 (1990).

<sup>2</sup> Erikson, R. and Goldthorpe, J.H., *The constant flux; a study of class mobility in industrial societies.*, p. 429, Oxford University Press, Oxford (1992).

The Group was given a formidable task ... and, while it is disappointing that (the authors were) to make greater progress in disentangling the various causes of inequalities in health, the difficulties they experienced are perhaps no surprise given current measurement techniques ... I must make it clear that additional expenditure on the scale which could result from the report's recommendations ... is quite unrealistic, ... quite apart from any judgement that may be formed about the effectiveness of such expenditure in dealing with the problems identified. I cannot therefore endorse the Group's recommendations.<sup>1</sup>

A focus on containing government expenditure has been the response since Black, at least in Anglophone countries. However, while inequalities may fuel demands that the State provide welfare services, this social wage is mainly funded by other workers, due to the greater capacity for capital to exploit the tax system, together with tax arrangements that favour capital. Lower profitability of capital in recession, when there is greater demand for welfare, is paradoxically accompanied by calls for lower government expenditure.<sup>2,3</sup> At 'no time in the 1980s did labor receive a net benefit from the state' in the UK.<sup>4</sup> In the United States, political forces influenced ideas about the determinants of health; fears about countries 'falling' to communist ideologies post World War II influenced development theory, according to Szreter,<sup>5</sup> and speculation about social determinants of health was regarded as dangerous in the McCarthyist period, and after, according to Krieger,<sup>6</sup> Landers refers to a political culture, in English-speaking countries, of preoccupation with individual income as the most effective way to improve the quantity and quality of life.<sup>7</sup>

Political views influence more recent thinking about the social gradient in health. For example, the Whitehall studies point strongly to workplace reform but the workplace has not been seen as a focus for health policy because of a) alleged interference with the profit motive b) a claimed managerial prerogative that views business as having little social or individual responsibility, c) State differences; the competition for capital means few States monitor standards or enforce legislation, d) union attitudes; they participate in managerial prerogative by pursuing danger money rather than safety, e) dominance of the medical model; with its emphasis on treatment f) the careless worker myth, put forward by psychologists in the employ of the company.<sup>8</sup> The policy response to alternative explanations also seems politically inconceivable. If social or collectivist explanations hold, particularly those involving national distributive decisions then the level at which action must be taken seems

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<sup>1</sup> Townsend, P. and Davidson, N., *Inequalities in Health: the Black Report*, Penguin, London (1982).

<sup>2</sup> Germov, J., Class, Health Inequality and Social Justice. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 20-38, Oxford University Press., Melbourne (1998).

<sup>3</sup> Chernomas, R. and Sepehri, A., The Class analysis of poverty: is the underclass living off the socially available surplus? *International Journal of Health Services*, **27**, 381-3 (1997).

<sup>4</sup> Ibid.

<sup>5</sup> Szreter, S., The idea of demographic transition and the study of fertility change: a critical intellectual history. *Population and Development Review*, **19**, 659 - 701 (1993).

<sup>6</sup> Krieger, N., Epidemiology and the Web of Causation. *Soc. Sci. Med.*, **39**, 887- 903 (1994).

<sup>7</sup> Landers, J., Historical epidemiology and the Health Transition. *Health Transition Review*, **2**, 1-19 (1992).

<sup>8</sup> Germov, J., Class, Health Inequality and Social Justice. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 20-38, Oxford University Press., Melbourne (1998).

out of reach. As Len Syme says, 'We also don't think anything can be done about it, short of revolution, so we pick behaviour'.<sup>1</sup>

In this brief glimpse at the relationship between political processes, the workplace and resource distribution, there are vested interests in avoiding social responsibility for the social gradient in health. Wilkinson asserts that if the fourfold difference in death rates recorded between people living in richer and poorer neighbourhoods of the Northern Region of England were traced to factory pollutants, people would be evacuated while an emergency clean up was organised.<sup>2</sup> However, the political interests of capital were unlikely to be threatened, because 'neither the social causes nor their devastating effects on mortality are well known'.<sup>3</sup> Individualist risk factor approaches continue because they are supported by a range of powerful vested interest groups (medical and allied health included) including government, which looks active while avoiding confrontation, and the bureaucracy because of managerialist targets as simplistic as, for example, '50% of over 40s exercise 3 times a week'. They also mesh well with psychological models of behaviour supported by media and marketing industries.<sup>4</sup>

### **Forces that push a prevailing view toward structural, collective and ultimately political explanations for the social gradient in health**

A different combination of forces drives explanations toward the 'political' end of the taxonomy of explanations that I developed in chapter one. That is, toward the idea that the explanation for the social gradient in health, and so the means to conceive of its amelioration, lies with characteristics of workplaces, neighbourhoods, societies and political will. These forces include: an accumulation of anomalies with research on individualist explanations, certain policies of the World Health Organisation and ecological/ social epidemiology.

#### *An accumulation of anomalies*

One of the forces driving social explanations and solutions for the social gradient in health is that arising from difficulties with individualist explanations and policy arising therefrom. This force is consistent with Kuhn's thesis on science; both individualism and neo-classical economics have been/are the dominant

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<sup>1</sup> Syme, S.L., To prevent disease: the need for a new approach. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization: Towards a health policy for the twenty first century*, pp. 21-31, Routledge, London (1996).

<sup>2</sup> Citing research on death rates by Phillimore et al 1994 Phillimore, P., Beattie, A. and Townsend, P., Widening inequality of health in northern England, 1981-91. *British Medical Journal*, **308**, 1125-1128 (1994).

<sup>3</sup> Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).

<sup>4</sup> Richmond, K., Health Promotion Dilemmas. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 156-173, Oxford University Press., Melbourne (1998).

paradigms,<sup>1</sup> with 'pressure on the paradigms coming from inconsistent results'.<sup>2</sup> The inconsistent results in this case are those flowing from risk factor studies that were expected to explain the social gradient in health. In the late 1970s and early 1980s the results of studies begun earlier began to cast doubt on individualist explanations and create pressure for research into social factors, regarded as 'extensive and secure enough to support a paradigm shift in the scholarship of health'.<sup>3</sup>

In 1977 there were early signs, of the impact on later health, of material deprivation in childhood.<sup>4</sup> Whitehall-I reported, in 1978, that risk factors only accounted for a minority of the difference in coronary heart disease, leading to the Whitehall-II study, which looked much more closely at social factors and measures of social position for the participants. Studies of Type A personality in the US were found to travel poorly and branched into studies of psychosocial factors. At a United Nations and World Health Organization sponsored conference on Socioeconomic Determinants And Consequences Of Mortality, 1979, Antonovsky noted the paucity of US research into inequality. Referring to the failure of Type-A studies, he noted Navarro's comment that 'the lack of control felt by our citizenry over their own work and societal institutions' is 'responsible for a large majority of the psychosomatic conditions seen in medical practices. Antonovsky used terms of powerlessness, control and his own 'sense of coherence' - '... the extent to which one's internal and external environments are predictable, make sense ...'.<sup>5</sup>

The release of the Black report in 1980 showed that the NHS and safety-net welfare state had not eliminated the class gradient in health; on the contrary, inequalities in mortality by class had been widening over time. This did not surprise Rose, who voiced concerns that large changes in risk factor behaviour were not accompanied by any individual benefit for most.<sup>6</sup> A generation of diet-heart disease research was described as in disarray.<sup>7</sup> The massive Multiple Risk Factor Intervention Trial (MRFIT) was regarded as a failure,<sup>8</sup> as was the Heartbeat Wales intervention.<sup>1</sup> In the

<sup>1</sup> Kuhn calls past exemplary achievements 'paradigms'. Normal science is a creative form of puzzle solving; a test of ingenuity rather than of the truth of the paradigm. Pressure on the paradigm by results inconsistent with it may result in a new explanatory paradigm.

<sup>2</sup> Bloor, D., Kuhn, Thomas Samuel (1922-). In: A. Kuper and J. Kuper (eds.), *The Social Science Encyclopedia*, pp. 432-3, Routledge & Kegan Paul, London (1985).

<sup>3</sup> Evans, R.G., Barer, M.L. and Marmor, T.R. (eds.), *Why are some people healthy and others not?: The determinants of health of populations.*, Aldine de Gruyter, New York (1994).

<sup>4</sup> Forsdahl, A., Are poor living conditions in childhood and adolescence an important risk factor for arteriosclerotic heart disease? *British Journal of Preventative and Social Medicine*, **31**, 91-5 (1977).

<sup>5</sup> Antonovsky, A., Implications of socioeconomic differentials in mortality for the health system, *Socioeconomic Determinants and Consequences of Mortality*, pp. 483-49, United Nations & World Health Organization, Mexico (1979).

<sup>6</sup> Rose, G., Sick individuals and sick populations. *International Journal of Epidemiology*, **14**, 32-8 (1985).

<sup>7</sup> Tesh, S.N., *Hidden Arguments Political Ideology and Disease Prevention Policy*, p. 215, Rutgers University Press (1988).

<sup>8</sup> Davey Smith, G., Blane, D. and Bartley, M., Explanations for socio-economic differentials in mortality. In: A. Mielck and M.d.R. Giraldez (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 105-146, Waxmann Publishing Company, Münster; New York (1994).

North Karelia project, in Finland, the control group changed as much as the intervention group.<sup>2</sup> Looking back on such programs Blane argued that 'more money has gone into research into the causes of heart disease than into any other illness; more research will not solve the problem'.<sup>3</sup> In addition to a succession of problems with behavioural explanations generally, there is the additional problem of the impact of interventions on the social gradient in health. Smoking rates reduced overall in the last fifty years of the twentieth century but with dramatic differences across socioeconomic groups: the socioeconomic profile has reversed in that time and it now increases progressively, inverse to the social gradient. Ironically, the economic tool of increasing taxation on tobacco to reduce consumption means that the cost of smoking is now much higher to the people whose material circumstances are poorer, exacerbating their relative disadvantage by state regulation. There is also evidence that the general decline in smoking behaviour in England is reversing.<sup>4</sup>

#### *The World Health Organisation*

The search for other explanations for the social gradient in health has been influenced by the World Health Organisation (WHO). WHO and the United Nations Children's Fund jointly sponsored the International Conference on Primary Health Care at Alma Ata in the then USSR 6-12 September 1978. It adopted the Declaration of Alma Ata, which was overtly oriented to closing the gap between the haves and the have nots; to be a renegotiation of power.<sup>5</sup> The organising framework was termed Primary Health Care. The first of ten clauses of the Declaration included a new definition of health, health as a human right and the relevance of other sectors than health. The second clause read:

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Syme, S.L., To prevent disease: the need for a new approach. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 21-31, Routledge, London (1996).  
 Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).

<sup>1</sup> Tudor-Smith, C., Nutbeam, D., Moore, L. and Catford, J., Effects of Heartbeat Wales programme over five years on behavioural risks for cardiovascular disease: quasi-experimental comparison of results from Wales and a matched reference area. *British Medical Journal*, **316**, 818-22 (1998).

<sup>2</sup> The North Karelia project began in 1972., to intervene in high heart disease rates in the province. The project is credited with reductions in heart disease in Finland. Here, the criticism is that it can not be regarded as a successful behavioural intervention in North Karelia as the control group changed its behaviour without the intervention. Syme argues the same point for MRFIT.

See for example Vartiainen, E., Korhonen, H.J., Koskela, K. and Puska, P., Twenty year smoking trends in a community-based cardiovascular diseases prevention programme. Results from the North Karelia Project. *The European Journal of Public Health*, **8**, 154-159 (1998).

<sup>3</sup> Blane, D., Brunner, E. and Wilkinson, R., The evolution of public health policy: an anglocentric view of the last fifty years. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 344, Routledge, London (1996).

<sup>4</sup> Beecham, L., Smoking decline in England reversed. *British Medical Journal*, **316**, 315 (1998).

<sup>5</sup> Wood, P.H.N. and Badley, E.M., The Origins of Ill-Health. An appraisal of strategy for health for all and its implications. In: A. Smith (ed.), *Recent Advances in Community Medicine*, pp. 11-37, Churchill Livingstone, Edinburgh (1984).

The existing gross inequality in the health status of the people particularly between developed and developing countries as well as within countries is politically, socially and economically unacceptable and is, therefore, of common concern to all countries.

The existence and placement of this clause, together with other political features of the Declaration marked a victory of developing countries over first world countries in its drafting.<sup>1,2</sup> However, rather than adopt inequalities as the frame for subsequent work, the slogan of 'health for all by the year 2000' (HFA2000), from clause V, became the organising frame with equity as the first theme in Europe.<sup>3</sup> The first target became:

By the year 2000, the actual differences in health status between countries and between groups within countries should be reduced by at least 25%, by improving the health of disadvantaged nations and groups.<sup>4,5</sup>

The Declaration envisaged maximum participation, individually and collectively (clause IV), and control by individuals and communities over primary health care (clause VII). This principle appeared in the WHO European HFA2000 publication, in 1985, as 'a greater role that individuals, families and communities can play ...'. While I think little difference in meaning is intended, the importance of individualism means that subtle changes can throw the responsibility for health onto individuals rather than on health structures to change to enable participation. The 1978 Declaration made no mention of 'lifestyle' but the 1985 European publication devoted a chapter to this topic. According to the European publication:

Lifestyles are intimately bound up with the values, priorities and practical opportunities or constraints of specific cultural, social and economic situations. A person's particular way of life is shaped by patterns of interpersonal interaction and social learning that interrelate with and depend upon the social environment. Thus, lifestyles, shaped by experience and environmental factors, are not simply individual decisions to avoid or accept certain health risks. There are limits to the choices open to individuals- limits imposed by their physical, social and cultural environments and by their financial means.<sup>6</sup>

The orientation was heavily to 'structural influences on behaviour', ... 'one of the major factors shaping lifestyle is inequality'; ... '(there) must be a resolve on the part of society to improve the status and standard of living of the poor'. Again, the importance of individualism means that 'lifestyle' has taken a different meaning in Anglophone countries towards individual choices and responsibilities, rather than the context within which those choices are made.

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<sup>1</sup> For example a 'New International Economic Order' in clause III, social justice in clause V, the involvement of food production sector in VII, reduced spending on armament and military conflict in clause X.

<sup>2</sup> In this section I will use the terms inequality and inequalities in health while referring to publications that used this term. I prefer the term social gradient in health, as use of the term inequality is often interpreted as a single step, eg out of poverty.

<sup>3</sup> This slogan came from the prior Thirtieth World Assembly resolution in May 1977, which identified this as the main social target of governments World Health Organisation and Regional Office for Europe, *Targets for health for all 2000*, Second impression 1986 ed., p. 201, World Health Organisation, Copenhagen (1985)..

<sup>4</sup> Ritsatakis, A., Equity in health and the WHO HFA policy. In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 203-212, Waxmann Publishing Company, Münster; New York (1994).

<sup>5</sup> World Health Organisation and Regional Office for Europe, *Targets for health for all 2000*, Second impression 1986 ed., p. 201, World Health Organisation, Copenhagen (1985).

<sup>6</sup> Ibid.

The importance of these changes is that developed countries saw their health issues as quite distinct from those of developing countries; the First International Conference on Health Promotion occurred in Ottawa, Canada, 1986, included only industrialised countries. The resulting Ottawa Charter added significant environmental concerns to the Alma Ata principles but dropped Primary Health Care rhetoric, instead proposing to 'advocate a clear political commitment to health and equity in all sectors;' and 'to tackle the inequalities in health produced by the rules and practices of these societies;'.<sup>1</sup> The organising framework was Health Promotion.

The Second International Conference on Health Promotion, 1988, in Adelaide, took the first of the five Ottawa Charter headings, 'Build Healthy Public Policy' and had aims of: 'closing the health gap between social groups and between nations; broadening the health choices of people to make the healthy choice the easier and the possible choice, and; ensuring supportive social environments'.<sup>2</sup> Subsequent conferences at Sundsvall and Jakarta seemed oriented to the role of the health promotion workforce, while maintaining the commitment to reducing inequalities. In the 1997 Jakarta declaration, lifestyle is referred to as a characteristic of the person, perhaps in the interests of brevity, but it is not difficult to imagine that individualism imbues the term with a different meaning from the European definition on page 3. Meanwhile the social gradient in health has steepened but no reference is made in summary information about this issue at the 1997 conference and the WHO website offered no fact sheet on inequality in 1999. In 1995 WHO identified *poverty* as the world's biggest killer, assigning extreme poverty a code in the International Classification of Diseases.<sup>3</sup> While widening economic inequality was acknowledged, and 'for scores of millions of people (life expectancy) is actually becoming shorter' the underlying message was acceptance of a threshold model of material relationships with health. This noble idea nevertheless contributes to developed countries being able to overlook an accumulation of evidence about the determinants of health (production), and social development, both in their external and internal affairs.

So, for WHO, there seems to have been, on the one hand at least, a continuous thread of the importance of inequalities in health status and, on the other, a diminution of the importance, for health, of other social and economic inequalities. I contend that this occurred partly because developed countries separated from

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<sup>1</sup> World Health Organisation, Ottawa Charter for Health Promotion, *An International Conference on Health Promotion*, pp. 6 (1986).

<sup>2</sup> The five were: build healthy public policy, create supportive environments, develop personal skills, strengthen community action, reorient health services.

<sup>3</sup> World Health Organisation, *The World Health Report 1995 Bridging the gaps Report of the Director General*, p. 118, WHO, Geneva (1995).

developing countries, in international health conferences, and the focus on gross international inequities, both in material circumstances and in health, was lost.<sup>1</sup>

Nevertheless WHO has been a major driver for the collection of information about the social gradient in health. Target one (of 38) of WHO HFA has helped put inequalities on the political agenda in the WHO European Region and two member countries, Netherlands and Finland, have agreed to become pilot countries for the development of a national HFA policy.<sup>2</sup> The Netherlands project, funded by government, started in 1989, is one of the rare examples of programs in European countries specifically designed to address the social gradient in health. Mackenbach, one of the principals, said the project increased the yearly number of publications on socioeconomic inequalities in health by about 25%, and claimed 'cross party agreement on the need to reduce these inequalities has led to a consensus based approach which contrasts with the heavily politicised debate in countries such as the United Kingdom'.<sup>3</sup>

#### *Ecological epidemiology*

Clinical epidemiology, that is, medicine for aggregations of individuals (see page 3), has been extensively employed in individualist explanations for the social gradient in health, but, ironically, the failure of (individualist/ behaviourist) risk factor epidemiology to provide policy solutions is also a force for consideration of social causes. Amick-III noted, in 1995, that an increased focus on the social determinants of health has resulted from three influences: the confluence of developments in 'social epidemiology', the globalisation of health and social data, and national introspection and self-assessment in North America.<sup>4</sup> The points are valid but a term that includes material and relative material relationships, and political determinants, is needed - 'ecological' or 'eco-social' may be options. That criticism aside, Amick notes the establishment of several centres involved in social epidemiology in the US,<sup>5</sup> and the UK,<sup>6</sup> and their links. Students of S. Leonard Syme, in particular, and Lester Breslow,<sup>7</sup> with the Alameda project, are major

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<sup>1</sup> Navarro critiques Alma Ata from a social class relations perspective identifying conflict between the haves and have-nots between and within countries. Navarro, V., A critique of the ideological and political position of the Brandt Report and the Alma Ata Declaration. *International Journal of Health Services*, 14, 159-72 (1984).

<sup>2</sup> Ritsatakis, A., Equity in health and the WHO HFA policy. In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 203-212, Waxmann Publishing Company, Münster; New York (1994).

<sup>3</sup> Mackenbach, J.P., Socioeconomic inequalities in health in The Netherlands: impact of a five year research programme. *Bmj*, 309, 1487-91 (1994).

Mackenbach, J.P., Socio-economic inequalities in health in the Netherlands: Outline and first results of a 5-year research programme (Research Programme on Health Inequalities). In: A. Mielck and M.d.R. Giraldes (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 213-232, Waxmann Publishing Company, Münster; New York (1994).

<sup>4</sup> Amick III, B.C., Levine, S., Tarlov, A.R. and Chapman Walsh, D. (eds.), *Society and Health*, Oxford University Press, New York (1995).

<sup>5</sup> University of California, Berkeley, Johns Hopkins School of Hygiene and Public Health

<sup>6</sup> University College London

<sup>7</sup> University of California, Berkeley and State Director of Public Health, California respectively.

contributors to eco-social research and they include: Lisa Berkman, Michael Marmot, George Kaplan, Mary Haan and, Nancy Krieger. Increasingly, data collected at an international level are being used by researchers to shed light on the social gradient in health; by far the majority of data has been collected for other purposes and the data are held at international institutions such as the United Nations, World Health Organisation, World Bank and OECD. Amick's third influence, of national introspection and self assessment may apply more in the United States; he maintains that the collapse of socialism has permitted more openness in assessing the interaction of government policies, economic factors, and the well-being of populations.

Amick notes three formally established research units: a) The Canadian Institute for Advanced Research in Toronto, founded in 1982 by Fraser Mustard, b) The International Centre for Health and Society established 1991 at University College London, directed by Michael Marmot,<sup>1</sup> and c) the Society and Health Program, jointly established by the Harvard School of Public Health and the Tufts New England Medical Centre established in 1991.<sup>2</sup> Another unit, The Programme Committee on Socioeconomic Inequalities in Health in The Netherlands, started in 1989.<sup>3,4</sup>

Improvements in epidemiology methodology are also making an impact. New techniques such as multi-level modelling offer prospects of separating individual and environmental effects in quantitative approaches to social issues, overcoming a potential error in attributing characteristics of areas to all individuals.<sup>1</sup>

## **Inertia**

I referred, in the introduction to this thesis, to the long-established connection between poverty and poor health. In the context of an analysis of forces, driving explanations in different directions, the connection is a dominant idea that resists movement, that is, inertia. The connection is, however, antithetical to the argument, since the 1980 Black Report, that the social gradient in health is the phenomenon demanding explanation. The potential for the numbers in poverty to account for a social class gradient, as an artefact, has been discounted, and certainly does not explain the gradient in health of Whitehall civil servants.

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<sup>1</sup> Richard Wilkinson works for the Institute.

<sup>2</sup> Note this is non- government funded- by the Henry Kaiser Family Foundation's Functional Outcomes Program

<sup>3</sup> Mackenbach, J.P., Socio-economic inequalities in health in the Netherlands: Outline and first results of a 5-year research programme (Research Programme on Health Inequalities). In: A. Mielck and M.d.R. Giraldez (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 213-232, Waxmann Publishing Company, Münster; New York (1994)., Mackenbach, J.P. and Gunning-Schepers, L.J., How should interventions to reduce inequalities in health be evaluated? *J Epidemiol Community Health*, 51, 359-64 (1997).

<sup>4</sup> Note this is funded by the Dutch government.

The division of society into the haves and have-nots, rich and poor is common, perhaps because it is something tangible for policy purposes. WHO's categorisation of poverty as a disease may be a case in point as it refers mainly to measures of absolute material poverty and at a global scale. In developed countries, poverty is commonly defined relative to other standards such as mean or median income, or the means to purchase a basket of goods (sometimes expressed explicitly as the minimum means for social participation). However, the connection between poor health and poverty readily implicates other characteristics of 'the poor', notably poor health behaviour, with the effect of absolving others from responsibility and drawing attention away from social structures.<sup>2</sup> I have represented this as inertia, in the force field analysis; a drag on the balance of forces moving the dominant view one way or the other.

### **A map of social gradient in health research over time**

In chapters one to three I surveyed a variety of research about the social gradient in health. At Figure 30 I have mapped the influential studies and ideas over time, placing the study, or idea, chronologically on the ordinate axis under one or more of the categories I detailed in chapter two. This technique shows the changing explanations, in the research community, for the (widening) social gradient in health over time, sweeping from threshold materialist (poverty) around 1950, to behaviourist/individualist in the 1960s, to materialist at about 1980 and relative materialist (psychosocial), in the late 1990s, towards political at the end of the century.

In contrast to the research community, I have presented a force-field analysis of the public policy contest of ideas at Figure 31, with the dominant idea of poverty as a theme running through time and with opposing forces in the debate, described in the first part of this chapter, shown as opposing block arrows. This schematic shows that, as evidence is collected, both the failure of individualist explanations for the social gradient in health and the increasing research on eco-social explanations is pushing the research community toward the socio-political end of the scale I have drawn. However, the balance of political forces remains in favour of individualist explanations. I have therefore located the balance point on 'Behaviour' - being the explanation that dominates policy-making in Australia, at the time of writing.

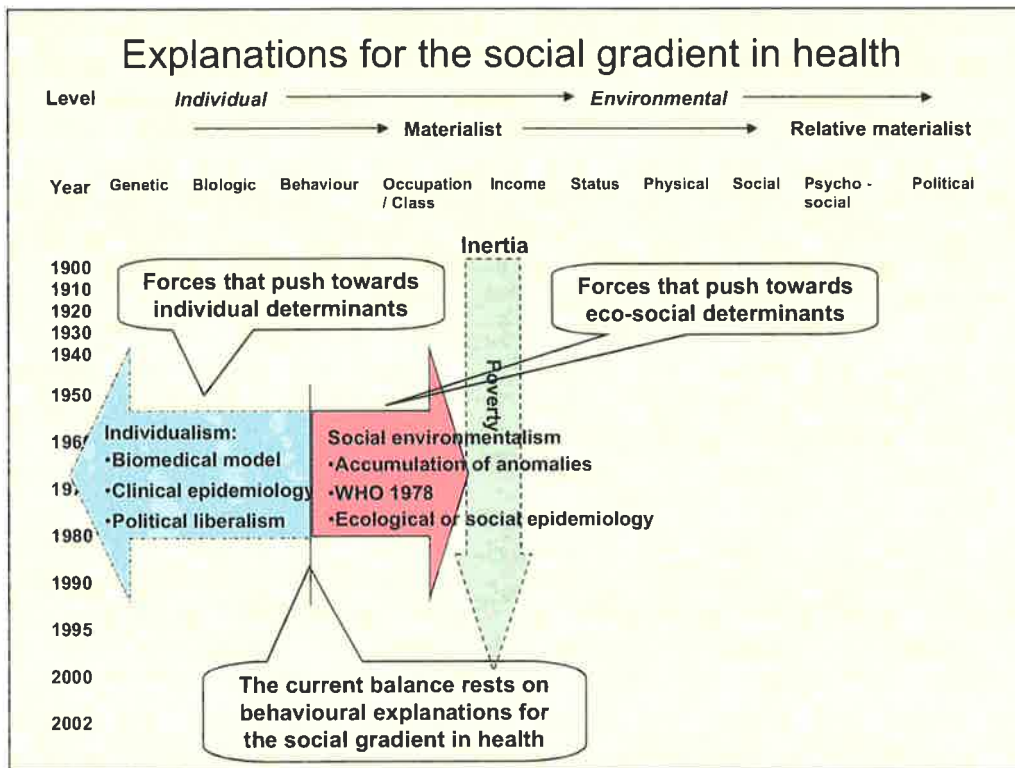
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<sup>1</sup> Duncan, C., Jones, K. and Moon, G., Health-related behaviour in context: a multilevel modelling approach. *Soc Sci Med*, **42**, 817-30 (1996).

<sup>2</sup> Two examples, one from the media and one research study. Fraser, J., As the rich give up, the poor light up, *The Australian*, pp. 3, Adelaide (1998)., and Potter, J.D., Diet and cancer: possible explanations for the higher risk of cancer in the poor. In: M. Kogevinas, N. Pearce, M. Susser and P. Boffetta (eds.), *Social inequalities and cancer*, IARC Scientific Publications No. 138, pp. 265-83, International Agency for Research on Cancer, Lyon (1997).



Figure 31 The balance of social forces explaining the social gradient in health at the end of the twentieth century.



### Summary

It is illuminating to place influential research into the social gradient in health in an historical context and against a taxonomy of explanations that ranges from the biological to the political, and, in a narrower range on the same axis, from the individual to the relative material. During the 1990s an accumulation of anomalies and failures in individualist explanations drove research in a range of different disciplines toward the relative materialist and political end of a range of explanations; these, previously, had been little explored. The direction of the research is currently against the balance of political theories and forces that drive explanations toward either end of this taxonomy. In Anglophone countries individualist ideas remain dominant in political economy and politics. Therefore it is probable that any policy to address the social gradient in health, which might flow from relative materialist explanations, is likely, under the balance of dominant ideas, to be re-interpreted to emphasise individualist responses, it being difficult to place other responses on the agenda. Hence the debate I referred to earlier, (page 3) around the policy interpretation of psychosocial explanations, which tends to focus on the psyche part of the term - the individual - rather than the social part of the term.



*Excursion from chapter four*

As an interesting aside, many 'models' of health which attempt to represent, diagrammatically, factors affecting health feature the individual at the centre of nested rings that enlarge with the social scale of the factor of interest. This depiction may draw on the epidemiological idea that the closer we get to the biological causal factor, the higher the relative risk will become.<sup>1</sup> Certainly, individuals are affected, but this depiction seems to carry a message that the factors closest to the person exert the most influence on health when this is not the direction of the research. It also may tend to focus attention on biological events and individual responses for intervention, when social factors evidently exert a bigger influence.<sup>2</sup>

Marmot used a popular diagram, used by WHO, and developed by Dahlgren and Whitehead, that is styled this way, see Figure 32.<sup>3</sup>

**Figure 32 Dahlgren and Whitehead**



Source: Dahlgren and Whitehead.<sup>4</sup>

A writer in health sociology used a diagram which has social class close to the core, while maintaining the approach of an enlarging social scale, see Figure 33. This diagram includes a wide variety of social factors, but not material or relative material circumstances specifically, while including 'economy' as a factor apparently mediated solely through factors closer to the individual.

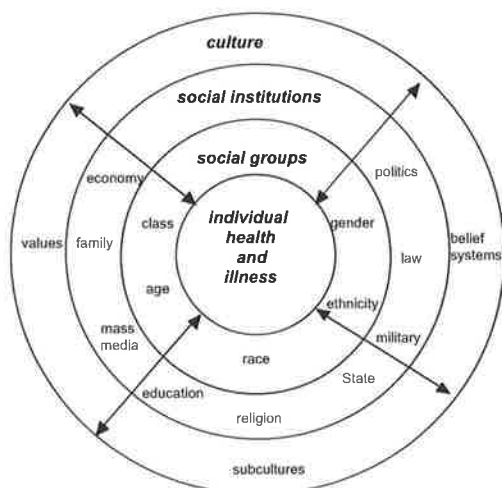
<sup>1</sup> Elwood, J.M., *Causal relationships in medicine; a practical system for critical appraisal*, 1992 ed., p. 332, Oxford University Press, Oxford (1988).

<sup>2</sup> Krieger, N., Epidemiology and the Web of Causation. *Soc. Sci. Med.*, **39**, 887- 903 (1994).

<sup>3</sup> Whitehead is a policy contributor on inequality and health care in the UK.

<sup>4</sup> Dahlgren, G. and Whitehead, M., *Policies and Strategies to Promote Social Equity in Health*, Institute for Future Studies, Stockholm (1991).

Figure 33 Diagram of factors affecting health and illness

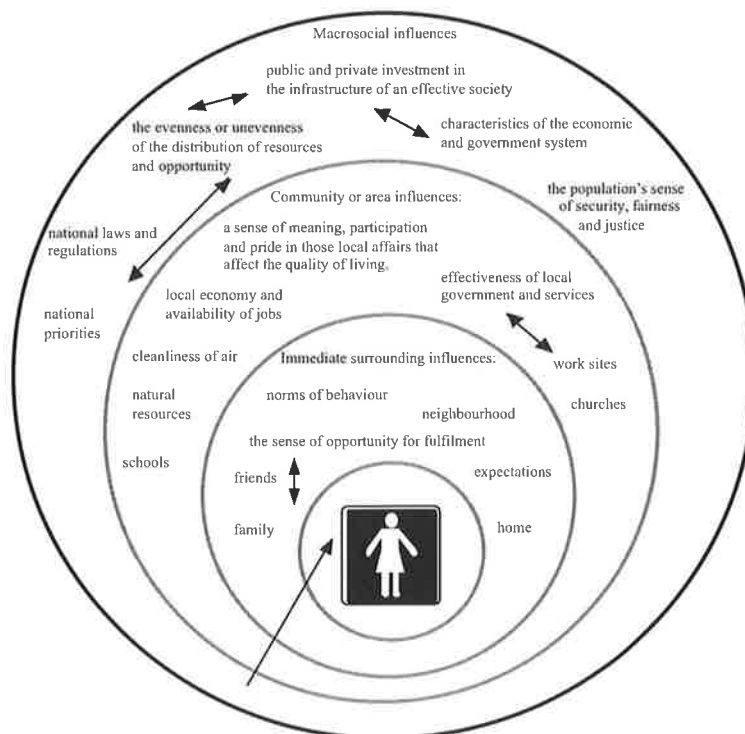


Source: Germov.<sup>1</sup>

The evidence from chapters one and two however is of relative material circumstances directly affecting physiology and, it is theorised, determining behaviour. Tarlov's diagram emphasises interactivity within and between concentric rings, see Figure 34, and is closer to the health inequality literature (quite reasonably as this is his field), in terms of the elements, but also has the idea of enlarging social scale.<sup>2</sup>

Figure 34 A socio-ecological framework for the production of health.

Source: Tarlov.<sup>3</sup>



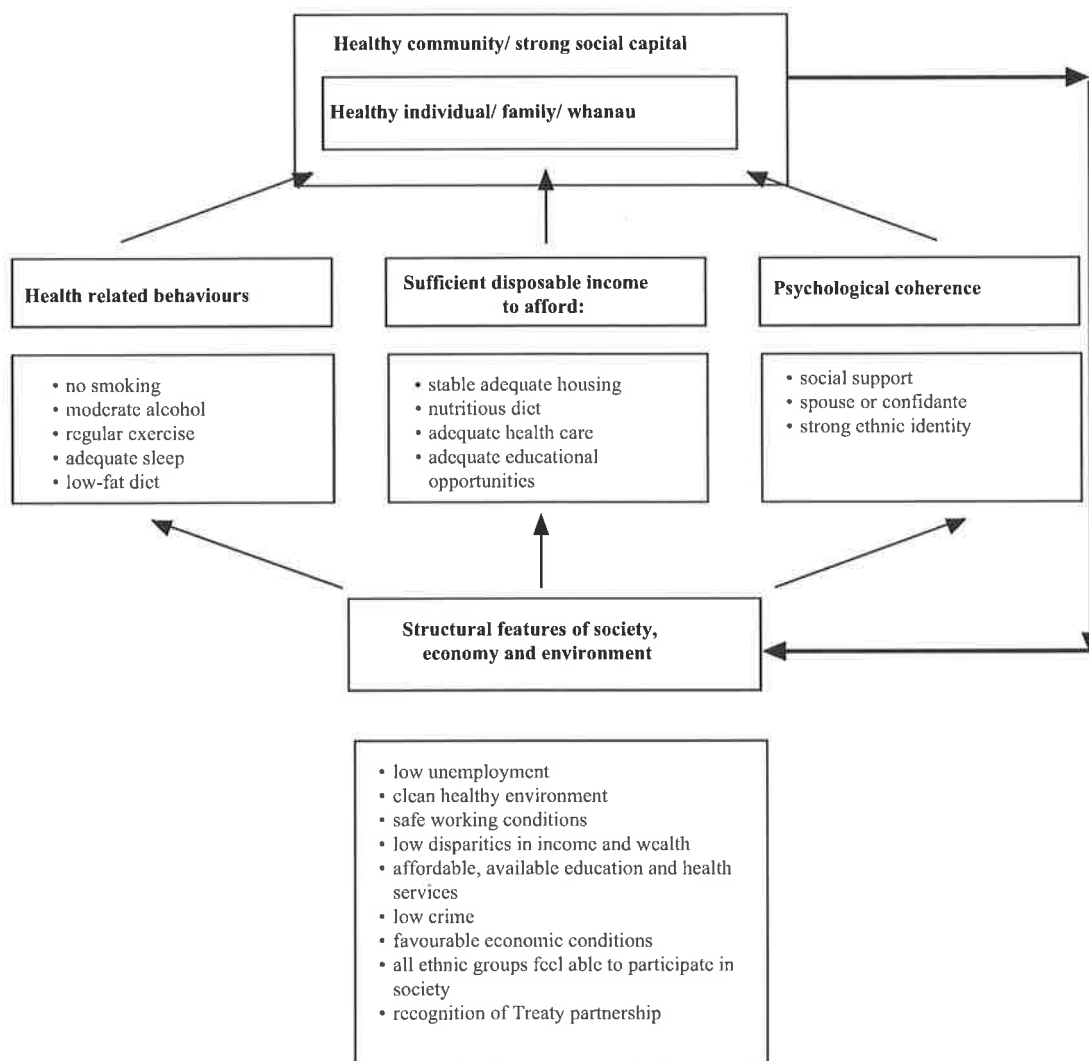
<sup>1</sup> Germov, J., *Second Opinion: An introduction to health sociology*, p. 397, Oxford University Press., Melbourne (1998).

<sup>2</sup> Note that the original has concentric circles

<sup>3</sup> Tarlov, A.R., Social determinants of health: the sociobiological translation. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization: Towards a health policy for the twenty first century*, pp. 71-93, Routledge, London (1996).

A New Zealand model is the result of a succinct coverage of the literature in a publication for the New Zealand National Health Committee see Figure 35.<sup>1</sup> The discussion acknowledges the lack of power of risk factor explanations and the NZ model puts individuals on a par with families within communities, but it apparently places behaviour at an equivalent level to material explanations and social support, which is not the direction of the research. It also seems to me to accept a threshold rather than a gradient when it describes 'sufficient disposable income...' when a threshold effect on health is clearly not the case from the evidence, and from their own text.

**Figure 35 Model of the social and economic determinants of health**



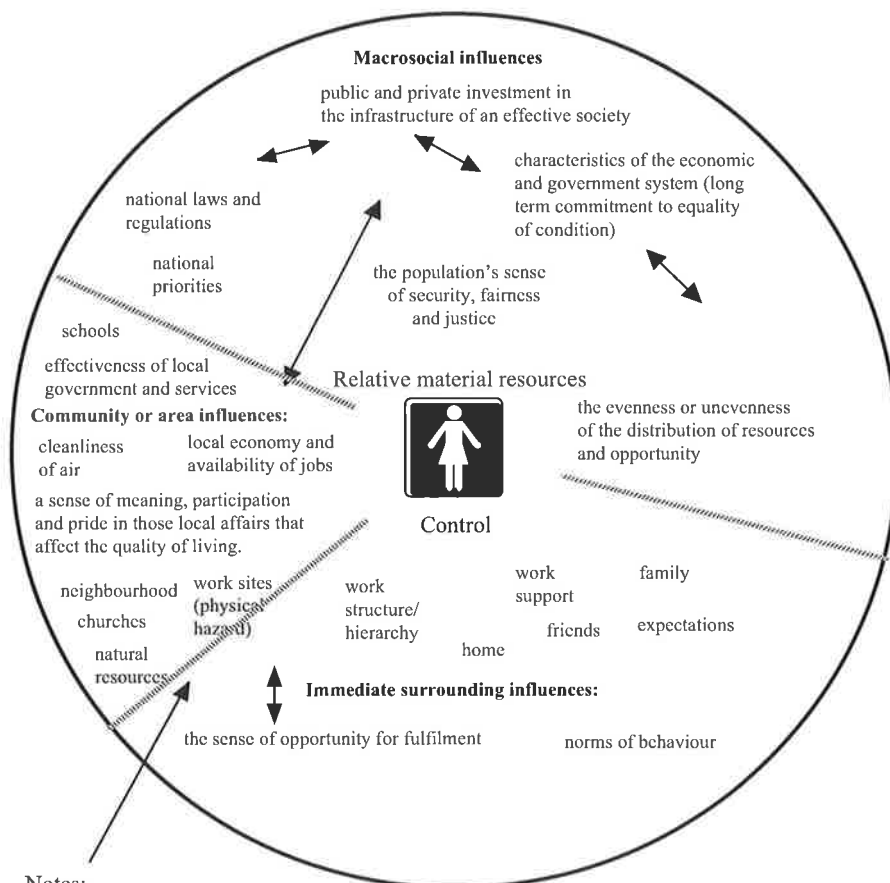
National Health Committee New Zealand.<sup>2</sup>

<sup>1</sup> The publication is quite similar in structure to my own survey, although I was given a copy September 1998 after my initial literature search and reading was complete.

<sup>2</sup> National Advisory Committee on Health and Disability, *The Social, Cultural and Economic Determinants of Health in New Zealand: Action to Improve Health*, National Advisory Committee on Health and Disability, Wellington (1998).

These models are intended to assist conceptualising the issues and to assist theory building on the links, but if the intention is to try to convey a picture of determinants to policy makers, certainly the aim of the New Zealand publication, then none seems to convey the relative importance of the determinants to individuals. Perhaps an alternative would be to show a direct effect of macro social forces and to represent the size of the impact with the size of the segment; I have adjusted Tarlov's diagram in this way at Figure 36.

**Figure 36 A suggested adaptation of Tarlov's model.**



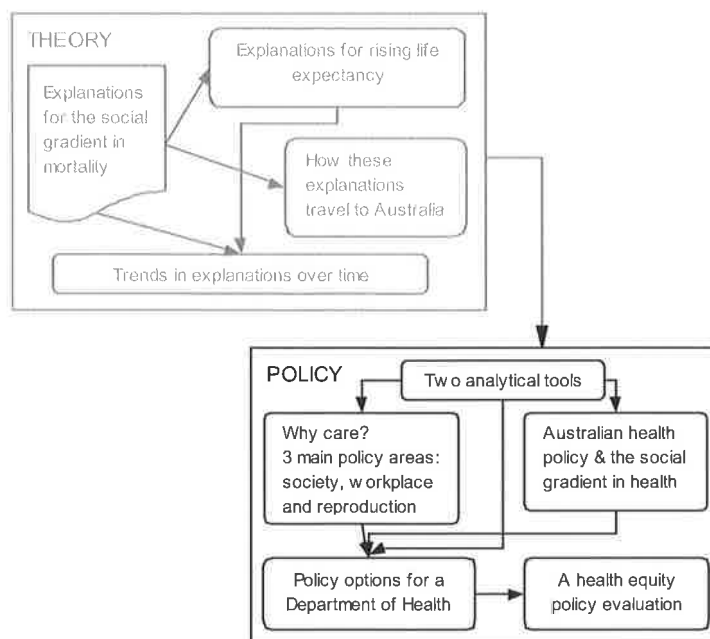
Notes:  
highly interactive within a slice  
slices are porous; interaction between slices

Size of segment indicates size of impact.

## Chapter 5. Power and the welfare state

The previous four chapters: elaborated explanations for the social gradient in poor health (mortality), in some detail; outlined explanations for good health, in less detail; considered how Australian research fits with research overseas, and; mapped both historical trends in relevant research in western countries and the forces that influence the current predominant explanation in Australia.

In following five chapters I investigate the transfer to policy of this research, particularly the research on materialist explanations for the social gradient in health. I approach the topic by introducing two analytical tools that I use through chapters six and seven. In chapter six I explore a range of policy considerations raised by the major studies of the social gradient in health, and



reduce them to a set of broad policy dimensions. Given that the social gradient has an impact on population mortality at least equal to heart disease, in Anglophone countries, one would expect to find substantial policy attention being paid to the issue in Australia. In chapter seven, I examine how the matter has been treated in Australian policy documents and in chapter eight, I set out some policy directions for a Commonwealth Department of Health, drawn from the analysis in previous chapters. Finally, in chapter nine, I outline in detail how the Commonwealth might approach one aspect of these directions.

The first of my analytical tools is Steven Lukes' three dimensions of power, a tool which can help to understand why certain ideas succeed or fail. If the social gradient in health is related to the distribution of material resources in a society, and to changes in that distribution, then it is important to understand the exercise of power in political decision making about inequality in material resources. The second analytical tool is drawn from the work of Claus Offe, on welfare state politics. I argue that Offe's ideas, developed well prior to 1984, offer insight into how a welfare state might respond to the relationships more recently found between material circumstances and health. In doing so, I also argue that Offe's conclusion,

which is focussed at the sub-national level, can be generalised to an international one, in view of the internationalisation of the economy since Offe's views were formed. So, rather than local social structures having the potential to influence the State, as Offe concludes, I will argue that it is state, or national level structures that need to act to internationalise the welfare state.

*A brief account of Steven Lukes' concept of power*

Steven Lukes' conception of three dimensions of power was published in 1974 and offers a useful framework for analysing policy development around the social gradient in health. A recent summary of the history of the notion of power is provided by Terence Ball's 1993 article in the *Companion to Contemporary Political Philosophy*.<sup>1,2</sup> Ball's account takes issue with Lukes' model, accepting others' criticism that Lukes' conception is limited to action that causes harm, and thus does not allow for the power to 'do good'. Nevertheless Ball allows that Lukes' work is important, influential, and fruitful, if controversial and I consider that it offers conceptual structures that are helpful to understand the issue at hand.

Lukes builds three dimensions of power by describing, and criticising, as one dimension, the work of Dahl, a contributor to the *Encyclopaedia of Social Science* on the topic in 1965.<sup>3</sup> Dahl's own definition holds that 'the behaviours of one or more units (the responsive units, R), depend in some circumstances on the behaviour of other units (the controlling units, C)'.<sup>4</sup> This view relies on a mechanistic view of power as a force operating in a situation of conflict.

The second dimension is drawn from Bachrach and Baratz, who argue that there are two 'faces' of power: that shown by Dahl and another face, 'non decision-making', which limits the scope of actual decision-making by controlling the agenda, thereby limiting the discussion to issues that do not affect C's interests.<sup>5</sup> Similarly they argue that the absence of a challenge does not mean power is not being exercised, as the responsive unit may elect not to challenge in anticipation of defeat. A 'two faces' analysis proceeds by investigating bias in decision making as given tangible form in the tallies of successful proposals and vetoes.

Steven Lukes' argues for a three dimensional view, asserting that, in an analysis of power, the pluralist perspective necessarily yields a pluralist conclusion. Lukes calls this a 'pluralist trap', arguing that the emphasis on observable behaviour leads

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<sup>1</sup> See also Ball's earlier, 1987, entry in Blackwell's *Encyclopaedia of Political Thought* Ball, T., Power. In: D. Miller (ed.), *Blackwell Encyclopaedia of Political Thought*, Oxford (1987)..

<sup>2</sup> Ball, T., Power. In: R.E. Goodin and P. Pettit (eds.), *A Companion to Contemporary Political Philosophy*, pp. 548-57, Blackwell, Oxford (1993).

<sup>3</sup> Dahl, R.A., Power. In: Seligman (ed.), *Encyclopaedia of Social Science*, pp. 405-414, Macmillan (1965).

<sup>4</sup> Ibid.

<sup>5</sup> Bachrach, P. and Baratz, M., Two Faces of Power. *The American Political Science Review*, **56**, 947- 952 (1962).

pluralists to study decision-making, in particular where there is a difference in preference, that is, in conflict situations. If power only shows up in cases of actual conflict, it follows that actual conflict is necessary to power. But this is to ignore the crucial point that the most insidious use of power is to prevent such conflict from arising in the first place. Lukes' says A exercises power over B also by influencing, shaping or determining B's very wants; controlling thoughts and desires; preventing nondecisions by shaping perceptions, cognitions and preferences in a way that roles are accepted either because people can not see or imagine an alternative or they see it as natural and unchangeable or they value it as divinely ordained and beneficial.<sup>1</sup> As an analytical tool this requires the notion of objective interests; for example the slave who sees his situation as normal is unaware of his objective interests.<sup>2</sup>

#### *Claus Offe and the welfare state*

Hamlin's article on the contemporary political philosophy of the welfare state, sees it as a state which views the welfare of its citizens as the primary claim on policy making rather than a state which enacts particular welfare policies.<sup>3</sup> Hamlin argues that 'informed preference theory' provides the best conceptualisation of welfare at the individual and social levels. The critique comes from the anti-paternalistic argument- we don't and can't know what the fully informed preferences are. So informed preference theorists look at proxies; actual preferences and arguments about the objective good are often expressed as arguments about need, rights, or equality, but they can be understood in terms of claims about the content of fully informed preference.

Like Hamlin, Claus Offe also rejects the 'narrow and conventional' understanding of the welfare state as the provider of social services. He says the political system performs a coordinating role, which is central to the whole social system.<sup>4</sup> John Keane, who collected and re-translated a number of Offe's works in 1984, argues in his introduction that Offe does not take sides in the philosophical debate about social justice, needs rights, state responsibilities (ie. normative political philosophy).<sup>5</sup> Rather, Offe:

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<sup>1</sup> Lukes, S., *Power A Radical View*, p. 64, Macmillan, London (1974).

<sup>2</sup> Ball, T., *Power*. In: D. Miller (ed.), *Blackwell Encyclopaedia of Political Thought*, Oxford (1987).

<sup>3</sup> Hamlin, A., *Welfare*. In: P. Pettit and R.E. Goodin (eds.), *A Companion to Contemporary Political Philosophy*, pp. 651-662, Blackwell, Oxford (1993).

<sup>4</sup> Offe, C., *Reflections on the welfare state*. In: J. Keane (ed.), *Contradictions of the Welfare State Claus Offe*, pp. 309, Hutchinson Education, London (1984).

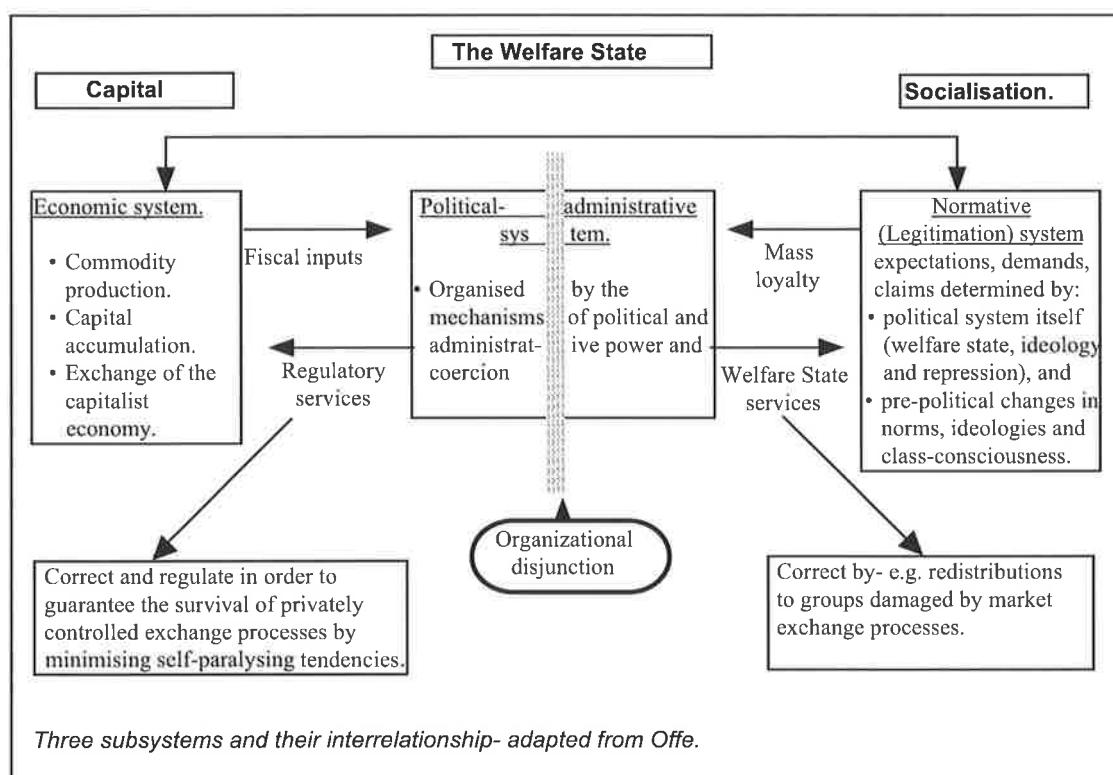
<sup>5</sup> Keane, J. (ed.), *Contradictions of the Welfare State Claus Offe*, Hutchinson Education, London (1984).

... attempts to analyse and explain the mechanisms and conditions that lead to systematic failures in welfare state policy-making and administration. ... 'Late capitalist societies (are) analysed as systems structured by three interdependent but differently organised sub-systems:

- structures of socialisation (eg. the household- normative rules);
- commodity production and exchange of the capitalist economy; and;
- the welfare state ('political') organised by the mechanisms of political and administrative power and coercion.

Offe argues that welfare states are defined by the goal of 'crisis management' - the regulation of the processes of socialisation and capital accumulation within their adjacent or 'flanking' sub-systems.

Figure 37 Welfare state paradoxes adapted from Offe



Source: Offe 1984.

Central to Offe's arguments are notions of commodification, de-commodification and socialisation. Commodification is the action of turning something that would not otherwise be tradeable in the market into a commodity to suit the exchange processes needed by the market.<sup>1</sup> Offe argues that labour is not a commodity because it cannot be separated from its owner, yet it has been commodified by the economic system.<sup>2</sup> 'A society based on the 'fictitious' commodity form of labour power necessarily depends upon non-commodified support systems'. This view holds that welfare institutions are a precondition for the commodification of labour.

<sup>1</sup> See also The Concise Oxford Dictionary of Sociology definition of commodification Marshall, G. (ed.), *The Concise Oxford Dictionary of Sociology*, Oxford University Press, Oxford (1994).

<sup>2</sup> Offe credits Karl Polanyi with this argument, which Offe regards as 'decisive'.

In the early phase of capitalism social policies were provided by family, church, guild etc; capital required the mobility of labour which required the socialisation or institutionalisation of these supports.

Decommodification is the reverse and is sometimes synonymous with socialisation, depending on the actor. For example individual corporate pollution (or disability), which is an exchange process, is either socialised by the polluter, when it is 'externalised' to the state, or it is decommodified, when it is withdrawn from the market to be dealt with by the state.

If capital is mostly held privately, then the state is unable to organise production according to political criteria. There is a constant threat that private capital will exercise its power not to invest, which would be an economic crisis. Offe therefore argues that the welfare state is self interested in giving preferential treatment to the capitalist economy, because the healthy functioning of the capitalist sub-system is crucial to mass loyalty and revenues. The welfare state is therefore required to be self-limiting. It has to both intervene and create the conditions for capital's successful functioning through non-market, or decommodified means. Offe argues that the welfare state is self-crippling for the economy, as the likelihood of labour and capital finding the opportunity for exchange is continually threatened. The movement of private capital produces collectively- experienced outcomes such as inner city decay, pollution of regional ecosystems and unemployment due to 'modernisation' of industry. These cannot be remedied by the actions of individual units of capital.

So the survival of the 'unregulated' sphere depends on collective regulation, which is self-paralysing. The welfare state must seek to create opportunities for unregulated exchange by intervening that is, decommodifying. At any one time the state seeks the compromises necessary to maintain the dominance of capital, to challenge and erode its power and compensate for its disruptive consequences. Offe did not see the welfare state being overthrown or self- destructing as there are too many interests served by it and the, then current, alternatives all lacked support, even among their natural proponents.<sup>1</sup> Rather it lends itself to influence by democratic social structures (such as neighbourhood organisations, health and housing co-ops etc) on the state institutions.<sup>2</sup>

### *Conclusion*

Steven Lukes' three dimensions of power and Offe's contradictions provide the means to explore policy-making about the social gradient in health in developed

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<sup>1</sup> The New Right, 2) Corporatist, 3) Democratic and Socialist alternatives

<sup>2</sup> Offe, C., Reflections on the welfare state. In: J. Keane (ed.), *Contradictions of the Welfare State* Claus Offe, pp. 309, Hutchinson Education, London (1984).

countries, particularly in Australia. Lukes is enlisted to understand the exercise of power in political decision making about inequality in material resources, and Offe provides a perspective on welfare state politics. These tools then enable the development of policy alternatives. I argue that Offe's conclusion, which is focussed at the sub-national level, can be generalised to an international one. So, rather than local social structures having the potential to influence the State, as Offe concludes, I argue that it is state, or national level structures that need to act to internationalise the welfare state.



## Chapter 6. Policy dimensions

I have set out above, a taxonomy of explanations for the social gradient in health, examined a parallel set of determinants of good health and mapped out a history of ideas in a context of forces acting to promote particular explanations. The evidence is accumulating that materialist explanations, the least investigated, account for the major part of the gradient. The stepwise relation between health and material circumstances means that policy approaches that deal only with, for example, poverty alleviation will, at best, only have a minor impact on the slope of the gradient. From this point, therefore, I examine policy aspects from a materialist and relative materialist perspective. The relative materialist explanation for the social gradient in personal health is concerned with the distribution of material resources within a nation, but the distribution of those resources is also related to 'civic health'- public faith in institutions - across a wide front. I have argued that there is no reason to think that research findings in other countries, particularly in Anglophone countries, do not apply in Australia, and there is little need for repeated descriptive studies. In chapter five I set out two analytical tools that I use in this and subsequent chapters to examine the difficult path from research to policy.

In this chapter I set out the main reasons advanced, by researchers in the field, for action at national and international levels, arguing that health matters to Australians and that its social distribution strikes at one of the publicly held moral values of Australians- that of fairness. I suggest a simplified model with three policy dimensions to aid thinking about policy action: a social dimension, an individual dimension and, importantly, a dimension for the reproduction of the social gradient in health. I then discuss policy proposals that arise from research using the two analytical tools from chapter five. From this analysis I conclude there is a need for an institutional effort to advance material/social policy action and to counter forces identified in chapter five. This analysis also reveals weaknesses in conventional ideas about the role of the state and its capacity to make an impact on the social gradient in health via health services. Policy action to address the social gradient in health, informed by a relative materialist explanation, may be the same action that would build healthy societies.

## Why do we want to reduce inequalities in health in Australia?

Good health is assigned the highest value in every society.<sup>1</sup> Health matters in itself.<sup>2</sup> While the greatest *individual* gap in health is between the sick and the well, or the dead and the living, this thesis is about important and pervasive *social* differences as it is about a gradient in health across the whole of the nation. Public health is founded on observing non-random patterns of health status in populations and investigating the causes. The social gradient in morbidity and mortality is the 'most pervasive and historically important relationship in epidemiology';<sup>3</sup> crude measures of social circumstances show a gradient with an overall relative risk of about 2.0, which is not large but the whole population is affected, so the numbers of people affected are large. Better measures of relative position, such as employment grade in Whitehall, show steeper gradients in health with the overall relative risk nearly twice as large. Marmot estimated from a 25 year follow up study that, in Britain up to age 64, excess deaths from the social gradient are 17,000.<sup>4</sup> Lives can be saved.

The idea that the social gradient in health is unjust, or unfair, is the principal reason advanced for policy action.<sup>5,6,7</sup> Not only is it unfair at a point in time but it is unfair across the life course and across generations via the reproduction of the gradient. A natural biological variation in health, randomly distributed through the population, would not be unfair; neither would variations in health that resulted from freely chosen behaviour, such as participation in organised sports and pastimes.<sup>8</sup> However, health-damaging behaviour where the degree of choice of lifestyles is severely restricted, exposure to unhealthy living and working conditions, and inadequate access to essential health and other public services, are avoidable, and the resultant health differences are unjust.<sup>9</sup> The social gradient in health is not the result of free choice.

The need for action has become pressing with evidence accumulating that social gradients have steepened since 1950, despite most groups having absolute improvements in survival. In addition, in some age groups such as young men,

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<sup>1</sup> Tarlov, A.R., Social determinants of health: the sociobiological translation. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization: Towards a health policy for the twenty first century*, pp. 71-93, Routledge, London (1996).

<sup>2</sup> Wilkinson, R.G., Socio-economic differences in mortality: interpreting the data on their size and trends. In: R.G. Wilkinson (ed.), *Class and Health*, pp. 1-20, Tavistock, London (1986).

<sup>3</sup> Brenner, M.H., Political Economy and Health. In: B.C. Amick III, S. Levine, A.R. Tarlov and D. Chapman Walsh (eds.), *Society and Health*, pp. 211-246, Oxford University Press, New York (1995).

<sup>4</sup> Marmot, M., Social inequalities in health, Australian Broadcasting Commission Life Matters, Australia (1998).

<sup>5</sup> Whitehead, M., The concepts and principles of equity and health. *Health Promotion International*, **6**, 217-228 (1991).

<sup>6</sup> Reporter: Phillips, K., Who cares?, *The Advertiser*, pp. 51-3, Adelaide (1998).

<sup>7</sup> Howden-Chapman, P. and Woodward, A., The Treaty and equity: social and economic determinants of health in New Zealand, *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997).

<sup>8</sup> Whitehead, M., The concepts and principles of equity and health. *Health Promotion International*, **6**, 217-228 (1991).

<sup>9</sup> Ibid.

mortality actually rose in absolute terms, against the overall trend.<sup>1</sup> This then is a second reason for policy action- health is becoming more unfairly distributed.

A third reason for reducing the social gradient in health is that it is a marker for the health of society itself.<sup>2</sup> This is expressed in several ways, often under the heading of 'social cohesion', or its fragmentation. Social gradients in health are related to other social statistics, such as poor educational attainment, stress, violence, crime, and violent crime, particularly homicide in the US.<sup>3</sup> Health is also a marker for the quality of life; steepening health gradients are associated with sharply increasing spatial concentrations of poverty and wealth, in the US in the 20 years to 1990.<sup>4</sup> The place where people live may be a determinant itself,<sup>5,6</sup> while fragmentation of urban environments is argued as reducing support for public institutions.<sup>7</sup> In the US, civic distrust was highly correlated with income inequality ( $r=0.7$ ) in 39 US states.<sup>8</sup> Participation in local affairs is associated with lower infant mortality in Italy.<sup>9</sup> It is therefore of concern that there is some indication that participation in community organisations in Australia is declining.<sup>10</sup>

A key question for the social gradient in health debate is what mechanism or mechanisms reproduce both the health gradient and relative material inequality. Erikson and Goldthorpe suggest a material mechanism that does not rely on the conscious influence of interest groups - the entirely rational, individual behaviour of the progressively wealthier portions of society to improve the life chances of their

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<sup>1</sup> Phillimore, P., Beattie, A. and Townsend, P., Widening inequality of health in northern England, 1981-91. *British Medical Journal*, **308**, 1125-1128 (1994).

<sup>2</sup> Benzeval, M., Judge, K. and Whitehead, M. (eds.), *Tackling inequalities in health. An agenda for action*, King's Fund Publishing, London (1995).  
Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).

<sup>3</sup> Kawachi, I. and Kennedy, B.P., Health and social cohesion: why care about income inequality? *British Medical Journal*, **314**, 1037-40 (1997).

Kennedy, B.P., Kawachi, I., Prothrow-Stith, Lochner, K. and Gupta, V., Social capital, income inequality, and firearm violent crime. *Social Science and Medicine*, **47**, 7-17 (1998).

Roberts, H., Socioeconomic determinants of health. Children, inequalities, and health. *BMJ*, **314**, 1122-5 (1997).

<sup>4</sup> The proportion of people in poverty living in non-poor (<20% poverty) neighbourhoods declined 1970-90 from 45% to 31%. The typical affluent family (4\* poverty income) lives in a neighbourhood where more than half the neighbours are also affluent, with better equipped public schools, higher quality public amenities, and more generous municipal services. The children mix with other successful children, ensuring the social reproduction of material and cultural advantage. Kawachi, I. and Kennedy, B.P., Health and social cohesion: why care about income inequality? *British Medical Journal*, **314**, 1037-40 (1997).

<sup>5</sup> MacIntyre, S., Maclver, S. and Sooman, A., Area, class and health: should we be focussing on places or people? *Journal of Social Policy*, **22**, 213-234 (1993).

<sup>6</sup> Yen, I.H. and Kaplan, G.A., Poverty Area Residence and Changes in Physical Activity Level: Evidence From the Alameda County Study. *American Journal of Public Health*, **88**, 1709-12 (1998).

<sup>7</sup> Kawachi, I. and Kennedy, B.P., Health and social cohesion: why care about income inequality? *British Medical Journal*, **314**, 1037-40 (1997).

<sup>8</sup> Ibid.

<sup>9</sup> Putnam, R.D., Leonardi, R. and Nanetti, R.Y., *Making democracy work: civic traditions in modern Italy*, Princeton University Press., Princeton (1993).

<sup>10</sup> Phillips, K., Who cares?, *The Advertiser*, pp. 51-3, Adelaide (1998).

children. This behaviour enhances support for private provision of services and erodes support for public provision.<sup>1</sup>

A mechanism for the health of relatively poorer individuals might be as follows: a) life expectancy itself may be a psychologically salient determinant of risk-taking and the timing of life transitions; b) economic inequality will account for additional variance in homicidal violence besides that accounted for by local life expectancy, and; c) if low life expectancy at birth is psychologically salient, it will inspire short horizons in other domains of behavioural decision-making, such as investment in education, preventive health, savings, and reproduction:<sup>2</sup>

Tumin in 1953 wrote: to the extent that inequalities in social rewards cannot be made acceptable to the less privileged in a society, social stratification systems function to encourage hostility, suspicion and distrust among the various segments of society and thus to limit the possibilities of social integration.<sup>3</sup>

Similarly it is argued that citizenship is taken as implying a 'societal membership' that requires placing some limits on the degree of inequality in a society for fear that 'social exclusion' arising from poverty may threaten social integration.<sup>4</sup>

A fourth reason for reducing inequalities in health, via reducing material inequality, is a corollary of the third; that is, high material inequality is a threat to legitimacy of democratic government. Blane reports that the World Bank accepts that *reductions* in material inequality tends to occur in countries when there are crises of legitimacy, external threat, or post war occupation, and notes that inequality in the UK reduced in the period of the two world wars to gain the cooperation of the masses.<sup>5</sup> A corollary is that Blane and, separately, Wilkinson both argue that, *rising* material inequality is likely to *produce* crises of legitimacy for government.<sup>6</sup> Certainly a threat to legitimacy was a strong element of the discussion in the media, about the effect on the poor, of economic difficulties faced by Indonesia in 1998.<sup>7</sup> The World Bank was equally concerned with preservation of order.<sup>8</sup> Kawachi argues that, even without a crisis, lack of trust in government increases with rising material inequality, in part because political representation goes to the rich who give the money; in the US the richest 3% of the voters give 35% of the donations so

<sup>1</sup> Erikson, R. and Goldthorpe, J.H., *The constant flux; a study of class mobility in industrial societies.*, p. 429, Oxford University Press, Oxford (1992).

<sup>2</sup> Wilson, M. and Daly, M., Life expectancy, economic inequality, homicide, and reproductive timing in Chicago neighbourhoods. *British Medical Journal*, **314**, 1271-4 (1997).

<sup>3</sup> Kawachi, I. and Kennedy, B.P., Health and social cohesion: why care about income inequality? *Ibid.*, 1037-40.

<sup>4</sup> Twine, F., Citizenship: Opportunities, Rights and Routes to Welfare in Old Age. *Journal of Social Policy*, **21**, 165-175 (1992).

<sup>5</sup> Blane, D., Brunner, E. and Wilkinson, R., The evolution of public health policy: an anglocentric view of the last fifty years. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 344, Routledge, London (1996).

<sup>6</sup> *Ibid.*, Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).

<sup>7</sup> Leahy, J. and Gernlees, D., Indonesia call was wrong: Wolfensohn, *The Australian*, pp. 1 (1998).

<sup>8</sup> Guttsman, J., Rich-poor gap a time bomb - World Bank, *The Advertiser*, Adelaide (1997).

that public policy is no longer the outcome of deliberation about the public interest but a residue of campaign strategy.<sup>1</sup>

A fifth reason is that action to reduce inequalities in health, by addressing relative material inequality, will be favourable to the economy. An underclass means low productivity and slow economic growth.<sup>2</sup> More equal economies perform better while high inequality societies produce a low skill pool, which is bad for the economy.<sup>3</sup> Moving to a low wage regime may increase jobs but requires an increase in either wage subsidies, education or police and prisons; if the US prison population is added to its unemployment figures, the total is equal to Europe.<sup>4</sup>

Finally, one of the major reasons for caring about the social gradient in health is that the variation within and between different societies, or political jurisdictions, over time, means that the slope of the social gradient in health is not a fixed property, and is therefore amenable to policy change. Evidence from a number of countries/ states (Costa Rica, Sri Lanka, Kerala) shows that infant mortality and life expectancy can be gained, or produced, or created, with egalitarian health, education and material welfare policies.<sup>5,6,7,8,9,10,11</sup> The fact that it is possible to redress inequalities in health is a compelling reason for finding the means to do so.<sup>12</sup> Being accountable for the public's health requires attention to the overwhelming majority of the gradient in health that is unaffected by health care, and this has led to calls for evidenced-based population health policy.<sup>13,14</sup>

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<sup>1</sup> Kawachi, I. and Kennedy, B.P., Health and social cohesion: why care about income inequality? *British Medical Journal*, **314**, 1037-40 (1997).

<sup>2</sup> Ibid.,  
Persson, T. and Tabellini, G., Is inequality harmful for growth? Theory and evidence. *American Economic Review*, **84**, 600-621 (1994).

<sup>3</sup> Myles, J., When Markets Fail: Social Policy at the Turn of the Century, 1997 *National Social Policy Conference: States Markets Communities - Remapping the Boundaries*, Social Policy Research Centre, University of New South Wales (1997).

<sup>4</sup> Ibid.

<sup>5</sup> Szreter, S., The idea of demographic transition and the study of fertility change: a critical intellectual history. *Population and Development Review*, **19**, 659 - 701 (1993).

<sup>6</sup> Mathew, K.M. (ed.), *Manorama Year Book 1998*, 33rd ed., Malayala press, Kottayam (1998).

<sup>7</sup> Taylor, R., Explanations for socioeconomic differentials in health status, *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997).

<sup>8</sup> Marmot, M., The social pattern of health and disease. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 42-70, Routledge, London (1996).

<sup>9</sup> Hertzman, C., What's been said and what's been hid: population health, global consumption and the role of national health data systems Ibid., pp. 94-108.

<sup>10</sup> Caldwell, J.C., Education as a factor in mortality decline: an examination of Nigerian data., *Socioeconomic Determinants and Consequences of Mortality*, pp. 172-192, United Nations & World Health Organization, Mexico (1979).

<sup>11</sup> Behm, H., Socioeconomic determinants of mortality in Latin America Ibid., pp. 139-165.

<sup>12</sup> Benzeval, M., Judge, K. and Whitehead, M. (eds.), *Tackling inequalities in health. An agenda for action*, King's Fund Publishing, London (1995).

Kawachi, I. and Kennedy, B.P., Health and social cohesion: why care about income inequality? *British Medical Journal*, **314**, 1037-40 (1997).

<sup>13</sup> This is also a riposte to enthusiasm in the clinical area for evidence-based medicine.

<sup>14</sup> Krieger, N. and Moss, N., Accounting for the public's health: an introduction to selected papers from a U.S. conference on "measuring social inequalities in health". *Int J Health Serv*, **26**, 383-90 (1996).,  
Roberts, H., Children, inequalities and health. *British Medical Journal*, **314**, 1122-5 (1997).

### *International ramifications*

The above five reasons for caring about the social gradient in health have been advanced for national and sub-national levels. Similar reasoning, however, applies at the international level. For example, 'social cohesion' between countries is likely to be affected by trends of the geographic concentration of affluence and poverty throughout the world. As the density of poverty rises in the environment of the world's poor, so, it is predicted, will exposure to crime, disease, violence, and family disruption. 'In the twenty-first century the advantages and disadvantages of one's class position will be compounded and reinforced through ecological mechanisms made possible by the geographic concentration of affluence and poverty, creating a deeply divided and increasingly violent social world', according to Massey,<sup>1</sup>

An additional, and increasingly important, reason for caring about international material inequalities is that an international perspective raises questions about the global capacity for all nations to develop to first world standards. One measure of this capacity is the 'ecological footprint'- the area of land required to sustain a particular standard of living; rich nations use 5 hectares per capita, where the world supply is only 1.7. It has been estimated that, at the 1996 levels of consumption, the world's human inhabitants could all live a material standard equal to social assistance recipients in Canada.<sup>2,3,4</sup> Another, ecological, way to look at the national relationship with health production is by the ratio of life years produced to 'ecoproductive' land consumed: if success were measured this way, the world's healthiest country is Costa Rica,  $e_x^0 = 76$  with GNPpc at \$1850 compared with  $e_x^0 = 77$  for the 22 richest countries with GNPpc average = \$21,050.<sup>5</sup>

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<sup>1</sup> Massey, D.S., The age of extremes: concentrated affluence and poverty in the twenty-first century. *Demography*, **33**, 395-412 (1996).

<sup>2</sup> Hertzman, C., What's been said and what's been hid: population health, global consumption and the role of national health data systems. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 94-108, Routledge, London (1996).

<sup>3</sup> Note that, as discussed previously, such a dramatic redistribution, which would be an apparently large reduction in living standards, need not impact on life expectancy, which is more related to a nation's internal distribution of income.

<sup>4</sup> There are close links between ecological/environmental issues and health issues. Recommendations for impact assessment statements in both fields refer to each other's the interests. See for example NHMRC papers and the report of the National Strategy for Ecologically Sustainable Development Commonwealth of Australia, *National Strategy for Ecologically Sustainable Development*, p. 128, AGPS, Canberra (1992),

National Health and Medical Research Council, *Ecologically Sustainable Development: The Health Perspective - June 1992*, p. 88, National Health and Medical Research Council, Canberra (1992),

National Health and Medical Research Council, C.o.A., *National Framework For Environmental and Health Impact Assessment*, p. 148, Australian Government Publishing Service, Canberra (1994).. There are other substantial contributions eg. *Australian/Canadian Ecological Public Health: From Vision to Practice and Planetary overload: Global Environmental Change and the Health of the Human Species* Chu, C.M. and Simpson, R. (eds.), *Ecological Public Health: From Vision to Practice*, Institute of Applied Environmental Research, Griffith University, Nathan, Queensland, Australia and Centre for Health Promotion, 100 College Street, Suite 207, Toronto, Ontario, Canada., Nathan, Queensland (1994),

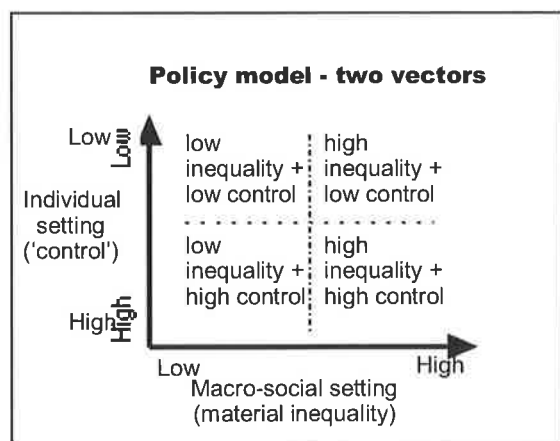
McMichael, A.J., *Planetary Overload: Global Environmental Change and the Health of the Human Species.*, p. 352, Cambridge University Press (1993).

<sup>5</sup> Hertzman, C., What's been said and what's been hid: population health, global consumption and the role of national health data systems. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 94-108, Routledge, London (1996).

### Policy dimensions: a simple vector model

I propose a simplistic, vector model, in two dimensions at first, as an aid to thinking about policy. The model is simplified from Figure 3, on page 3, by representing all social explanations for poor health as one policy dimension on the horizontal axis and individual explanations as the vertical dimension.

**Figure 38 Policy vector model - two vectors: individual and social dimensions.**



In this two-dimensional vector model the individual setting ('control') policy dimension represents the impact of work hierarchy on health, as shown in Whitehall and other studies of grade of employment and health. In this sense 'control' is not an individual characteristic but a feature of an individual's work environment. High control is dominant in this individual setting dimension, so that, even if one's situation in the workplace has high demands, high control is protective of health. As one moves out along this vector to lower control situations, one's health deteriorates. The macrosocial dimension vector represents relative material circumstances, say within a political jurisdiction; a high material inequality society would have most people regarding the rewards of society as lower than their expectations based on effort.<sup>1,2</sup> As a society moves along this vector to more unequal distributions, the majority of individuals have poorer relative health. The maximum non-random health outcome is therefore at the junction of the vectors, high control and low social inequality, and movement away from the junction represents a loss of health, say a loss of potential years of life.

<sup>1</sup> Note that this is not the Siegrist meaning of effort / reward, which is used as an individual measure to show workplace effects similar to, but independent from demand and control models used in the Whitehall II study - see J. Siegrist or refer to the separate literature on workplace health. For example there is a substantial list of references at: <http://www.workhealth.org/refer>

<sup>2</sup> This is because the relative material effect association with health is observed at sub-national level.

## Policies to address the macro-social dimension of health

Just as the existence of the social gradient in health has a long history, so does the policy response to the macro-social dimension of health, the material inequality dimension, which involves a re-distributive and public investment role for government. As noted in chapter one, authors and speakers often refer to Rudolf Virchow, a founder of epidemiology in the nineteenth century, both for the solution:

'democracy is the best social response to disease',<sup>1</sup>

and the likely reaction:

'anyone who presented the plain facts of social inequalities in health would be branded as 'a red republican of the purest water'.<sup>2</sup>

While the second statement retains contemporary relevance, the first has lost its pithiness as the research shows steep social gradients in health in nations presenting as leaders of democracy.<sup>3</sup>

The 1980 Black Report policy prescription was state intervention via welfare transfers and services, such as levelling up for the under-fives, positive discrimination and health education. Subsequent materialist explanations, both relative and absolute, point to a reordering of 'reward' and 'control' within nations; these are the axes in the vector model at Figure 38, page 3. 'Reward' and 'control' in this context cover the main themes of redistributing economic resources, both income and capital, in the nation; that is, addressing the effort/reward dimension at the social scale, and redistributing demand, control and support in the workplace. The absolutist position argues more that this will impact in the long term to reduce insults across the life course; the relativist position does not discount this effect but argues, in addition, that there will be measurable short term gains. A successful nation, in terms of mortality and morbidity, therefore requires a social and political consensus to a form of egalitarianism, and a new balance between equality of condition and equality of opportunity.<sup>4</sup>

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<sup>1</sup> Lynch, J., Sustained economic hardship and physical, psychological, cognitive and social functioning after 29 years follow up in the Alameda County study, *Social Disadvantage and Health*, Queensland University of Technology- Brisbane (1997)., Turner, B., Citizenship and Health as a Scarce Resource. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 302-314, Oxford University Press., Melbourne (1998).

<sup>2</sup> Krieger, N., The Making of Public Health Data: Paradigms, Politics, and Policy. *Journal of Public Health Policy*, **13**, 412-427 (1992).

<sup>3</sup> Minogue argues the meaning of the word has changed: in Greek, Demos meant the poorer people, and democracy was a package because the name had described a source of power rather than a manner of governing. He says the vogue for democracy dates from the French Revolution, and is equated with a dream of freedom, but that American founding fathers supported representation precisely because it might moderate rather than reflect the passions of an untutored multitude. Minogue, K., Democracy. In: A. Kuper and J. Kuper (eds.), *The Social Science Encyclopedia*, pp. 916, Routledge & Kegan Paul, London (1985)..

<sup>4</sup> For a discussion of equality see Arneson, R.J., Equality. In: R.E. Goodin and P. Pettit (eds.), *A Companion to Contemporary Political Philosophy*, pp. 489-507, Blackwell Publishers, Oxford (1993).. I think there are substantial implications of the relative materialist explanations for health on economic ideas. It seems to me the health consequences of increasing inequality have not been taken into account in the following arguments. The relative materialist explanation :

a) adds to the arguments for equality of condition, for example Arneson notes that 'The egalitarian holds that it would be a morally better state of affairs if everyone enjoyed the same level of social and economic benefits.', whereas the

This prescribes a major redistributive and regulatory role for the state at a time when the intervention of the state, or the 'welfare state', is under siege in western countries. Researchers frequently call for a mix of direct material transfers and welfare state services. These are different, however, and it is necessary to distinguish carefully between them for their likely impact on the social gradient in health. Redistributive and regulatory policy recommendations are not difficult to find. Black was on this path in 1980, and many subsequent researchers and commentators refer specifically to economic redistribution.<sup>1</sup>

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relative materialist explanation identifies  tangible  health benefits in addition to a moral dimension (Note: my underlining) (there may be economic benefits too see eg. Persson, T. and Tabellini, G., Is inequality harmful for growth? Theory and evidence. *American Economic Review*, **84**, 600-621 (1994).),

b) adds substantially to the critique of the doctrine of sufficiency; 'enough' is socially determined relatively, not absolutely, and

c) criticises Pareto, both for incentives (ie. superior performance is elicited by superior rewards and the pie gets bigger so that the least well off in the end gets as much as he would have if the pie were equally distributed in the first place- this is also Rawls' - if inequalities are maximally productive, then they are not morally regrettable for the worse-off..) and for the Pareto norm (when its not possible to make someone better off without making anyone else worse off). Relative material effects have not been taken into account in these arguments.

<sup>1</sup> For example:

1. 'We must surely resist the disingenuous logic of confining our attention to ways of improving health which aim to leave the underlying socioeconomic injustices untouched';
2. 'more attention should be paid to the social environments, job design, and the consequences of income inequality';
3. 'redistribution of income';
4. 'There is some evidence that it works: a randomised control trial on income maintenance shows that a guaranteed minimum income to pregnant women in low income families (by using negative income tax) was associated with a significant increase in birth weight in the intervention group'; ,
5. 'reverse declining living standards';
6. 'reduce material deprivation, gaining national consensus to reduce the income gradient';
7. 'There are some things that can only be done by governments and narrowing the income gap is one of these';
8. 'We must get the relationship between society and economy right';
9. 'Health policies should focus on the wider inputs to health';
10. 'The redistribution of economic resources includes wage and salary income, wealth, pensions, public and private services (including medical), formal schooling. ... Having the financial assets and educational background to invest in and promote the social mobility of one's children is a substantial intergenerational resource transaction';
11. 'reduc(e) the pay and benefit differentials between jobs'; ,
12. 'regulat(e) the composition of GDP and GDP growth.

These quotations are from, respectively:

1. Wilkinson, R.G., Class Mortality Differentials, Income Distribution and Trends in Poverty 1921 - 1981. *Journal of Social Policy*, **18**, 307-335 (1989).
2. Marmot, M.G., Davey Smith, G., Stansfeld, S., Patel, C., North, F., Head, J., White, I., Brunner, E. and Feeney, A., Health Inequalities among British civil servants: the Whitehall II study. *The Lancet*, **337**, 1387-93 (1991).
3. Benzeval, M., Judge, K. and Whitehead, M. (eds.), *Tackling inequalities in health. An agenda for action*, King's Fund Publishing, London (1995).
4. Kehrer, B.H. and Wolin, C.M., Impact of maintenance on low birthweight: Evidence from the Gary experiment. *The Journal of Human Resources*, **14**, 434-62 (1979). Note that this experiment was named for the town of Gary, Indiana. US studies on interventions are not necessarily regarded as relevant to Australia, in a policy sense, as many of the interventions are already part of the social welfare infrastructure in other western societies. This one, however is an exception because of the experimental design, and is referred to by others in the field. Roberts, H., Children, inequalities and health. *British Medical Journal*, **314**, 1122-5 (1997).
5. Wilkinson, R.G., Class Mortality Differentials, Income Distribution and Trends in Poverty 1921 - 1981. *Journal of Social Policy*, **18**, 307-335 (1989).
6. Terris, M., The development and prevention of cardiovascular disease risk factors. *Journal of Public Health Policy*, **14**, 426-41 (1996).
7. Tarlov, A.R., Social determinants of health: the sociobiological translation. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 71-93, Routledge, London (1996).
8. Roberts, H., Children, inequalities and health. *British Medical Journal*, **314**, 1122-5 (1997).
9. Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).
10. Marmot, M., The social pattern of health and disease. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 42-70, Routledge, London (1996).
11. Miller, S.M., Thinking strategically about society and health. In: B.C. Amick III, S. Levine, A.R. Tarlov and D. Chapman Walsh (eds.), *Society and Health*, pp. 342-, Oxford University Press, New York (1995).  
Another, related, idea was a punitive tax on a companies whose benefit package ratio was above 20:1 highest to lowest, or a tax concession for the companies reaching a smaller ratio. See: Miller, S.M., Thinking strategically about society and health. In: B.C. Amick III, S. Levine, A.R. Tarlov and D. Chapman Walsh (eds.), *Society and Health*, pp. 342-, Oxford University Press, New York (1995).
12. Miller, S.M., Thinking strategically about society and health. In: B.C. Amick III, S. Levine, A.R. Tarlov and D. Chapman Walsh (eds.), *Society and Health*, pp. 342-, Oxford University Press, New York (1995). Miller argues that the FIRE (finance, insurance, real-estate) industries generate fewer jobs and more inequality for a given proportion of GDP than (cont.)

Thus Benzeval, in 1995, outlined a welfare agenda for the UK, in response to new research on inequalities.<sup>1</sup> This included action on housing, family poverty, smoking and health services. Another writer separated policy options under headings of 'resource position', 'relational position' and 'relative position' drawn directly from materialist and relative materialist explanations.<sup>2</sup> In Australia the National Health Strategy stated that: 'There is widespread agreement that the greatest gains in improving health status inequalities will flow from improvements in these structural factors', that is, social and environmental determinants; this might now be better expressed as 'the material/social environment'.<sup>3</sup> Marmot suggested a 'ten point plan' in response to demand for him to elaborate the policy implications of his work in the area. These were: 1. The social gradient- health policy must be linked to the social and economic determinants through life. 2. Biological mechanisms 3. Early life- the effects 4. Social exclusion 5. Workplace stress 6. Unemployment 7. Social support. strong networks 8. Addiction 9. Food- healthy food is a political issue 10. Transport- reducing driving, encouraging walking and cycling.<sup>4</sup> Also in 1998, in the UK, the Acheson Independent Inquiry into Inequalities in Health in the UK produced a comprehensive list of policy recommendations, many of which could be reproduced for Australia.<sup>5</sup> There is little additional value in repeating them here; the Inquiry report is available electronically.<sup>6</sup> A broad consensus exists amongst researchers for a re-distributive agenda.

Structural factors, frequently described as the 'determinants' of health are commonly held to lie in broadscale policies such as education, transport, housing, recreation and so on, reflecting a welfare *service* orientation, paralleling a health *service* orientation in health policy. The policy list is in turn argued to be the result of public choices about energy, technology, pollution, employment, income maintenance, taxation, pricing, and services.<sup>7,8</sup> While the size of the social gradient in health in a society is evidently a very good marker for the social will expressed by

manufacturing, and the USA government spending promotes military, construction) and health-care industries via the tax (deduction) system.

<sup>1</sup> Benzeval, M., Judge, K. and Whitehead, M. (eds.), *Tackling inequalities in health. An agenda for action*, King's Fund Publishing, London (1995).

<sup>2</sup> Miller, S.M., Thinking strategically about society and health. In: B.C. Amick III, S. Levine, A.R. Tarlov and D. Chapman Walsh (eds.), *Society and Health*, pp. 342-, Oxford University Press, New York (1995).

<sup>3</sup> Commonwealth of Australia, *Enough to Make You Sick. How income and environment affect health. National Health Strategy Research Paper No 1 September 1992*, p. 144, Canberra (1992).

<sup>4</sup> Swan, N., Mastering the Control Factor, Part Two, *Norman Swan interviews Michael Marmot*. Vol. 1998, Australian Broadcasting Corporation, Radio National, Adelaide (1998), 16 November. Also available via the internet. <http://www.abc.net.au/m/talks/8.30/helthrpt/stories/s17092.htm>

<sup>5</sup> The Independent Inquiry into Inequalities in Health in the UK occurred after I began this thesis. There has been discussion in the journals see for example Davey Smith Davey Smith, Morris, G.J.N. and Shaw, M., The independent inquiry into inequalities in health - Is welcome, but its recommendations are too cautious and vague. *BMJ*, **317**, 1465-1466 (1998).

<sup>6</sup> Acheson, D., Barker, D., Chambers, J., Graham, H., Marmot, M. and Whitehead, M., *Independent Inquiry into Inequalities in Health* (1998).

<sup>7</sup> Milio, N., Commentary: Creating a Healthful Future. *Community Health Studies*, **9**, 185-192 (1983).

<sup>8</sup> Tesh, S.N., *Hidden Arguments Political Ideology and Disease Prevention Policy*, p. 215, Rutgers University Press (1988).

these choices, the policy mechanisms that are most often cited are services provided *after* those public choices, eg about incomes, have been made. It follows that a policy informed by relative materialist explanations would have substantial redistributive mechanisms *prior to* those public services.

This is not to argue those services are not needed, as universal public services tend to be accessed more readily inverse to the social gradient, that is, they do have a redistributive effect, and do contribute to quality of life. It is to argue, rather, that more transfers pre-market are likely to have a greater impact on the size of the social gradient. Instead, much as ameliorating the health effects of a material gradient falls to the health care system, ignoring social determinants, ameliorating material inequality falls to economic welfare systems, mainly ignoring economic determinants of material inequality, which lie increasingly beyond national borders. However, there is no reason to believe that a redistributive welfare agenda, aimed at attenuating the material gradient mainly by a strengthening of government expenditure, intervention and regulation, is more likely to be adopted now than it was in 1980 when the Black Report was released by the UK Secretary of State.<sup>1</sup> Similarly, the undersecretary of State for Social Services, George Young saw little role for government in 1981:

I see progress being made by encouraging health education, personal responsibility for health, and encouraging voluntary organisations to help in the personal social services and helping to complement the NHS.<sup>2</sup>

This theme was apparently re-iterated in 1997 when the incoming Labour prime minister, Tony Blair, was reported as saying that UK economic policy would be in tune with globalisation- this was intended as reassuring, that the dominant economic ideas would not be supplanted with another objective for the economy.<sup>3</sup>

If the level of material inequality is an expression of the political 'social will', as Landers describes, then an increase in inequality should be accompanied by a change in the social will.<sup>4</sup> Robinson, from a workplace health perspective, describes a 'social consensus' that existed throughout much of the twentieth century; collective organisations such as labour unions and public institutions such as the courts and regulatory agencies had a legitimate and important role to play in mediating conflicts between employers and employees.<sup>1</sup> He argues this social consensus completely unravelled in the 70s and 80s with ideological attacks on the

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<sup>1</sup> The then Secretary's words when launching the publication are quoted on page 98 of this thesis.

<sup>2</sup> Townsend, P. and Davidson, N., *Inequalities in Health: the Black Report*, Penguin, London (1982).

<sup>3</sup> Watts, R., Globalisation, states, economies and social policy: the Australian welfare state., *1997 National Social Policy Conference: States Markets Communities - Remapping the Boundaries*, Social Policy Research Centre, University of New South Wales (1997).

<sup>4</sup> See Chapter 2, page 73, of this thesis, for Landers' ideas about determinants of health transition.

legitimacy of labour unions, judicial activism and on social regulation. O'Connor attributes the mixture, in the US, of 'neo-liberalism, neo-conservatism and neo-individualism' to huge contributions by business, from the 1970s, to anti-union, right-wing political candidates oriented to restoring capital's domination of the working class, with the result of a sharp increase in the rate of exploitation and inequalities in income.<sup>2</sup> Under this conception, the labour market is a domain of voluntary transactions between equal partners linked with an economic view of market competition as providing the strongest incentives for improving working conditions.

Robinson's argument about the loss of social consensus may apply widely to western, particularly Anglophone, democracies and, in terms of Lukes' dimensions of power, the shift in that social consensus represents a paradigm shift in the third, or cultural, dimension forced by a sustained period of agenda-setting in the second dimension. The social idealism that led to the United Nations and global agreements in welfare areas such as health, the environment and labour, gave way to an alternative, economically driven, ideology.

Despite the cross-national evidence that national policy can make a difference to health, Syme says 'We also don't think anything can be done about it, short of revolution, so we pick behaviour'.<sup>3</sup> This response may be interpreted as the effect of an exertion of power in Lukes third dimension- an inability to conceive an alternative policy agenda or to conceive of enabling the social will that would demand such an agenda. The chief executive of the Australian Centre for Equity through Education is reported as saying: '25 years ago, they were boasting about how well (state governments) did with (gaining) resources. Now they boast about how much they have been able to cut'.<sup>4</sup> So there has been a significant change in the role of the state, and it is necessary to look at the role of global forces.

#### *The welfare state and global economic forces*

An encyclopaedia reference in 1987 claimed that the 'chief arena of politics in the modern world is the state, for the state is the most comprehensive authority that we encounter'.<sup>5</sup> In fact, the state, since the 1970s, is increasingly operating according to the demands of global capital in the areas that drive material inequality, that is

<sup>1</sup> Robinson, J.C., *Toil and Toxics- Workplace Struggles and Political Strategies for Occupational Health.*, p. 226 p, University of California Press., Berkeley (1991). James C. Robinson is Professor of Health Economics at the University of California, Berkeley, School of Public Health.

<sup>2</sup> O'Connor, J., *The Meaning of Crisis A Theoretical Introduction*, p. 184, Basil Blackwell, Oxford (1987).

<sup>3</sup> Syme, S.L., To prevent disease: the need for a new approach. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 21-31, Routledge, London (1996).

<sup>4</sup> Armitage, C., Classes apart, mind the gap, *The Australian*, pp. 18, Adelaide (1999).

<sup>5</sup> Miller, D., Politics. In: Seligman (ed.), *Blackwell Encyclopaedia of Political Thought*, Oxford (1987).

to lower or restrain wages and reduce or restrain government social spending.<sup>1,2,3</sup> Welfare states conceived in the middle of the century had full employment as an objective, rather than low inflation, and they were effective as long as most welfare was found via the workplace, and unemployment was temporary.<sup>4</sup> However there were large changes in real earnings during the 1980s in Australia with the bottom decile losing 10% while the top decile gained 15%,<sup>5,6</sup> similar to the US.<sup>7</sup> So, one of the current prevailing ideas- that the main relationship with poverty is unemployment- is increasingly challenged, as working poverty becomes more prevalent and set to increase in the future.<sup>8</sup> A continuing economic debates is around incentives to work. As real wages decline, the state comes under pressure to either subsidise low paid jobs, which interferes with market efficiency, or lower unemployment benefits to retain an incentive to work. Similarly, a widening gap might add incentives to acquire higher education but lower the capacity to buy it, an area where reproduction of socioeconomic status occurs via intergenerational transfers of wealth. Myles argues that moving to a low wage regime may increase jobs but requires either increased wage subsidies, education or police and prisons.<sup>9</sup> He calculates that bringing inequality in the US back from 1997 levels to 1979 levels by wage subsidies would cost 4% of GDP, as would achieving the same end by investing in education.<sup>10</sup> The cost of implementing such measures would fall on workers as the capacity of capital to minimise taxation, together with arrangements that favour capital mean that the social wage is mainly funded by other workers; 'At no time in the 1980s did labour receive a net benefit from the state' in the UK.<sup>11</sup>

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<sup>1</sup> Mishra, R., Social Policy and the Challenge of Globalisation., *Social Policy and the Challenges of Social Change*, University of New South Wales, Sydney (1995).

<sup>2</sup> Mishra notes the phenomenal growth of multinational companies 7,000 in 1970 to 35,000 in 1995 Ibid.

<sup>3</sup> Mishra notes that the US and UK followed this path but that Germany provides an alternative perspective- it retained collective bargaining and high social charges, but, despite a rigid economy in economic terms, it is still highly productive , highly efficient.

<sup>4</sup> Myles, J., When Markets Fail: Social Policy at the Turn of the Century, *1997 National Social Policy Conference: States Markets Communities - Remapping the Boundaries*, Social Policy Research Centre, University of New South Wales (1997).

<sup>5</sup> It was reported that Selim Jahan, deputy director of the 1998 UN Human Development report said 'Australia is slipping behind other industrialised countries in achieving income equity in the general population. The gap between rich and poor has widened with the top 20 pc of income earners paid ten times more than the bottom 20pc, about the same as Russia at 11 and up from 9.6 in 1996

<sup>6</sup> Borland, J., Earnings inequality in Australia: changes and causes., *1997 National Social Policy Conference: States Markets Communities - Remapping the Boundaries*, Social Policy Research Centre, University of New South Wales (1997).

Eardly, T., Does Australia have a problem of working poverty? An examination of the trends since the mid-1970s, *1997 National Social Policy Conference: States Markets Communities - Remapping the Boundaries*, Social Policy Research Centre, University of New South Wales (1997).

<sup>7</sup> Burtless, G., Work, Poorest Workers are Losing Out. *The Futurist*, **28**, 57-59 (1994).

<sup>8</sup> Eardly, T., Does Australia have a problem of working poverty? An examination of the trends since the mid-1970s, *1997 National Social Policy Conference: States Markets Communities - Remapping the Boundaries*, Social Policy Research Centre, University of New South Wales (1997).

<sup>9</sup> Myles notes that if you add the prison population to the unemployed in the USA its equal to Europe.

<sup>10</sup> Myles, J., When Markets Fail: Social Policy at the Turn of the Century, *1997 National Social Policy Conference: States Markets Communities - Remapping the Boundaries*, Social Policy Research Centre, University of New South Wales (1997).

<sup>11</sup> Chernomas, R. and Sepehri, A., The Class analysis of poverty: is the underclass living off the socially available surplus? *International Journal of Health Services*, **27**, 381-3 (1997).

The generation-long dominance of neo-classical economic ideas has led to complete about-faces in social policy. By way of example, the free movement of capital has it seeking the most favourable location for investment. Other things being equal, such as political stability, the jurisdiction offering the most concessions becomes the most attractive. So subsidies or corporate welfare, in the form of infrastructure, education, utilities and tax concessions are offered as inducements, largely hidden from public discussion. The competition for capital is described as a 'race to the bottom', by people interested in social welfare as the concessions to capital progressively reduce the capacity of jurisdictions to afford benefits and services, particularly universal measures. The tension between nations around issues of tariffs and subsidies is the international version while the tension between states in federal systems is the sub-national version.<sup>1</sup> One infamous example in Australia was the abolition by states, in quick succession, of death duties, one of the fairest of taxes.<sup>2</sup> This competition for capital leads many commentators to call for an increasingly minor role for the states in Australia. However, consistent with Lukes' third dimension, Myles notes that, in different times with different dominant ideas, competition between Canadian states gave us public health insurance, the fairest of health insurance schemes.<sup>3</sup> So competition between jurisdictions is not necessarily anathema to welfare; rather, the exertion of power in Lukes' third dimension determines the ground over which competition will be fought.

### *Discussion*

A difficulty with recommendations for an increased regulatory and redistributive role for the state is that the nation-state is no longer pre-eminent. Offe's analysis is apparently not immediately applicable in this context. His argument is that the nature of the welfare state lends itself to democratic voice via citizens exercising voice at the neighbourhood level. In Offe's terms the welfare state has increased the means of resistance available to social groups to minimise the effects of capital's control over the means of production.<sup>4</sup> By analogy though, at the international level, global institutions would provide the means for nations to attenuate the effects of capital's control.<sup>5</sup> Hence the call to globalise social policy, as the international

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<sup>1</sup> See also the debate around the Multilateral Agreement on Investment (MAI), which was criticised as having unwanted social effects, but in Australia the interests of local capital coincided with social concerns to oppose the MAI, as it also threatened domestic employers.

<sup>2</sup> Note that inequality is increased via intergenerational transfers of wealth. Burbidge, A., *Capital gains and economic inequality*, 1997 *National Social Policy Conference: States Markets Communities - Remapping the Boundaries*, Social Policy Research Centre, University of New South Wales (1997).

<sup>3</sup> Myles, J., *Forum: Commonwealth or State? Remapping the boundaries of responsibility* *Ibid*.

<sup>4</sup> Eg. state regulation, labour protection, unemployment and social security benefits, all increase the chances of workers successfully resisting employers and the disciplinary effects of the 'reserve army of labour'.

<sup>5</sup> But note Keane argues that Offe understates the extent to which the state *weakens* client capacity for self-help by continually redefining and monitoring their needs. There may be parallels here.

agreements that do impinge on the state in economic areas are not matched by agreements promoting social goals.<sup>1</sup>

A number of examples of an international capacity to respond to economic crises occurred during the course of research for this thesis. In one example it was reported that World Bank President James Wolfensohn admitted he had 'got it wrong' on Indonesia's economy by failing to anticipate the crisis crippling the nation.<sup>2</sup> The Australian response in the short term was to arrange credit guarantees 'to help protect Australian companies' from the risk of importers being unable to pay their bills, worth \$3 billion in a year.

The health of people should be regarded the same way, so that international responses can protect people from the consequences of widening material inequality. A way to achieve this might be via international agreements that insist on social norms in international terms. For example a standard could be set for nations with per capita GNP higher than a certain amount to have a) a low percentage of income units in poverty (as defined), an absolute measure, and b) inequality less than a separate measure, say a Gini coefficient, a relative measure.<sup>3,4,5</sup> The international regulatory structures could be funded by a tax on international transfers, which, in themselves could act as a brake on rising material inequality.<sup>6</sup>

Australia could take a lead in promoting international socioeconomic regulation, via national means. The Commonwealth has the tools necessary to do this under the external affairs power, which allows the Commonwealth to pass legislation implementing obligations arising out of international conventions and agreements.<sup>7</sup> A beginning to such agreements was made internationally in 1995 when world leaders met in Copenhagen. The resulting Declaration including a framework for action to:

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<sup>1</sup> See for example, the debate around the effects of the Multilateral Agreement on Investment. Townsend, M., Global debate on economic sovereignty will come up a treaty., *The Australian*, pp. 34, Adelaide (1998).

<sup>2</sup> Leahy, J. and Gernlees, D., Indonesia call was wrong: Wolfensohn Ibid., pp. 1.

<sup>3</sup> See Hamlin, A., Welfare. In: P. Pettit and R.E. Goodin (eds.), *A Companion to Contemporary Political Philosophy*, pp. 651-662, Blackwell, Oxford (1993).. Hamlin argues for informed preference theory. Welfare is the business of the state as there are some things only governments can do. The form of political commitment to welfare could be: simple maximisation (with no trade-off between individuals) , maximisation with minimal constraints (the lowest level of individual welfare that will be tolerated) and maximisation with equality constraints (builds in the maximum inequality that will be tolerated.).

<sup>4</sup> Mishra, R., Social Policy and the Challenge of Globalisation., *Social Policy and the Challenges of Social Change*, University of New South Wales, Sydney (1995).

<sup>5</sup> Townsend, M., Global debate on economic sovereignty will come up a treaty., *The Australian*, pp. 34, Adelaide (1998).

<sup>6</sup> The 'Tobin tax' was proposed by James Tobin in 1972 as a mechanism for floating currency stability. A by-product of the tax would be a large fund potentially able to be used for international welfare. Tobin died in 2002 and a eulogy is accessible online <http://www.fe.unl.pl/~jbmacedo/papers/Tobin.html>

<sup>7</sup> Reynolds, C., Public Health and the Australian Constitution. *Australian Journal of Public Health*, **19**, 243- 249 (1995).

26 (g) Promote the equitable distribution of income and greater access to resources through equity and equality of opportunity for all ...<sup>1,2</sup>

My extension of Offe, then, is to use and create national institutions to pursue social, including health, agenda balances at the international level. Offe's model suggests that a body external to government will add a pressure that balances competing economic demands on government.

Lukes' second dimension of power- controlling the agenda -is pivotal to realising such a set of institutions. Lukes' second dimension points to a body or advocacy group placing inequalities in health on the international agenda with both the evidence to illuminate the trade-offs that are occurring between the economy and health and the capacity to propose an alternate policy path. The existence of interest groups to create national policy pressure was one of the key findings of an examination of 'successful' Australian health promotion strategies discussed on page 3.

It seems likely there is a virtuous cycle (economically) in policies that have egalitarian aims, so the external body should include an economic brief to develop these ideas, 'Being voices for needs not being met'.<sup>3</sup> In global social terms, this body would have to be an independent voice, adding health to the international policy setting arena, which is currently dominated by economic considerations. Similarly a national body to advance knowledge of the social gradient in health and propose interventions is needed. This would promote, within countries, an open policy debate about the trade-offs between economy/ health. Such bodies already exist in several countries. In the UK the International Centre for Health and Society, University College, London was launched in 1996. In Canada Fraser Mustard coordinates the Canadian Institute for Advanced Research. The Netherlands and Finland agreed to become pilot countries for the development of national Health For All policies and Mackenbach, in the Netherlands, commenced a Research Programme on Health Inequalities in 1989. Mackenbach notes that the attention paid to socioeconomic inequalities in health in the Netherlands increased greatly during the initial five years of funding from 1989.<sup>4</sup> It increased the yearly number of publications on socioeconomic inequalities in health by about 25%, increased researchers' and policy makers' awareness of inequalities, and improved the information available on health inequalities and the reasons for them. Cross-party

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<sup>1</sup> United Nations, Copenhagen Declaration on Social Development. Vol. 2000, United Nations World Summit for Social Development (1995).

<sup>2</sup> The summit was held in 1995 with the largest ever gathering of world leaders at the time. Australia was represented by its Prime Minister. The gathering reconvened in Geneva in 2000.

<sup>3</sup> Ernst, J., Hounslow, B. and Howe, A., Funding strategies for community services: weighing up the costs and benefits, *Social Policy and the Challenges of Social Change*, University of New South Wales, Sydney (1995).

<sup>4</sup> Mackenbach, J.P., Socioeconomic inequalities in health in The Netherlands: impact of a five year research programme. *Bmj*, **309**, 1487-91 (1994).

agreement on the need to reduce these inequalities has led to a consensus based approach which 'contrasts with the heavily politicised debate in countries such as the United Kingdom'.<sup>1</sup>

The lack of an interest group that benefits materially from reductions in inequality, the free rider problem, means continuing funding for the body would be a challenge, particularly when the topic is politically charged. It would be open to Keane's critique of Offe, that Offe underestimates the impact of funding cuts to non-government agencies. Again, international levies could provide external support.<sup>2</sup>

*Conclusion for the social dimension of the vector model*

While there continues to be a need for welfare services - they exert an effect on quality of life and, to a lesser extent, on life expectancy - the main policy need is for material redistributions to occur pre-market so that a larger discretion, or control, is placed in individuals' hands. Forces acting at national and international levels oppose this. A mechanism is needed to place alternative policy ideas into the public debate so that an expression of the social will can be obtained with better information about the effects of different policy choices. There are examples of public choices being exercised in a 'social' interest:: Swedish wage policy, pursued by unions, increased low wages relatively more than high, in Britain unions accepted lower wage increases for a better benefits to the elderly,<sup>3</sup> and wages were contained in Australia through the 1980s by delivering in the area of the social wage. These examples point to the need for an institutional response, that is, for an institution whose role is to inform the public debate. Because power is exerted at international levels the institutional response also needs to be international.

An optimistic view then, is that, through international institutions, modern societies can manage the problems of the social gradient in health. A pessimistic view is that the new world order operates in the interests of a small number of powerful economies via the international economic institutions: the World Bank, International Monetary Fund and World Trade Agreement.<sup>4</sup> The social cost of not addressing the social gradient in health may well be a loss of legitimacy for governments and a loss of social cohesion, in addition to a rising social gradient in health.

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<sup>1</sup> Ibid.

<sup>2</sup> Keane, J., Introduction. In: J. Keane (ed.), *Contradictions of the Welfare State Claus Offe*, pp. 309, Hutchinson Education, London (1984).

<sup>3</sup> Miller, S.M., Thinking strategically about society and health. In: B.C. Amick III, S. Levine, A.R. Tarlov and D. Chapman Walsh (eds.), *Society and Health*, pp. 342-, Oxford University Press, New York (1995).

<sup>4</sup> Turner, B., Citizenship and Health as a Scarce Resource. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 302-314, Oxford University Press., Melbourne (1998).

## Demand & control- the workplace

The Whitehall studies point to powerful influences in the workplace in the dimension of demand/control.<sup>1</sup> The long-standing relationship between occupation and health is unsurprising given the importance of work for material circumstances (ie. welfare), social identity and status, self-esteem and social networks. But the gradients within a sector have significant and uninvestigated health policy implications.<sup>2</sup> Marmot's early work was with heart disease and environment, looking at the experience of Japanese men in Japan, Honolulu and California. Looking later at international differences in work he observed differences in management in car manufacturers: Japanese firms in Japan, Japanese firms in America, and American firms in the USA and Europe.<sup>3</sup> He suggests that Japanese management style has a higher degree of employee participation in decision-making, a more highly trained workforce and greater job stability, with work also providing high social support in Japan. The anticipation of retrenchment, that is, job insecurity, is as damaging as the experience, confirmed in a 'natural' experiment in the Whitehall study when one of the departments was privatised.<sup>4</sup>

The impact of demand and control in the workplace is therefore an occupational health and safety issue. But by far the main occupational health concern is with exposure to tangible hazards. I have previously drawn on Robinson's argument that changes in the ideological climate unravelled what he described as a social consensus that existed until the early 1970s. He also argues that health has become an organising theme in unions and outlines the process by which a national 'right to know' sprang from actions by workers and their union over hazardous substances.<sup>5</sup> In this case the national occupational health and safety organisation in the US analysed samples from workers to investigate a toxin. However the model he shows for strategies to address occupational hazards may have application in the demand and control dimension of the policy model at Figure 38.

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<sup>1</sup> See also for example the Finnish study into local government employees. Vahtera, J., Virtanen, P. and Kivimaki, M., Pentti, Jaana, Workplace as an origin of health inequalities. *J Epidemiol Community Health*, 53, 399-407 (1999).

<sup>2</sup> Blane, D., Brunner, E. and Wilkinson, R., The evolution of public health policy: an anglocentric view of the last fifty years. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 344, Routledge, London (1996).

<sup>3</sup> Marmot, M. and Feeney, A., Work and health: implications for individuals and society *ibid.*, pp. 235-254.

<sup>4</sup> Swan, N., Mastering the Control Factor, Part Two, *Norman Swan interviews Michael Marmot*. Vol. 1998, Australian Broadcasting Corporation, Radio National, Adelaide (1998).

<sup>5</sup> 'Those who blew the whistle (on chemical toxicity) were not the managers of the companies, not the corporate scientists, not the government regulatory agencies, but the exposed workers themselves and their union.' Robinson, J.C., *Toil and Toxics-Workplace Struggles and Political Strategies for Occupational Health.*, p. 226 p, University of California Press., Berkeley (1991).

**Table 9 Strategies to control workplace hazards.**

<i>A Framework for Understanding Worker Strategies to Control Workplace Hazards</i>		
	<i>Individual</i>	<i>Collective</i>
<i>Private</i>	<i>The Exit strategy: searching for safe working conditions; quitting hazardous jobs</i>	<i>The Voice strategy: Joining labour unions; bargaining with employers for improved conditions</i>
<i>Public</i>	<i>The Legal strategy: Suing in court for individual 'right to know' and for rights to act</i>	<i>The Regulatory strategy: Organising politically to support regulation of toxic substances</i>

Source Robinson.<sup>1</sup>

Robinson suggests making deliberative choices, among the four strategies based on their fit with philosophical values (of efficiency, responsiveness and fairness) concerning the appropriate distribution of risks and the appropriate mechanisms for controlling risks in a market economy and democratic polity.

This model, from the occupational health arena, has parallels with the two analytical tools I am using; Offe's analysis is institutional, to use existing local 'welfare' (in the broadest terms) institutions to affect the balance and the Legal, Voice, and Regulatory strategies, are the exercise of power via agenda setting in Lukes' second dimension. Using Lukes, the idea of a toxic effect of high demand/low control is either yet to reach a threshold of awareness for both employers and employees, or is effectively suppressed in Lukes' third dimension.

In Australia, the National Occupational Health and Safety Commission (NOHSC) considered, in May 1999, a background paper about the issues arising from Whitehall I and II under the heading of 'stress', and the Commission has been addressed in person by Marmot.<sup>2</sup> The management of NOHSC is comprised of the heads of Workcover agencies in each of the States plus representatives from the Commonwealth, Australian Council of Trade Unions and Employers Federation, among others. My initial speculation is that the agenda of the Commission is driven by compensation claims, which are individual, and so problems arising from the way work is organised, intangible as they are, are not yet considered as hazards. This may explain why the Commission has decided to maintain a watching brief on developments overseas rather than take any specific action. I was informed that the background paper on stress, considered by the Commission, found little literature on interventions, consistent with my own reading, and pointed to the Health and Safety Executive organisation in the UK as the leader in interventions.<sup>31</sup>

<sup>1</sup> Ibid.

<sup>2</sup> Personal communication.

<sup>3</sup> Its no coincidence that the HSE funds Whitehall study research.

Without an external source of agenda-setting, in Lukes' second dimension, it would be easy to predict workplace interventions in Australia, if any; they would be based on individualist/ behavioural explanations that seek to intervene by changing the response of the workers to the demands. The easiest interventions to predict would be individualist relaxation or stress management courses for staff. The likely results of such measures would be easy to predict too- the higher the grade of employment, the lower the need for such interventions and the better the response to such programs, leading to greater inequalities.

The Australian Public Service itself could be an ideal place to begin to examine issues of demand and control. An inquiry to a Superannuation Board Member about data on superannuants left open an opportunity to examine data (at some cost) before the records cease to be available for study. Equally the Department of Health (and its equivalents) would be a good place to either conduct some Australian research or collaborate with the UK HSE on interventions, or both.

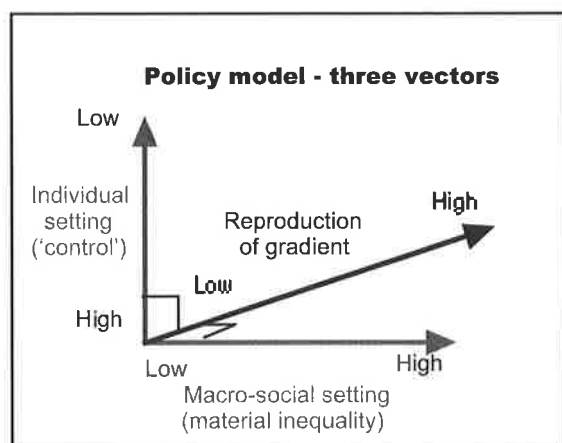
### **Reproduction of the social gradient in health**

The two dimension vector model in Figure 38, on page 3, is able to abbreviate much of the explanatory territory, and may be a useful construct in future attempts to use multi-level statistical modelling as it separates relative effects at the individual/workplace level from social level effects. The two-vector model, however, does not assist with understanding reproduction of the social gradient in health across generations. I have made several references to this and, for example, refer the reader to Figure 6, on page 3, which showed inequalities being reproduced via the mother's socioeconomic circumstances. Reproduction of the social gradient in health is a crucial issue that must be addressed and I have therefore added, in Figure 39, a third dimension to the vector model in Figure 38.

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<sup>1</sup> Personal communication

**Figure 39 Policy vector model - three vectors: individual level, social level and reproduction of the social gradient in health.**



Many policy recommendations focus on children's well-being as a way of addressing intergenerational reproduction of inequalities. A common recommendation is to focus resources on childhood education. However I have previously discussed education's potential to create health and concluded that the effect will be marginal, see page 3. I referred to Caldwell's theory that maternal education impacts on infant mortality by reorienting power and resources away from the paternal grandparents towards the child, see page 3. Wilkinson notes that the further back in history we look, the poorer the care of children, and 'we would now consider most were abused'. He says material improvement enables positive changes in child-rearing practices, over successive generations of parent-child interactions, to alter the limits on what can be achieved.<sup>1</sup> So the material circumstance of the parents are paramount. In fact they can subvert action in the two policy dimensions already discussed, as Erikson and Goldthorpe elaborate. Erikson and Goldthorpe argue that while inequalities in the market appear to be the result of supply and demand, supply is determined by inequalities *before* the market, that is by the economic, cultural and social resources of families, through which the children's mobility chances are already conditioned prior to their entry into employment. The advantaged do not have to act collectively to prevent this, they merely have, individually, to maintain their own and their family's position by setting their superior resources strategically at whatever changes- in institutional arrangements, public policy, etc- may threaten them. While the 'logic' of industrialism may create pressures for fuller use of society's stock of talent through universalistic processes of social selection, these pressures seem, more often than not, to be resisted by opposing forces at the micro level of adaptive individual and family strategies. Even though it is the power of modern states that is most likely to modify these

<sup>1</sup> Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*, p. 255, Routledge, London (1996).

processes, governments pursuing greater equality of condition still have no guarantee of success.

Australian research confirms that intergenerational financial transfers are greater at higher incomes for both parent and child:

Adults whose parents are rated as high income earners (top third) are twice as likely as others to be receiving income support or financial assistance from their parents. Furthermore, adults who are high income earners are getting more help from their parents for things such as home purchases, home improvements and the like than comparable adults who earn less.<sup>1</sup>

Most employment is found via private networks where families can apply their resources to enhance their children's mobility. Research in Australia shows that 'Its a different world from before day one for the child; its not a function of one or two or three risk factors- its almost everything they do'.<sup>2</sup>

Economic arguments in favour of material inequality - aside from being undermined theoretically in terms of utility by a relative material explanation for health - hold that a widening gap adds incentives to acquire higher education. However widening inequality also lowers the capacity to undertake education and there are known structural biases; two thirds of admissions to old universities in the UK are from 25% of the population in social classes I & II.<sup>3</sup> The proportion of students going to tertiary study from government and non-government schools in Australia is apparently an issue of some sensitivity. In a press article endeavouring to examine trends:

Every State admissions centre except Queensland refused to provide data on the relevant proportions of ex-government and private student entrants to university. The admission centres are believed to be under orders from State vice-chancellors committees to decline requests on the issue.<sup>4</sup>

### *Conclusion*

Apart from the obvious health issue- that thousands of lives can be saved - there are important social, economic and political reasons for caring about the social gradient in health. There is evidence that national policy affects it and the social gradient in health strikes at one of the publicly held moral values of Australians, that of fairness. Action to attenuate it, informed by a relative materialist explanation, may be the same action that would build a healthy society.

I have suggested three broad policy dimensions as a way to enter the policy debates that surround the social gradient in health. It is apparent that the social level requires support at the international level where drivers of material inequality are

<sup>1</sup> de Vaus, D. and Qu, L., Intergenerational family transfers. *Family Matters*, 50, 27-30 (1998).

<sup>2</sup> Najman, J., The contribution of social, environmental, lifestyle and biological factors to inequalities in health, and public health strategies for the reduction of these inequalities, *Social Disadvantage and Health*, Queensland University of Technology-Brisbane (1997).

<sup>3</sup> Blane, D., Brunner, E. and Wilkinson, R., The evolution of public health policy: an anglocentric view of the last fifty years. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 344, Routledge, London (1996).

<sup>4</sup> Healy, G., Privates gain in race for tertiary places., *The Australian*, pp. 45, Adelaide (1998).

unchecked. I have deliberately oriented the individual level to the workplace. This is both to reinforce against the tendency to individualist health policy responses, largely discounted in chapters one and two, and to reinforce the need for policy attention to the workplace as an area for health policy. The reproduction of the social gradient in health has the 'thinnest' research base, and health policy recommendations that focus on add-on services, seem unlikely to be effective given a gradient in capacity of families to apply resources to their children. I have no doubt this is an area where heated debate would occur.

There being no particular 'natural' interest group to benefit from attenuation of the social gradient there is an obligation on government to fund the policy arguments and research so that informed public choices can be made. Short of a general crisis in legitimacy for government the mechanism available is institutional - to create and fund an institution or set of institutions to inform policy and to collaborate internationally. This international collaboration would be oriented to constructing an international regulatory framework that would reverse widening material inequality between nations. It could be funded internationally, and external to existing government expenditure, so would not affect the competition between jurisdictions to provide attractive sites for capital. In the next chapter Australian health policy making, at the national level, is scrutinised for its consideration of the social gradient in health.



## Chapter 7. Australian health policy and the social gradient in health

In this chapter I trace a history of Australian health policy-making in relation to the social gradient in health; the observed phenomenon that the majority of measures of ill-health show an inverse smooth relationship with measures of material circumstances at the individual level, and a positive relationship with the maldistribution of material circumstances at the jurisdictional level. A corollary of the latter is that a measure of population good health, life expectancy, shows a positive relationship with more equal distributions of income, both cross sectionally and over time, in developed nations.

While the gradient may be acknowledged in policy documents, policy action is overwhelmingly based on a single explanation - behaviour - and overwhelmingly oriented to service delivery rather than health production. Evidence of the limits of the behavioural explanation is largely overlooked. Evidence in favour of materialist explanations, both absolute and relative, is given a nod only in the most simplistic absolute material relationship - that of poverty - paying scant attention to the relevant research. This is consistent with Bartley's observation for the UK that material welfare safety nets solve absolute poverty and the policy role of health is limited to delivering health care *services* that address the otherwise randomly distributed health problems, apart from health damaging behaviour.<sup>1</sup>

In this chapter I draw a distinction between policy interest, as evidenced by analysis of relevant publications, and policy action, representing each of these graphically, on a time line, at the end of the chapter.

### *Australian health policy is influenced by its history*

Australian health policy is much influenced by the fact that its white history has been dominated by convict settlement and colonial rule. The state was responsible for development, with public works undertaken by the military government, often using convict labour. Government was also responsible for welfare in the absence of the traditional British sources of non-government support- the church and the family. The dominant role of the state in development and welfare has a continuing impact in Australia as it puts government firmly in Offe's dilemma of, on the one hand, being the driver, for most of the country's history, of capital formation, at the same time as it is called on to be the regulator of failures of capital. This was evident at Federation when the states were put in the position of developers, competing with each other, resulting in the regulatory structure of the Senate being created to balance legislative power, by equalising state representation. Ever since,

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<sup>1</sup> See Page 64

one of the lasting features of health policy is the tension between federal and state jurisdictions about roles and, particularly, financing, expressed most often in debates about cost-shifting.

### *Medical professionalism*

The dominant role of the medical profession<sup>1</sup> in health policy implementation is mixed in with these competing beliefs over the appropriate role of the state, the individual, the community, and the market. Federal, state and medical interests are highlighted by the process that gave health services funding powers to the Commonwealth, as described by Belcher:

In 1945, the Victorian Attorney General, acting on behalf of the Victorian Branch of the British Medical Association (BMA) challenged the Pharmaceutical Benefits Act 1945 (Commonwealth) in the High Court. The Act allowed patients to receive benefits only if the prescription was on a government-supplied form. The court ruled that the Commonwealth did not have the power to provide or finance health services and that, therefore, the limitation was unconstitutional. The Chifley Labor government sought to amend the Constitution by referendum. Paragraph xxiii(A), section 51 empowered the Commonwealth to make laws with respect to '(t)he provision of maternity allowances, widow's pensions, child endowment, unemployment, pharmaceutical, sickness and hospital benefits, medical and dental services (but not so as to authorise any form of civil conscription), benefits to students and family allowances'. Robert Menzies (in opposition) moved to include the bracketed words at the suggestion of the BMA president, who believed that the original wording would result in the nationalisation of medical and dental services. The addition was accepted by the Federal Attorney-General Herbert 'Doc' Evatt and became law. It enables the Commonwealth to provide welfare services but it has enabled doctors to forestall or prevent any attempts that might subject doctors to non-medical control.<sup>2</sup>

With the continuing dominance of doctors over medical work, the constitutional amendment had to be taken into account in the ideological battle over private versus public health insurance. National health policy prior to 1975 was limited mainly to financing and services, with the main public health interest being quarantine. Ideological divisions<sup>3</sup> intensified over the failure of private health insurance, leading to the provision of universal health insurance, or, more accurately, medical and hospital services insurance, through Medibank, in 1975. Medibank legislation was introduced by the government<sup>4</sup> but passed only after a joint sitting of the House of Representatives and the opposition<sup>5</sup> -dominated Senate. This mechanism became available following a double dissolution, the enabling legislation having been twice rejected previously by the Senate and with the Senate remaining hostile to the idea. Under liberal, individualist ideology (Liberal Party) universal coverage was abandoned in 1981, to be reinstated in 1984 as Medicare

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<sup>1</sup> Willis studied the growth of State patronage of the medical profession. The State pays for training, certifies practitioners, suppresses competition, regulates relations with other health care providers, employs much of the medical profession and underwrites the rest. Willis argues this is of immense significance as it assimilates medicine into the economic and ideological patterns of capitalism and integrates the leading group of health workers with the dominant social class. So doctors as a group, and medical organisations as institutions have particular political and economic interests which they do not share with most of their patients. Willis, E., *Medical Dominance*, 1992 ed., Allen and Unwin, Sydney (1983).

<sup>2</sup> Belcher, H., *Power, Politics and Health Care*. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 211-229, Oxford University Press., Melbourne (1998).

<sup>3</sup> Alternatively described as 'a strife of interests masquerading as a contest of principles' by Sax 1984 in the National Health Strategy Background Paper No1 pp16

<sup>4</sup> Labor Party, collectivist- oriented

<sup>5</sup> Liberal and National Party Coalition, individualist -oriented

under collectivist ideology (Labor Party). Universal coverage of the major fraction of health services costs in Australia enjoys popular support, while remaining the subject of ideological difference between the major parties, and is credited with affecting the outcome of Federal elections.

The legislative background and political battles around universal health insurance focus attention on both the major players in health policy and the major issues. The major players post war have been doctors, particularly the medical specialists; the hospitals, both public and private; the insurance industry and politicians. The major issues are ideology, roles, service delivery and health care financing and cost-shifting. With payment for medical services becoming institutionalised as the chief function of the Australian Health Department, public health policy has been struggling for a place on the health agenda in Australia. An idea of health as being 'able to be created', as distinct from 'illness being cured or ameliorated', has had limited policy attention, and the social gradient in health has been largely neglected. The little attention that has been paid to the social gradient in health has been via Australia's membership of the World Health Organisation (WHO), particularly since 1986.

#### *The role of WHO in Australian policy documents*

I have discussed the World Health Organisation (WHO) policies as a force for the collection of information about inequalities and its dual interest in inequalities in health and lack of interest in social policy that might affect those inequalities.<sup>12</sup> Australia's policy rhetoric observed WHO policy in the decade from 1988.

In 1988 Adelaide, Australia, hosted the 2nd International Conference on Health Promotion, the first having been held in Ottawa, Canada. I have argued earlier that the International Health Promotion Conferences represented a departure of the industrialised countries away from the political agenda of the 'haves and have nots' that featured in the 1978 Declaration of Alma Ata. Nevertheless the theme of inequality remained strong. The Australian health Minister at the time was a moderate collectivist in a moderate collectivist government, and the Australian policy paper prepared for the conference, the *Health for All Australians* report, contained substantial material on Australian inequalities, almost as an organising frame for the report.<sup>3,4</sup> The opening sentence of chapter 1 reads:

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<sup>1</sup> See page 103.

<sup>2</sup> I refer to 'inequalities in health' in this chapter rather than the social gradient in health as this was terminology used in the documents.

<sup>3</sup> This, in turn was an extension of the report 'Looking forward to better health.' by the Better Health Commission in 1986 Commonwealth of Australia, *Looking forward to better health. Vols 1,2,3*, p. 225, Australian Government Publishing Service, Canberra (1986)..

<sup>4</sup> Commonwealth of Australia, *Health for All Australians. Report of the Health Targets and Implementation (Health for All) Committee to Australian Health Ministers 1988*, p. 169, Australian Government Publishing Service, Canberra (1988).

It should be the concern of all Australians that a nation which can claim to be one of the healthiest in the world harbours major inequalities in health status within its population.

Thereafter chapter one, a summary of the report, introduces inequalities as the first topic before moving to health promotion as the vehicle for improving health, with goals and targets, adopted from management ideas, as the driver. The goals and targets approach was drawn from the WHO Assembly in 1977 and, in this 1988 publication, was divided into goals and targets for a) specific population groups, b) causes of sickness and death and c) risk factors. The goal for inequalities in health was to reduce significantly the difference in death rates, illness and risk factor prevalence between rich and poor, with the authors stating, on page 26, their conviction 'that inequality is the most important impediment to further improvements in Australia's health, in particular, inequality based on socioeconomic status'.<sup>1</sup> This categorisation, into rich and poor, is an absolutist and threshold position, and a continuing problem for policy, which needs to reflect the gradient in health status, but another major and continuing problem for public health appears soon after in the 1988 document with the statement that reducing inequalities in health relied on portfolios other than health. The remainder of the report, while containing a major chapter on inequalities in health, 'Chapter 3: Better health for all ... not just for some', confined inequalities discussion to actions the health portfolio could take. An example, on page 140, from the nutrition area read:

Because diet related health problems are far more prevalent in those of low socioeconomic status and among Aboriginal people, a national nutrition project will provide a major practical test of the ability of health authorities to implement a program to reduce inequalities in health status.

However there is no record of an evaluation of the subsequent nutrition program against this criterion. Indeed if one begins to look at the impact on saving lives generally in the 1980s, let alone any attenuation of the social gradient in health, changes in transport systems (seat belt legislation, random breath testing), that is, universal structural changes, saved more lives than any single 'health' measure.<sup>2</sup>

As for inequalities in health it is possible to see more potential gains being made in initiatives that bore little relationship to a succession of health policy documents. For example the following initiatives were made by the Commonwealth separate from the Better Health Commission: the creation of the Australian Institute of Health in 1987, training of health professionals via MPH programs in 1987, the National Centre for Epidemiology and Population Health at Australian National University in 1987, and the establishment of the Public Health Research and

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<sup>1</sup> The authors being the Health Targets and Implementation (Health for All) Committee, established by the Australian Health Ministers' Advisory Council in March 1987.

<sup>2</sup> Brown, V.A., Health and environment: a common framework and a common practice. In: C.M. Chu and R. Simpson (eds.), *Ecological Public Health: From Vision to Practice*, pp. 276, Institute of Applied Environmental Research, Griffith University, Nathan, Queensland, Australia. Centre for Health Promotion, 100 College Street, Suite 207, Toronto, Ontario, Canada., Nathan, Queensland (1994).

Development Committee as part of the National Health and Medical Research Council.<sup>1</sup> The 1990s began with a major effort to rethink health policy.

*1990 The National Health Strategy*

A major series of papers, 'intended to provide background information which will form the basis for understanding and developing options for reforming the health system', was commenced by the Commonwealth in 1990, under a collectivist - oriented Labor government, as the National Health Strategy.<sup>2</sup> The papers were in three main categories: Background papers (twelve), Issues papers (seven), and Research papers (one), with one Work in Progress Report.<sup>3</sup> The major work of the National Health Strategy was concerned with health care services organisation and financing but the third Background Paper canvassed notions of equality and equity, both in health status and health care access, and pointed to future work of the Strategy to document variations in health status between socioeconomic groups, page 17.<sup>4</sup> The resulting Research Paper, documented 'overwhelming inequalities in the health of Australians', see previous excerpt, page 3.<sup>5</sup>

The identification of 'the most disadvantaged' is an absolute, or threshold, materialist position, rather than one with any focus on a gradient in health conditions. Policy approaches were suggested in five areas: the distribution of economic resources, education, living conditions, access to and conditions of work and, the provision of social support. The paper drew on Marmot's workplace research and Wilkinson's earlier work on life expectancy and national comparisons of income inequality, and referred to work on goals and targets, which were to include measures on healthy environments, health literacy and health skills, and health services. The concluding remarks on inequalities drew attention to the need for reform in the health system, but 'more importantly, (reform) in the social and economic environment in which we live'. It called for the health system to provide leadership so that equity was on the agenda. That flicker of policy interest in the determinants of health was soon displaced by goals and targets focused on injury and disease.

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<sup>1</sup> It is accepted that the paucity of data generally, of which inequalities data is a subset, was a driver for these institutional advances.

<sup>2</sup> See also my earlier footnote on the director of the Strategy, page 76. Commonwealth of Australia, *The National Health Strategy: Setting the Agenda for Change. Background Paper No.1, November 1990*, p. 31, Australian Government Publishing Service, Canberra (1990).

<sup>3</sup> The collectivist -leaning Australian Labor Party was in government 1983 to 1996.

<sup>4</sup> Commonwealth of Australia, *In Fair Health? Equity and the Health System. National Health Strategy Background Paper No 3 February 1991*, p. 32, Australian Government Publishing Service, Canberra (1991).

<sup>5</sup> Commonwealth of Australia, *Enough to Make You Sick. How income and environment affect health. National Health Strategy Research Paper No 1 September 1992*, p. 144, Canberra (1992).

### *1993 Goals and Targets*

The Commonwealth commissioned the 1993 report - *Goals and Targets for Australia's Health in the Year 2000 and Beyond* - to assist the Health Department to set directions for the organisation and funding of health services, and for improving health in Australia.<sup>1</sup> The report criticises earlier Australian work on goals and targets, noting that, despite the earlier analyses identifying 'unjust inequalities in health status', the prior 1988 framework did not fully reflect the underlying social determinants of health. Surprisingly then, the 1993 report not only continued the process of identifying goals and targets by categories of mortality and morbidity, and by risk factor, but the social determinants it *did* elaborate did not include income inequality. Rather, the social determinants emphasised were: the physical environment, transport, housing, home and community infrastructure, work and the workplace, schools and, health care settings. Even so, the work and workplace sections do not include notions of demand/control or effort/reward, which had been reported on for over a decade, instead it focussed more narrowly on hazard. Despite evidence at the time, goals and targets were in a structure that gave apparently equal weight to: Preventable mortality and morbidity, Healthy lifestyles and risk factors, Health literacy and health skills, and Healthy environments. While it seemed there was potential to look at social environments, environment was conceived mainly as physical.

Australian Health Ministers, from all jurisdictions, used the 1993 Goals and Targets report to inform decisions about priorities for further development, with a view to developing a national health policy paper.<sup>2</sup> Five papers were released for comment; four were the result of committee work on each of the four priority areas selected in April 1993 by the Ministers: Mental health, Injury prevention and control, Cardiovascular health, and Cancer control. A fifth paper, entitled *Better Health Outcomes for Australians*, gave three criteria for the selections:

'the condition must be of major concern for the health of Australians;  
effective interventions to improve outcomes must be possible and;  
ideally it must be possible to measure progress'.

Despite the health inequality literature available, and despite widespread agreement, reflected by the Goals and Targets Report, that social determinants were the most important, only the narrowest view of health, that is, ill health, was taken by Health Ministers from the Report's first category of preventable mortality and

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<sup>1</sup> Commonwealth of Australia, *Goals & Targets For Australia's Health in the year 2000 and Beyond*, p. 271, Australian Government Publishing Service, Canberra (1993).

<sup>2</sup> It should be noted that in the federal system of government the Commonwealth government was responsible for the national policy papers I am discussing, but policy action commonly involves state jurisdictions. The mechanism for this in 1999 was the Australian Health Ministers' Council which met annually and which was supported by an Australian Health Ministers Advisory Council, which consisted of senior officials from all jurisdictions. Different electoral cycles mean that these bodies usually comprise members and administrators from opposing ideologies in health policy.

morbidity. The criteria above are framed in individualist terms; 'the condition' demands a disease-based response and 'effective interventions' not only leads to thinking in individualist terms, it constrains responses to the ones about which most is known, usually risk factor interventions.

Lukes' third dimension of power was in operation in these considerations in several ways. The dominance of neo-classical economic ideas made it inconceivable that income inequality even be put on the agenda in the Goals and Targets Report; the actors apparently were unable to envision action outside the health service sector for a broader notion of an intervention. Similarly, within the selected priorities, individualism directed the policy responses to risk factor intervention by narrowly conceived health promotion programs and strategies.

Reading the overview and the subsequent formal publication, 'Better Health Outcomes for Australians', from a social gradient in health perspective, it is difficult to find other than global references to health inequality.<sup>1</sup> This is despite the first goal, page 25 in the formal publication, being 'Reduce the level of health inequalities in Australia'.<sup>2</sup> This goal is extracted from the main body of the report and appears under the heading of 'social justice', the listed principles of which are confined to health services and research.<sup>3</sup> In this way health inequalities were defined as a social/ economic goal, rather than a health goal, to be dealt with by some other portfolio, and the bulk of the document is spent on the selected priority areas/diseases.<sup>1</sup> Those references that do exist emphasise either a) the lack of data, b) the need for health promotion programs that benefit people of low socioeconomic status or, c) the need to understand the mechanisms for production of inequalities in order to intervene in them. This is in stark contrast to the inequality literature's increasing focus at the time on the material social gradient (as opposed to the lowest socioeconomic group), the lack of success of risk factor intervention programs, and the reproduction of inequalities, all of which point to structural problems and solutions.

It is easy to criticise the documents in considerable detail for the lack of any prospect of reducing inequalities, other than for good intentions. An individualist health promotion program, using the document for guidance, might devise a targeted risk-factor intervention program for low socioeconomic groups. Not only would this be unlikely to address the forces reproducing the risk factors, it would be visiting concepts that are familiar to middle and upper classes (planning for the

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<sup>1</sup> Commonwealth of Australia, *Better Health Outcomes for Australians. National goals, targets and strategies for better health outcomes into the next century.*, p. 348, Australian Government Publishing Service, Canberra (1994).

<sup>2</sup> A 'goal' is described in this publication as a statement of intent, where a target is specific and measurable.

<sup>3</sup> Other headings in this section were 'Access and Participation, Intersectoral Action and Healthy Lifestyles' pages 25-34

future, self-improvement, and self-control) on lower classes with the likelihood of blame for failing to comply with those ideas.<sup>2</sup>

The few structural strategies mentioned in Better Health Outcomes were, at least potentially, more likely to have benefits inverse to the gradient, for example, altering industry food processing practices, but some relied on behavioural change in conjunction, for example, food labelling, and walking paths. By contrast, when individuals in a community were asked about priority issues, structural problems were found to feature high on people's health interests; a survey of 1000 people in the Hunter region of NSW found social and structural issues were the major concerns: drugs, crime, and road safety. Cancer came sixth, and heart disease was even lower; respondents thought heart disease was inevitable and could either be dealt with at the time or, if you died, it was a good way to go.<sup>3</sup> These social/structural problems also show strong relationships with the social gradient in health and the social gradient in material circumstances.

#### *1995 Health Australia*

A discussion paper directed to infrastructure, 'Health Australia', issued by the National Health and Medical Research Council (NHMRC) in December 1995, outlined the difficulties with terminology such as health promotion, and argued for a national body to focus on infrastructure; accepting that much remains to be done at an inter-sectoral and public policy level.<sup>4</sup> The report identified four national initiatives as examples of where Australia has made progress in promoting health, in order to identify common factors: smoking, road deaths, cardiovascular disease and HIV/AIDS. Regrettably, from a social gradient in health perspective, none of the first three, those with the larger affected populations, would be regarded as successful.

The prevalence of smoking has fallen over time but the reductions have been 'with' the gradient, that is, low socioeconomic groups show the least reductions, so that the gradient in the prevalence of the risk factor, smoking, widened. One of the smoking interventions regarded favourably, an increase in tobacco prices,<sup>5</sup> is double jeopardy, as the prospective health gains will almost certainly be inverse to

<sup>1</sup> By contrast, all 32 member states of the WHO European Region unanimously agreed on 38 targets in 1984, the first of which reflected the WHO position of reducing inequities between and within countries by 25%.

<sup>2</sup> Richmond, K., Health Promotion Dilemmas. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 156-173, Oxford University Press., Melbourne (1998).

<sup>3</sup> Higginbotham, N., Heading, G., Pont, J., Plotnikoff, R., Dobson, A.J. and Smith, E., Community Worry about Heart Disease: A Needs Survey in the Coalfields and Newcastle Areas of the Hunter Region. *Australian Journal of Public Health*, **17**, 314-21 (1993).

<sup>4</sup> National Health and Medical Research Council, *Health Australia, Promoting Health in Australia Discussion Paper*, p. 260, National Health and Medical Research Council, Canberra (1995). See page 13.

<sup>5</sup> Remarkably, the price of a McDonalds 'Big Mac' hamburger is being used as an economic tool to compare costs of living between countries. The cost of cigarettes in Australia is expensive in international terms using this measure; a big Mac will buy ten cigarettes in Australia, versus 24.6 in the US and 76.7 in Korea.

the gradient, and the post-tobacco-purchase disposable income inequalities will have widened, worsening the relative material position. Similarly, for road deaths, one of the interventions is 'safer cars' but these are also differentially distributed, with the gradient, and the additional equipment would tend to raise the relative price of the safer-equipped vehicles.<sup>1</sup> Any class gradient in seat-belt use would have been affected positively by legislation, but this would have been at least partially offset, in material terms, by the relative price changes.<sup>2</sup> The situation is even more pronounced with mortality from cardiovascular disease, and, indeed, the report states that '... the gap between the rates of mortality experienced by high and low socioeconomic groups widened between 1968 and 1988'. The report noted that reducing the gap would require a change in focus, away from cardiovascular disease, towards the environmental factors.<sup>1</sup>

In this NHMRC report, an analysis of factors common to the success in the four areas was revealing; in each case some weight was given to the presence of advocacy groups or demands external to government to create political commitment. This was portrayed as counterbalancing the power of marketing in the case of tobacco, and is consistent with Offe's analysis of the state being in the contradictory position of both enabling capital formation and controlling its excesses via the welfare state. This situation limits the capacity of government to prosecute a case in the public interest, as it requires a third party advocacy group to set the agenda. Lukes' third and second dimensions of power are evident as, without advocacy - that is, putting the issue on the policy agenda - this contradictory role of the state tends to limit its role to information and health education.

I think it would be possible to make a case for each of the advocacy groups to have had interests at the upper end of the socioeconomic gradient, or, in the case of insurers, private interests. I speculate that smoking restrictions occurred first in white-collar offices, as self-imposed office bans, prior to legislative action. Demand by consumer representative groups for safer roads and vehicles is the equivalent of an advocacy group and it seems plausible that those articulating these demands were from higher socioeconomic groups. For cardiovascular disease, the Health Australia report notes that one of the advocacy groups was the National Heart Foundation, but this was formed in the early sixties by cardiologists to raise funds

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<sup>1</sup> Eg compared with the top quintile, boys in the lowest socioeconomic quintile are 43% more likely to die from motor vehicle accidents, girls 118%, and men and women 65%. Commonwealth of Australia, *Enough to Make You Sick. How income and environment affect health. National Health Strategy Research Paper No 1 September 1992*, p. 144, Canberra (1992).

<sup>2</sup> This is not to argue that all the interventions were unlikely to reduce inequalities. It seems plausible that improvements in road engineering would reduce inequalities as there are no individual costs. However, to the extent that Australian governments are unwilling to fund improvements in infrastructure by way of increased taxation, the savings might be argued to accrue from more meagre welfare transfers than would otherwise be the case.

for research, when the evidence from the USA was that there no difference in heart disease mortality by education among older white men.<sup>2</sup> Interestingly, the role of the insurance industry is raised in road safety but not in tobacco/smoking, and I speculate that insurance and reinsurance constitute powerful economic and public policy forces worldwide. For the social gradient in health, the implication is that an external body or bodies is needed to create energy for change, with the proviso that it needs to be an articulate, persistent body capable of long term action; characteristics associated with higher incomes.

Health Australia was a thoughtful publication, taking a view of health promotion closer to the original conception of Primary Health Care expressed at Alma Ata. It acknowledged that health goals and targets were 'still based on a disease-prevention model with only limited attention to environmental determinants' (p58) including socioeconomic (p59). It pointed to broadscale factors that have an impact on inequality and health, such as international agreements on trade (p141) and recommended a National Charter for Health Promotion.

The claim of Australian success in the cases, selected for their success, however, is synonymous with the view that social change is led by the higher classes and trickles down to the aspiring lower classes, so that the lower classes become better off in absolute terms, despite the possibility that they will be relatively worse off in relative terms. Australia has had success worth recording, but it is diminished to the extent that the social gradient in health steepened, contrary to the number one target of the World Health Organisation - to which Australian health policy subscribed. For an intervention or set of interventions to have reaped outcomes inverse to the prior population gradient of the problem is antithetical to public health/ health promotion principles, which are to focus on the most affected populations.

#### *The policy orientation in 1995*

The Health Australia publication had little impact, as most national policy attention was on the four priority areas agreed upon by Health Ministers in 1993: mental health, injury, cardiovascular disease and cancer. Health Ministers from all jurisdictions in Australia meet annually, around the middle of a calendar year, to consider common issues. They are supported by the Australian Health Ministers Advisory Council (AHMAC), a group at senior officer level in the corresponding health bureaucracies, which meets six-monthly.

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<sup>1</sup> Note that this is consistent with the participating groups, the NHMRC Health Advancement Standing Committee and the Health Australia Project Consultants, having included people with an interest in the social gradient in health.

<sup>2</sup> Terris, M., The development and prevention of cardiovascular disease risk factors. *Journal of Public Health Policy*, 14, 426-41 (1996).

At the Minister's conference mid-1995, a Better Health Outcomes Overseeing Committee (BHOOC) of officials was proposed to review the National Health Goals and Targets (NHG&T) strategies, monitoring and future directions.<sup>1</sup> Around the same time that the National Health and Medical Research Council (NHMRC) 'Health Australia' document was released, in October 1995, AHMAC identified a need to prioritise the 120 targets in the NHG&T report and proposed terms of reference, for the BHOOC committee, which included limiting its considerations to the four priority areas.<sup>2</sup> Membership of this committee included state and territory senior bureaucrats along with a member from each of the Australian Institute of Health and Welfare (AIHW) and NHMRC. I was informed, after an extensive investigation, that the committee did not produce a written report. A subsequent publication, however, described the committee's findings as identifying three 'problems' with the National Health Goals and Targets process:

- No national reporting requirement
- Too many indicators
- Lack of emphasis on treatment and management of disease.<sup>3</sup>

The second and third reasons are very difficult to accept from a public health perspective. The third reason, in particular, firmly orients policy away from social determinants, possibly in order to engage the health care workforce.<sup>4</sup>

#### *1996 National Health Priority Areas*

Over a period of seven or eight years from 1988 the language of the policy material changed from a nod in the direction of health inequalities to the language of diseases and health services. The four priority areas selected by ministers in 1993 became National Health Priority Areas following the report of the BHOOC in 1995. To cancer, cardiovascular disease, injury and mental health were added a fifth, diabetes,<sup>5</sup> in July 1996 and the criteria for the selection of priorities moved even further away from a population health focus to an aggregated disease focus. The new criteria were:

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<sup>1</sup> This proposal arose from earlier AHMAC deliberations in October 1994 which considered the logistics of having the AIHW with the reporting role for the 120 targets, in turn requiring states and territories to provide nationally consistent minimum data.

<sup>2</sup> Along with early work on linking financing with health outcomes.

<sup>3</sup> Commonwealth of Australia, First Report on National Health Priority Areas Summary, Australian Institute of Health and Welfare and Commonwealth Department of Health and Family Services, Canberra (1997).

<sup>4</sup> AHMAC papers describe the problems as a) 'no national reporting requirement', b) 'too many indicators (with over 160 indicators for 4 disease priority areas)' c) a lack of balance across the health continuum (with a predominant emphasis on health status measures and risk factor reduction)' and d) there were no nationally agreed strategies designed to realise change towards the set targets.' Without the original report it is not possible to elaborate on the differences between AHMAC papers and the published version.

<sup>5</sup> A sixth, asthma, was under consideration at the time of my research, and was added in August 1999. A seventh, arthritis and musculoskeletal conditions was added in July 2002.

- the importance of the disease to the community,
- the impact of the disease (morbidity, mortality, years of potential life lost, costs to the individual and community , inequities such as those resulting from socioeconomic disadvantage),
- the achievability of improved outcomes,
- measurability.<sup>1</sup>

Indeed a summary of the changes states ‘... a framework for monitoring health outcomes. ... It is important that the NHPA process reflects a comprehensive, ‘whole of system’ approach to addressing priority disease issues. ...’

The National Health Priority Areas (NHPA) program, agreed to in July 1996 by Health Ministers, is described in AHMAC papers October 1996 as ‘Australia’s articulation of its commitment to the World Health Organisation’s Health For All Charter’. On the contrary, I contend, this marks the furthest point of departure of Australian health policy from the Health For All ideals. Health For All was about reducing inequalities in health status within and between countries. It did not conceive ‘populations’ as ‘groups of individuals who have a particular disease or condition’. The Better Health Outcomes document, the source of the priority areas approach, proposed on page 13 that the sub population outcomes must be examined on a disease specific basis, not the other way around.<sup>2</sup> The approach is leading to a plethora of disease based committees and structures.<sup>3</sup> In the competition for research funds, it becomes worth stating that one’s area of research is a national priority area. The consequence will be a displacement of effort into having one’s research area included as a priority, or having an existing priority area split into two separate priorities, such as cardiac and vascular disease.

#### *1998 Reporting on the priorities*

Two examples of reports on priority areas were jointly published by the Australian Institute of Health and Welfare and the then Department of Health and Family Services in 1998; these were Injury Prevention and Control 1997 and Cancer Control 1997.<sup>4</sup> The Injury report does not mention any relationship between socioeconomic circumstances and injury until, in the appendix, page 76, there is finally one indicator: ‘Death rate ratio comparing the injury status among males

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<sup>1</sup> My underlining

<sup>2</sup> Commonwealth of Australia, *Better Health Outcomes for Australians. National goals, targets and strategies for better health outcomes into the next century.*, p. 348, Australian Government Publishing Service, Canberra (1994).

<sup>3</sup> From the Better Health Outcomes Newsletter, which did not mention any socioeconomic gradient, there is now a National Injury Prevention Advisory Council, established 1997, working on a National Strategy for Injury Prevention and Control, and conducting research to inform the selection of new priority areas for injury prevention (eg drowning in early childhood, self harm and road trauma in young adults, falls in the elderly). These are overseen by the National Health Priority Committee (NHPC). The NHPC established the Cancer Strategies Group. The Second National Mental Health Plan endorsed 30 July 1998 by AHMAC as part of National Mental Health Strategy. There are limitless possibilities for expansion.

<sup>4</sup> Commonwealth of Australia, National Health Priority Areas: Cancer Control 1997, Commonwealth Department of Health and Family Services and Australian Institute of Health and Welfare, Canberra (1998).  
Commonwealth of Australia, National Health Priority Areas: Injury Prevention and Control 1997, Commonwealth Department of Health and Family Services and Australian Institute of Health and Welfare, Canberra (1998).

aged 25-45 years from low socioeconomic groups with males from high socioeconomic groups'. Not only was this single indicator not reported upon, but also the construction of the indicator does not allow for any gradient to be shown. It also appears the background minimum data sets will not collect the type of information that will allow for this, let alone allow any examination of relative materialist explanations.

Similarly the cancer report, on page 63, mentions socioeconomic differences only as high versus low, rather than a gradient, and points to data deficiencies. While one of them mentions the need for future reports on socioeconomic circumstances, in the interim the systems are being set up without taking explanations for health status into account and they won't be able to shed light on the debate. A National Cancer Control Plan proposed in July 1998 is entirely about 'management across the continuum of care', services, and cost effectiveness.

When reporting on the health system, one of the reference points for data availability is the Australian Institute of Health and Welfare (AIHW) data dictionary.<sup>1</sup> This dictionary notes several times that the AHMAC Health Targets Implementation Committee 1988 recommended routine collection of socioeconomic data, as the most important factor explaining health differentials.<sup>2</sup> That committee sought data elements, in order of priority, on: employment status, income, occupation and, education. However, ten years later, data on employment status was collected only for acute hospitals and psychiatric hospitals and refers to 'occupation'. The 'occupation' category doesn't include employment status and is not coded in the majority of states and territories. Interest in the item for socioeconomic purposes, by 'several' states,<sup>3</sup> was contingent on funding from the Commonwealth.<sup>4</sup> There is no data item on income and none on education, and certainly none on relative material circumstances. Other potential candidates for information include 'Area of usual residence', and 'Type of usual accommodation', but the types of usual accommodation do not include housing discriminators that would enable material circumstances to be shown; 'house or flat' is a single item, for example, despite the different access to resources that can be associated with the two modes of living. From this data dictionary is drawn the minimum data sets so these, consequently, will not contain the information, other than for residence. Data vital to inform the social gradient in health service use are not being collected as the States and Commonwealth argue about the cost of collection.

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<sup>1</sup> Australian Institute of Health and Welfare, National health data dictionary Version 6.0, Australian Institute of Health and Welfare, Canberra (1997).

<sup>2</sup> See pages 4-39

<sup>3</sup> See pages 4-48

<sup>4</sup> This falls into the large category of Commonwealth state financing/ cost shifting identified at the beginning of the chapter.

*Policy interest in the social gradient in health in health policy papers*

Policy interest in the social gradient in health has waxed and waned at the national decision making level. To understand why this is so it is necessary to look at three influences: managerialism, which includes the purview of health portfolio; politics-including Commonwealth State relations- and; medicine, in a particular sense. Policy interest, however, has not translated into policy action on the social gradient in health.

The idea of goals and targets to progress an issue is a managerial one and, in Australia, has failed to put determinants of health on the agenda. There is no shortage of history to the notion of goals and targets; in 1922 the American Public Health Association adopted as its goal the addition of twenty years to the average length of life within the next fifty years.<sup>1</sup> Leeder notes that, in Norway, the claimed success of nutrition policy is attributed to having clear goals, and he, Leeder, looked forward to them, in Australia, in 1992, to fire public interest in the non-economic aspects of health and health care.<sup>2</sup> Nutbeam added that they have been used in other countries to inspire, to motivate and to encourage cooperation in the health sector.<sup>3</sup> Others argue that the management theory of rational control that underpins goals and targets is under challenge as it undermines any commitment from the workforce to the quality of the product, and alienates management from any real knowledge of what their operation is doing.<sup>4</sup> Others, again, argue that they are reductionist, that is, that they reduce health to measurable components and therefore miss the integration of social, emotional and physical wholeness emphasised by WHO. There is little agreement on the effect of goals and targets.

The lack of commitment to WHO Primary Health Care principles<sup>5</sup> was also roundly criticised at a South Australian public consultation on the Nutbeam report. My notes of the meeting record that Nutbeam's response was essentially to claim that the inclusion of strategy was not his brief, although strategic elements were contained, such as incorporation of the concept into the Commonwealth Medicare Agreement. This issue, without mentioning WHO, is summarized in the report.<sup>6</sup>

There is an argument that the absence of strategy in the document was deliberate, so as not to alienate health care and treatment providers and prevent

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<sup>1</sup> Seligman, E.R.A. (ed.), *Encyclopaedia of the Social Sciences*, Macmillan, New York (1942).

<sup>2</sup> Leeder, S., Valuable health: what do we want and how do we get it? *Australian Journal of Public Health*, **16**, 6-14 (1992).

<sup>3</sup> Nutbeam, D., Playing the numbers game: Australia's health goals and targets. *Australian Journal of Public Health*, **16** (1992).

<sup>4</sup> Lennie, I., Professor Plum with the Risk Factor in the Billiard Room: Goals and Targets as a lifestyle. In: B. Clarke and C. MacDougall (eds.), *The 1993 Community Health Conference Volume 1 Papers and Workshops*. Vol. 1, pp. 1-4/1-5, Australian Community Health Association, Adelaide (1993).

<sup>5</sup> That is, in my view, a political agenda about inequities, see page 101

<sup>6</sup> See page 266 of : Commonwealth of Australia, *Goals & Targets For Australia's Health in the year 2000 and Beyond*, p. 271, Australian Government Publishing Service, Canberra (1993).

implementation.<sup>1</sup> However it was predicted at the time that the lack of an equity framework would lead to implementation under the dominant medical paradigm.<sup>2</sup> Supporters of the goals and targets approach argued that the dominant model would not be engaged at all if the goals did not require anything of them, and that this had happened with the prior Health for All document.<sup>3</sup> This seems remarkably similar to the reasons given for the Priority Areas approach of reducing the number of indicators in specific areas in 1996, see page 3 above. This is the particular, and influential, role of medical personnel, because the politically legitimate purview of 'health' is limited to health *services*, and the need to engage or enlist the medical workforce in health routinely overrides any focus on equity with a focus on disease, the framework of medicine. This is an exercise of power in the second dimension of Lukes' model, the power to determine what is and is not on the agenda, see page 3 above.

While the National Health Goals and Targets process originally attempted to widen the targets to include social/ and environmental determinants, albeit with limited attention to materialist explanations and not yet informed by relative materialist explanations for health, it was hampered by lack of data on those determinants. The size of the task was seen as necessitating choices about, or priorities for, action. The most detailed information, for measurement, was available by disease category. This led to selection of diseases as the priorities, compounding the paucity of data on social and environmental determinants. This process is described in evaluation literature as 'goal displacement'. Once the focus turned to a limited number of indicators to show outcomes, the system became oriented to maximising those indicators; the tacit goal became a managerial one of the efficient production of the greatest positive change *in the indicators*. This is not necessarily unproductive if the intended goal can actually be measured in terms of those indicators. In practice, however, maximising numbers leads to concentration on the conditions that are both easiest to measure and easiest to change, and can have unintended consequences as creative talents are directed to, for example, subtle changes in classifications, in order to reach targets. The priorities selected have to be 'achievable', by the third criterion, see page 3 above, and the methods about which most is known are risk factor interventions. So managerialism produces reliance on existing methods, ie risk factor interventions, to produce the greatest change, when

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<sup>1</sup> See the Better Health Outcomes for Australians- document page 9. Commonwealth of Australia, Better Health Outcomes for Australians. National goals, targets and strategies for better health outcomes into the next century. (1993).

<sup>2</sup> For an account of the influence of the medical profession in Australia, see Willis, E., *Medical Dominance*, 1992 ed., Allen and Unwin, Sydney (1983). or Palmer, G.R. and Short, S.D., *Health Care & Public Policy*, p. 321, Macmillan, Melbourne (1989)., page 44, or Germov, J., Challenges to Medical Dominance. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 230-248, Oxford University Press., Melbourne (1998).

<sup>3</sup> There is a reference to this dynamic in the Better Health Outcomes for Australians- document page 9

we know risk factor interventions are more effective in higher socioeconomic groups.

At the same time the goal of reducing the social gradient in health is ruled out by the criteria as the gradient is not a disease, there is no workforce, as such, to engage, little is known about methods to attenuate the gradient, and measures of socioeconomic status are not routinely included in data collections, particularly for measures of relative material disadvantage.

The National Health Priority Areas approach was reviewed in 1999 with another circuit of this loop.<sup>1</sup> The consultants reported back, to those commissioning the review, that there was strong support for the approach. Out of 199 people consulted 155 were in public administration of health care services, 40 were in the disease-specific priority areas, mainly in medical roles. Of the four remaining one spoke for indigenous issues, one for the Public Health Association of Australia, one for consumer health and one for the medical industrial association. Some of the 155 had health promotion or public health roles, but the 'disease control' aspects of 'public health' make it difficult to judge how many would regard the social gradient in health as a primary concern. None had a specific role to do so. Still, it was reported that 'middle levels of government' and non-government organisations sought a determinants-of-health approach. However, at 'senior levels' there was 'greater pragmatism' – the modernist professionals want 'improvements in treatment and care'.

If 83% of health gain in the last 30 years has come from outside the health care sector, as Tarlov estimates, the 'disease' approach does not represent a productive investment in health. On the contrary, one of the few benefits, or outcomes, of the approach identified by respondents was that inclusion of one's disease category '*... adds weight to funding and advocacy submissions*' (my emphasis).<sup>2</sup>

So, the National Health Priority Areas approach is entrenching a focus on specific diseases. The managerial theme is strong, with 10 of the 35 references devoted to management literature. The bulk of the remaining references were to Commonwealth reports, 14, or measurement, six. Of the remaining five references, three were to, respectively, Wilkinson and Marmot, Syme, and WHO. In the text, these authors were referred to in a single group when the report referred to calls by WHO to greater attention to the determinants of health. This was not, in the end, a publication about health but about management of disease treatments and therefore health services. It may well be more useful to look critically at the report

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<sup>1</sup> Wall, B., Wood, L. and Holman, D.A., Review of the National Health Priority Areas Initiative, Commonwealth Department of Health and Aged Care, Canberra (1999).

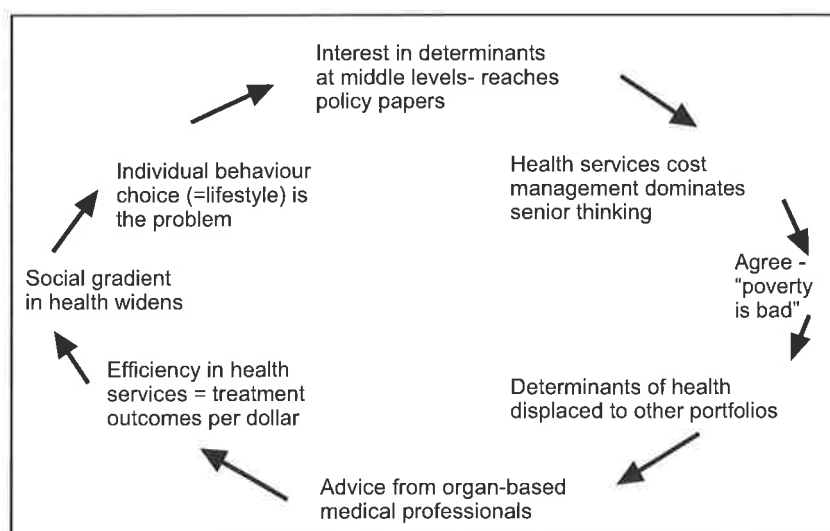
<sup>2</sup> Ibid.

in managerial terms- the role of policy consultants and their capacity to provide reports at odds with those commissioning the reports- than for its content. Nevertheless the report did highlight a difference in policy approach between middle and senior levels of the bureaucracy, and noted that an unintended consequence of the priority diseases approach is to add support to more funding applications for disease-based research.

The policy loop is constructed as follows:

- Interest in health production leads policy writers inexorably to determinants of health. Policy papers are produced at middle levels in the public service where determinants of health approaches have a stronger footing;
- Health care/services costs dominate thinking at senior levels;
- 'health' expertise is dominated by medical personnel and priorities. The bureaucracy has limited other mechanisms but to engage medicine;
- Medicine in turn is engaged by disease, its framework is organ-based by construction. Attention turns then to efficiency, goals to improve health are displaced to improve treatment outcomes rather than health outcomes. The goal of reducing the social gradient in health has been displaced by the goal of maximising indicators that are at odds with the goal;
- Social/material determinants are seen to be the responsibility of other portfolios and are so displaced;
- Disease-based treatments come under scrutiny for their evidence base and efficiency;
- The social gradient in health is unaffected, or worsens. Hand wringing interest in the most disadvantaged sub-groups remains, and they are separated off to be dealt with via better targeting of lifestyle or risk factor programs.

**Figure 40 A policy loop**



### Discussion

The major players in health policy are politicians, doctors, hospitals, and the insurance industry.<sup>1</sup> The major issues are the role of the state, the role of the individual, and the role of the market. For an analysis of this disjunction, it is necessary to consider the forces at work within the health system that generates the policy papers and reports.

Lukes' first dimension, an exercise of power to win an argument about health policy, is not immediately evident in the policy documents. A nod in the direction of determinants of health is common. Is Lukes' second dimension in effect? Is the social gradient in health, or its material/social determinants, being kept off the health policy agenda by a particular party, syndicate or actor? This information is not easy to access but with the number of parties involved in the policy document process this seems at first unlikely. It is plausible however that debates do occur at the political level, in the cabinet. For example, the Treasurer, asked about an apparent contradiction between increasing funding for asthma management at the same time as encouraging diesel use, in 1999, said:

I think its much better to have health measures to help asthma sufferers and tax measures to help transport costs rather than to run your transport policy as an adjunct to your health policy.<sup>2</sup>

This separation of portfolios is certainly an exercise of power in the second dimension- setting what is and is not on the health policy agenda. In Lukes' third dimension, discussion of the health impact of widening material inequality is suppressed under prevailing economic ideology and this could explain the 'pragmatism' of senior managers, compared with their juniors as they second-guessed the broad political winds.

Broad political interest in health equity may follow a pattern not entirely as might be expected from the apparent ideological differences in the major parties. Of the two major parties the conservative one is more likely to favour individualist explanations and solutions, and so one would expect policy documents and action to show little interest in materialist explanations for the social gradient in health, and this is the case. However an individualist government is also more vulnerable to criticism of the failures of the market, of which material inequalities is a substantial component, and access to health care another. I have shown that the issue of inequalities in health faded from policy documents during the period when the more collectivist party was in power at the national level, the opposite of what might be expected. Lukes' second dimension could be operating to suppress political criticism (agenda setting), on equity grounds, of a party more likely to

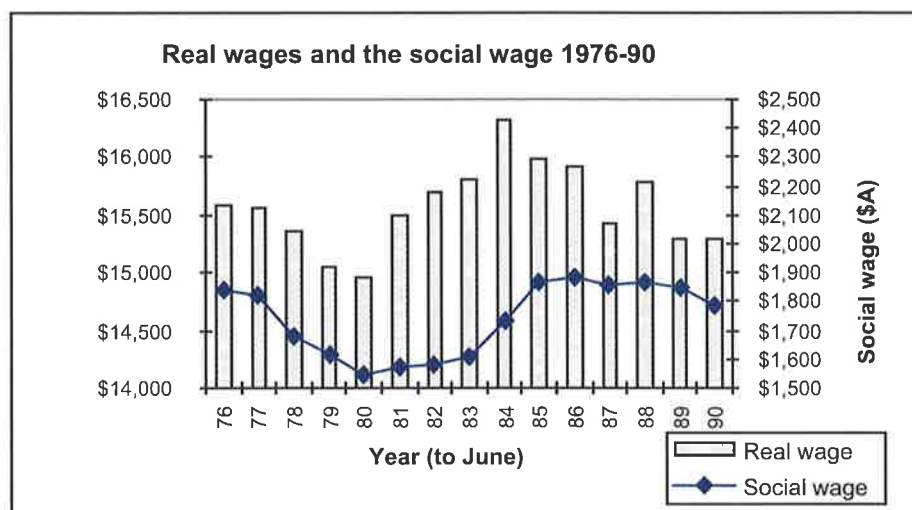
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<sup>1</sup> Germov, J., Class, Health Inequality and Social Justice. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 20-38, Oxford University Press., Melbourne (1998).

<sup>2</sup> Sweet, M., Warning: The truth may be doctored, *The Bulletin*, pp. 39-44 (1999).

deliver lower material inequity, via policies such as ‘the social wage’. The social wage was credited with dampening wage rise demands and had a redistributive effect. Figure 41 shows the social wage rising after the election of a collectivist government in 1983.<sup>1</sup>

Figure 41 Real and social wage 1976-1990



Source: Germov 1999.<sup>2</sup>

### *The Department*

The Department of Health’s vision is ‘The leader in promoting, developing and funding world class health and aged care *services* for all Australians’.<sup>3</sup> The ‘production’ of health is not an explicit part of that vision. The focus on services need not, however, exclude a service that is policy or advocacy or research oriented, or even several services that were devoted to the policy work of other portfolios that impact on health. Nevertheless, in fact, the great bulk of the Department’s financial and staff effort is consumed with managing service contracts or arrangements with agents that deliver services to individuals on its behalf: Medicare agreements with States, medical and pharmaceutical payments etc. Substantial policy effort is devoted to the interests of service providers and effort is concentrated on the cost of these, that is, on government outlays. I understand that, when the policy impact of a change to indirect taxation was considered within the Department, advice about the impact on health status was at best ignored and at worst derided; the desired policy advice was the impact on service providers. This is consistent with Offe’s

<sup>1</sup> The reduction in real wages after 1984 was part of an accord between unions and the government, where the trade-off between real and social wages was explicit.

<sup>2</sup> Germov, J., Class, Health Inequality and Social Justice. In: J. Germov (ed.), *Second Opinion An introduction to health sociology*, pp. 20-38, Oxford University Press., Melbourne (1998).

<sup>3</sup> From the Department’s internet site, my emphasis (accessed March 2000 last update shown as 24 Jan 2000) <http://www.health.gov.au/overview.htm>

analysis of the contradictory role of government and with Lukes' second dimension of power, where certain ideas do not reach the agenda.

The measures of 'success', nevertheless, for the Department include:

- continued improvements in life expectancy for both males and females over time;
- further reductions in infant mortality rates over time;
- improved life expectancy, health expectancy and infant mortality rates for low income Australians so that they are comparable with the general population ...<sup>1</sup>

So the measures that are the ones fundamental to public health, and upon which this essay has concentrated, are at the core of the Department's measures of success. The vision and measures are clearly out of synchronicity.

It should be noted that a pulse is sustained in the Department, at middle levels, perhaps to keep abreast of policy trends in the event of a change in political ideas and so be in a position to provide different advice, given a different agenda, in Lukes' second dimension. The Commonwealth has assisted visits to Australia by, separately, Len Syme, John Lynch and George Kaplan to speak to senior bureaucrats and at seminars organised at the Queensland University of Technology (QUT) in 1997 and 1998. Marmot and Syme were interviewed on determinants of health as part of a series in the Australian Broadcasting Commission's *Health Report* and their interviews are available on the Health Report's website. The Commonwealth has also commissioned two projects, one at the QUT to look at Australian research and data sets and gaps and one at the National Centre for Epidemiology and Population Health (NCEPH) to look at potential policy options.<sup>2,3</sup> Douglas, from NCEPH, described the wave of international research interest that I have illustrated in Figure 30, on page 3 and suggests the time is right to make an impact in Australia.<sup>4</sup>

### *Conclusion*

A variety of documents used at high levels in health policy formulation reveals that Australia is in a weak position to include materialist and relative materialist explanations for the social gradient in health in the evidence base for a health-production or health-creation agenda. That this is true for the Department of Health means that these explanations are even less likely to be considered in the economic and industrial relations portfolios, identified in chapter 2 as being likely

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<sup>1</sup> The preamble reads: 'The Portfolio's success in achieving this vision will be reflected in part by the achievement of the following broad health and aged care services targets, which are measured biannually by the Australian Institute of Health and Welfare:

<sup>2</sup> Turrell, G., A project funded by the Commonwealth- The nature and extent of health inequalities research and future directions, *Fifth International Health Summer School- Exploring New Horizons in Public Health*, Queensland University of Technology (1998).

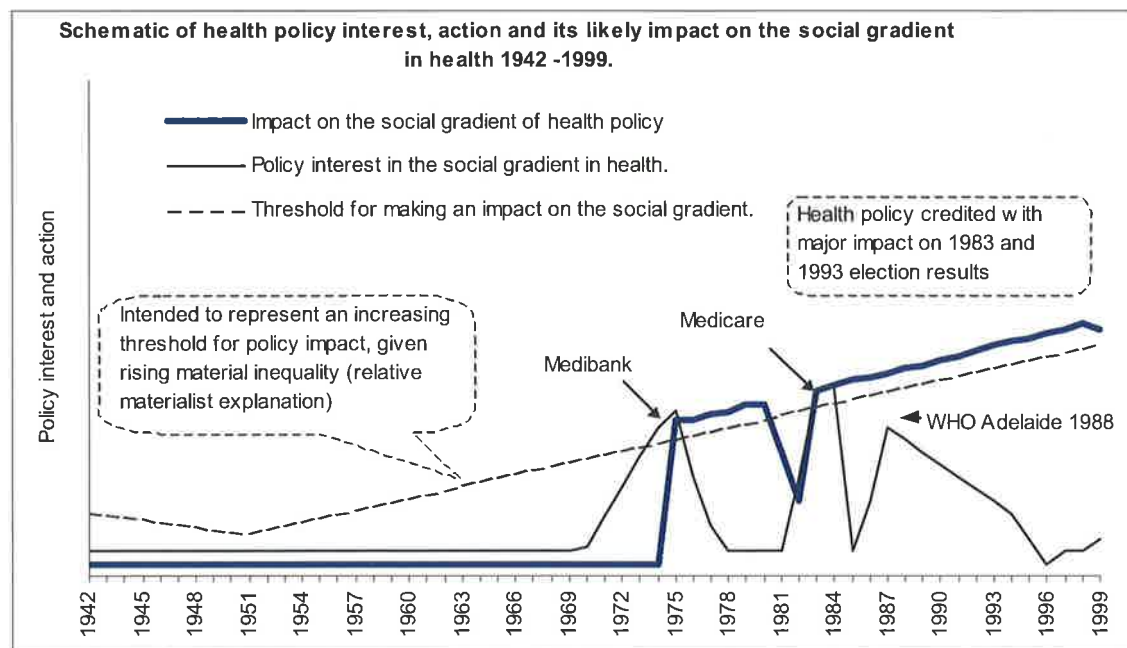
<sup>3</sup> Douglas, B., Public health policy and inequality Ibid.

<sup>4</sup> Ibid.

to 'produce' health. In the health area, explanations for the health status of Australians are rarely considered.

I have illustrated policy interest and policy action on a time-line in Figure 42.

**Figure 42 Schematic of policy interest, and policy action to impact on the social gradient in health.**



The dotted line represents an increase in the threshold for policy action that would attenuate the social gradient in health. It rises over time, to represent rising material inequality and increasing dominance of the economic ideology that produces rising material inequality, together with the attendant steepening of the social gradient in health. The thin solid line traces policy *interest* in inequalities in health, based on the analysis in this chapter; policy interest rose as failures of the market, to deliver health care to all, preceded changes in government at the national level in 1972 and 1983 and rose prior to an international health conference in Australia in 1988. The thicker solid line represents the policy *action* taken, and thus represents public health care services only, Medicare, which we know are used inverse to the social gradient, and we also know that this is for health reasons<sup>1</sup>. The extent to which this thicker line is above the dotted one, is intended to represent the beneficial impact on the social gradient in health, that it, to attenuate its slope. It therefore represents the portion of improvements in health being due to public medical care<sup>2</sup>. This is because there has been no other policy action that has been

<sup>1</sup> This is well established in Australia. See for example the National Health Strategy paper (The most disadvantaged) "have the poorest health; they make most use of primary and secondary health services, but they are the lowest users of preventive services Their poorer health status largely explains their greater use of primary and secondary health services". Commonwealth of Australia, *Enough to Make You Sick. How income and environment affect health. National Health Strategy Research Paper No 1 September 1992*, p. 144, Canberra (1992).

<sup>2</sup> This draws on a quantification of the positive health impact on life expectancy of medical care, for example as estimated by Tarlov, see page 61.

taken deliberately to affect the social gradient in health. I have shown a dip in this line, from 1999, as an individualist- oriented government again promotes private funded approaches to health care services. Consistent with Lukes' second dimension of power, I predict rising interest in health services equity, if not health equity, as the political agenda is set from 2000/2001, by drawing attention to the failures of the market to address health equity under individualist policies.

A decade after the Declaration of Alma Ata in 1978, Australia had the social gradient in health at the top of the health policy agenda; the topic had several chapters in the 1988 *Health For All* report.<sup>1</sup> Since then it has progressively slid down the agenda to rate a small mention at the beginning of the 1994 *Better Health Outcomes* report,<sup>2</sup> being firmly placed as a social justice goal as distinct from a health goal, a footnote to the chosen disease priorities; someone else's problem. Where the Australian Institute of Health and Welfare (AIHW) paid great attention to the social gradient in health in 1992, by 1996 the chapter on health differentials disappeared to a sub category of some of the others.<sup>3</sup> Thus in 1996 the social gradient in health reached its least visible point, being completely absent from the highest level of health decision making, which is occupied with management of health services delivery. Decision-making about priority disease areas is putting national data collections in place that will ensure that area-based measures are the *only* ones lending themselves to future research on the social gradient in health, contrary to analytical research approaches. Some small signs, such as the Queensland University of Technology (QUT) seminars of 1997 and 1998 and some work in the Commonwealth bureaucracy assisting visits to Australia by leading researchers, and the letting of some contract work, at Australian National University and QUT, sustain a pulse.

The implication is that summary measures of advancement of health for the whole population, and any goals that are attained for specific categories of injury and disease, will not apply equally across the socioeconomic scale. There are some signs that there is an exercise of power to keep materialist explanations for the social gradient in health off the health policy agenda, but whether this occurs prior to or is mixed in with the role of organ-based medicine requires a different study. It does seem likely, however, that Lukes' third dimension of power has redistributive issues

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<sup>1</sup> Commonwealth of Australia, *Health for All Australians. Report of the Health Targets and Implementation (Health for All) Committee to Australian Health Ministers 1988*, p. 169, Australian Government Publishing Service, Canberra (1988).

<sup>2</sup> Commonwealth of Australia, *Better Health Outcomes for Australians. National goals, targets and strategies for better health outcomes into the next century.*, p. 348, Australian Government Publishing Service, Canberra (1994).

<sup>3</sup> Australian Institute of Health and Welfare, *Australia's health 1992: the third biennial report of the Australian Institute of Health and Welfare*, Australian Institute of Health and Welfare, (1992)., Australian Institute of Health and Welfare, *Australia's health 1996: the fifth biennial report of the Australian Institute of Health and Welfare*, Australian Institute of Health and Welfare, (1996).

off the agenda in all areas of policy, and the social determinants of health fall heavily into this category.

In order to make an impact on the social gradient in health against these social forces, action is needed at all levels of social organisation. In the final chapter I concentrate on an agenda for a Commonwealth Department of Health that was determined to make a difference.



## Chapter 8. What should the Department of Health do?

In chapter six I offered three dimensions as a simplified framework to aid thinking about policy action on the social gradient in health - the individual setting (eg workplace hierarchical relations), macro-social setting (material inequality) and the reproduction of those over time - and discussed a range of considerations, from local to global. In chapter seven, I argued that Commonwealth policy concentrates on the operation and management of *services*, overwhelmingly illness services, rather than health production or health creation, and that a 'policy loop' in the health department displaces policy interest in the social gradient in health to organ-based action.<sup>1</sup>

In this chapter, which is more self-consciously assertive, I will draw together the conclusions from the previous seven, more conventionally analytic, chapters. My purpose is to speculate on what action might be taken by a Department of Health that was keen to make a difference to the social gradient in health. I will assume political support for addressing the social gradient in health, both broadly and from the executive arm of government.<sup>2</sup> This polemic is in two forms: (1) what policy priorities the Department might pursue in relation to a health creation portfolio; (2) some more generalised suggestions about what it might do to itself. In the following chapter, chapter nine, I implement one of the suggestions by undertaking a detailed policy evaluation of a particular health policy domain.

### Portfolio priorities

The first and most important policy priority is to make the production or creation of health the pre-eminent value and responsibility of the Department of Health and for the Department to have the responsibility for prosecuting this value across the portfolios of government. Where the current vision is to be the leader in developing and funding services,<sup>3</sup> the new vision would be 'a leader and partner in creating health both within and outside Australia'. This would include a major role for Australia in the WHO Pacific region as well as being a contributor globally. Where the current measures of success include: 'improved life expectancy, health expectancy and infant mortality rates for low income Australians so that they are

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<sup>1</sup> See page 158

<sup>2</sup> In Australia the responsible Department is accountable to the Australian Parliament, in practice, through the Ministry. The Ministry is formally accountable to Parliament via the Executive. For an overview of the structure see <http://www.aph.gov.au/parl.htm> (Accessed 20 October 2003, last update 18 September, 2003)

<sup>3</sup> See page 160

comparable with the general population ...<sup>1</sup> additional measures would refer both to gradients within Australia and in the WHO Pacific region.

Of central importance to these directions is the funding of a body or bodies, independent of and external to the Department, to perform a number of functions to assist policy making and the policy debate, as an analysis in chapter 7 shows.<sup>2</sup> That is, if widening material gradients in Anglophone countries such as Australia mark a steepening social gradient in health and are a consequence of economic policy, the welfare state needs an external body to balance the public policy arguments both at national and international levels. This is increasingly so as governments act to move health/disease *services* into market models, thereby increasing the demands on a department of health to respond to the *providers* of health/disease services, as distinct from increasing, for example, a consumer demand for health creation. An external body would assist the Department better to manage the contradictions of it being both a) an arm of government responding to market demands and b) needing to meet the welfare demands of the social gradient in health, to deliver social harmony and political legitimacy. The presence of external bodies is credited with public health success in the 1995 National Health and Medical Research Centre paper,<sup>1</sup> and, since there is no natural interest group, there is an obligation on government to create it in order to make public policy decisions based on the best available evidence. The Department needs advice on health impact that does not come from individualist sources, in order to exercise policy leadership. Funding directed to such a body, and to related research, ought to compare favourably, both in time and amount, with the funding directed to, say, heart disease over the past forty to fifty years, as the impact on health is as great.

To be effective the Department needs policy development in the social, individual and reproductive areas of the social gradient in health, at international, national and departmental levels, and in all three dimensions of power. I have set out below several examples of policy directions at each of the levels, international, national and departmental, which may well represent the order of greatest yield in attenuating the social gradient in health.

#### *International*

In the international arena there are a number of areas where a Department of Health might productively contribute to attenuating the social gradient in health. The explicit rationale for international, (and national), efforts would emphasise:

- the moral argument, that the social gradient in health is unjust;

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<sup>1</sup> See page 161

<sup>2</sup> See page 134

- the material basis, that it is determined by the material/social environment;
- the political imperative, that attenuation of the health gradient will add political legitimacy and;
- the achievable argument, that the gradient is not inevitable- it is amenable to policy decisions and actions.<sup>2</sup>

A Department with a brief to address the social gradient in health would promote, internationally, a return to the WHO Health for All agenda of 1978, one in which all nations participate and hold conferences where gradients in health within and between countries head the agenda. This suggestion is consistent with my claim that the separation of developing from developed countries for WHO conferences allowed developed nations to concentrate on risk factor approaches to health- with little prior or subsequent evidence to support the approach.<sup>3</sup> Major themes for all-nation conferences could be the material, social and political creation of health, the individual and workplace creation of health and attenuating the reproduction of health inequities. Strategy streams would focus on how to bring 'determinants of health' within the legitimate purview of health portfolios and how to create unit-level performance measures for individualist professions. Different disciplines need to contribute to the international effort investigating the drivers of life expectancy.

Australia might nominate to be a pilot for WHO to promote the reduction of the social gradient in health within countries and between countries in the Pacific, as the Netherlands and Finland have done in Europe.<sup>4</sup> Australia might also invest in economic research in an international collaboration on economic theory and modelling around material effects on health, both relative and absolute. However, given: an independent body with no natural interest group; the scale of funding that is needed to redress the imbalance with behavioural research and to progress the material research and other agendas; that the policy advice is likely to conflict with current individualist economic ideas; then the body would be vulnerable to attacks on its funding from those whose ideas are challenged. So, one of the urgent tasks would be to work on an alternative economic agenda, with the insertion of health equity impact into economic models which take no account of the real impact, on health, of material gradients. On page 3 I footnoted some anomalies I observed between relative material effects on health and some basic economic ideas. Without exploring the economic literature here it seems worth incorporating those notes into the text for further policy exploration:

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<sup>1</sup> See page 150

<sup>2</sup> See page 120

<sup>3</sup> See page 68

<sup>4</sup> See page 134

The relative materialist explanation for the social gradient in health:

- adds to the arguments for equality of condition. For example: 'The egalitarian holds that it would be a *morally* better state of affairs if everyone enjoyed the same level of social and economic benefits.'<sup>1</sup> (my underlining), whereas the relative materialist explanation identifies *tangible* health benefits separate from the moral dimension;
- adds substantially to the critique of the absolutist doctrine of sufficiency. 'Enough' is socially determined *relatively*, not absolutely, and ;
- criticises Pareto, both for incentives,
  - (ie. superior performance is elicited by superior rewards and the pie gets bigger so that the least well off in the end gets as much as he would have if the pie were equally distributed in the first place- this is similar to Rawls' - if inequalities are maximally productive, then they are not *morally* regrettable for the worse-off ...)

and for the Pareto norm,

(when its not possible to make someone better off without making anyone else worse off).

*Tangible* relative material effects have not been taken into account in these economic fundamentals.<sup>2</sup>

I also noted some research suggesting that economic benefits may flow from a more egalitarian society, with evidence that greater equity is associated with faster growth,<sup>3</sup> and that investment is higher where income differences are smaller.<sup>4</sup> There are suggestions that economic recovery following recession may be faster and more sustained with greater equity, so it is important that more work is performed in these areas.

In Chapter 3 I examined a number of explanations for rising life expectancy at birth, among nations, concluding that the inverse relationship with material inequality within a nation, reflecting the political expression of a social will, is an explanation worth pursuing, not least because it mirrors a leading explanation for intra-national social gradients in (ill) health. An attractive, ecological, element of that argument is that it allows for growth in human health without needing to pursue ever-increasing material resources. The leading alternative explanation, of an incremental material

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<sup>1</sup> Arneson, R.J., Equality. In: R.E. Goodin and P. Pettit (eds.), *A Companion to Contemporary Political Philosophy*, pp. 489-507, Blackwell Publishers, Oxford (1993).

<sup>2</sup> Note that there has been some work extending Rawls' theory to inequities in health, see footnote on page 81.

<sup>3</sup> Persson, T. and Tabellini, G., Is inequality harmful for growth? Theory and evidence. *American Economic Review*, **84**, 600-621 (1994).

<sup>4</sup> Alesina, A. and Perotti, R., Income distribution, Political Instability, and Investment, NBER, Cambridge, Mass. (1993).

relationship with health, begs the question, in a global policy setting, of whether developed nations' material situation can be duplicated by developing nations in order to maximise health. It seems not; rich countries have exceeded the consumption capacity of earth that everyone can share, or, put another way, 'we need two more planets ...'<sup>1</sup> An international collaboration on the social gradient in health, in the context of bringing all nations back together in WHO conferences, suggested on page 3, would necessarily be drawn to material inequalities *between* countries and questions of economic and human development. A relative material explanation, for both the social gradient and rising life expectancy would provide common policy ground for all nations to participate in discussion, while not leaving disparities off the agenda.

Strategic policy work is needed, internationally, on how to include health creation goals, in international agreements in economic portfolios such as trade, and how to avoid increasing relative material effects. Internationally comparable data systems are needed to test the health gradient impact of policy decisions. A tactical international collaboration might therefore focus on establishing common frameworks for input into health equity impact studies, concentrating on the health effects of decision making in other international bodies first, then moving to support national health equity impact analysis.

The international importance of the workplace's impact on health, explored most comprehensively in the Whitehall studies, but reproduced in other workplace settings, demands international collaboration to test ways of reducing its effects.<sup>2</sup>

#### *National*

The policy areas for national consideration mirror those at the international level, particularly in the economic area, which I will not reiterate. Economic models that do not incorporate health gradient effects might be regarded with scepticism of their value to a healthy society. Health-equity-impact evaluations of national policy proposals across portfolios could be routine and be prepared both by the department and independently. They might also be a routine part of the federal budget process.

Substantial policy work is needed to examine the dynamics of the Department's interaction with other portfolios in the production of health. For example, how the department approaches economic and development portfolios with health impact evidence prior to the policy making process, rather than post hoc in policy

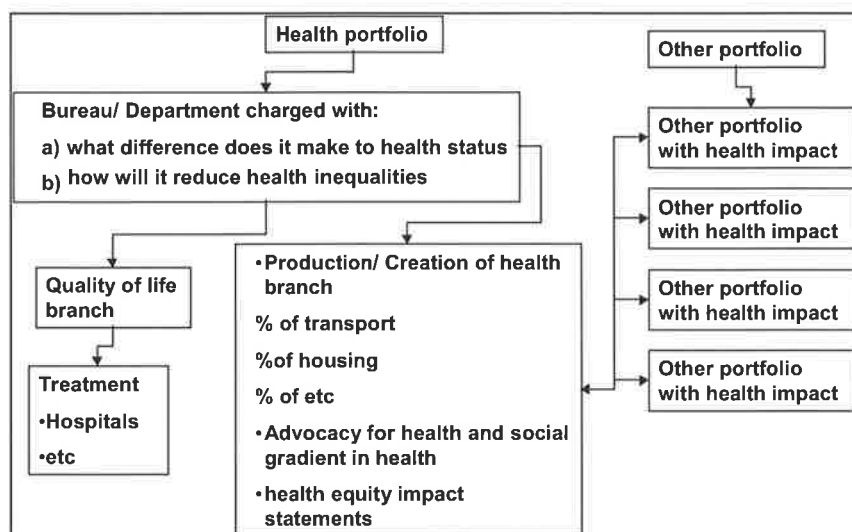
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<sup>1</sup> Hertzman, C., What's been said and what's been hid: population health, global consumption and the role of national health data systems. In: D. Blane, E. Brunner and R.G. Wilkinson (eds.), *Health and social organization : Towards a health policy for the twenty first century*, pp. 94-108, Routledge, London (1996).

<sup>2</sup> Vahtera, J., Virtanen, P. and Kivimaki, M., Pentti, Jaana, Workplace as an origin of health inequalities. *J Epidemiol Community Health*, **53**, 399-407 (1999).

evaluation or health equity impact studies? I have suggested above that the Department sponsor research on the economic consequences of widening material inequality, given the impact of the research on preference theory, as one way to commence this. An option may be to add a financial imperative for portfolios to cooperate by giving each a say over a proportion of others' respective budgets. If transport had a say over a small proportion of health's budget, what would be its interests? And vice versa, of course. This could apply over revenue and expenditure portfolios and might be more effective than post-hoc impact analyses. The proposed structure is at Figure 43.

**Figure 43 Proposed new structure for the Department of Health**



Research is needed to explain why differences in health status by socioeconomic status are viewed as issues of social justice, to be dealt with by portfolios other than health, rather than issues for the department of health to address, (eg compared with diseases).

Policy advice drawn from relative materialist explanations will conflict with other societal goals, particularly under the prevailing economic paradigm. To rearrange, slightly, the phrasing of a middle ranking policy officer:

... the central agencies are tired of the suggestion that the department wade into the broader macro economic debate, and governments are generally uninterested in sweeping 'fix the wealth distribution' type advice ...

This type of policy advice is also the most difficult because the losers, the ones from whom the wealth is being distributed, are the most powerful. An intersectoral action approach might therefore concentrate on making the effects of policy alternatives on

health differences visible, so that these can be weighed against the other societal goals in the policy-making process.<sup>1</sup>

The department might also consider the above questions in ways that can focus on health rather than illness services. Geographical area analysis may be a less politically charged way to address inequities and, below, I look in more detail at an example of how this might proceed.<sup>2</sup>

The reproduction of the social gradient in health is the most neglected area of policy commentary. Many policy suggestions, not least the Acheson Report, strongly recommend investing in children,<sup>3</sup> with evidence of positive health effects of early learning programs and social support for parents as well as narrowing income gaps.<sup>4</sup> In Australia, the results of a study directed at 'life-chances' suggested that, between 1982 and 1995, there was a one-third drop in before-housing child poverty, largely as a result of substantial increases in government cash payments to lower income families with children.<sup>5</sup> However, in the same period, poverty rates among 15 to 18 year olds who left the parental home or who were still living at home but not in full-time study increased very sharply.<sup>6</sup> Directing resources, directly or indirectly, to children in sole parent families would target families with low material resources, as 70% of children in one-parent families are in the lower two quintiles of family income.<sup>7</sup> If the Barker effect<sup>8</sup> is produced via the socioeconomic circumstances of the mother, rather than simply via intra-uterine nutrition, then policies to improve the material circumstances of mother's- to- be, if possible, are indicated. Investing in children would be an element of policies to protect individuals at times when they are unable to earn an adequate wage in the labour market. For those without material resources it prevents serious material jeopardy, for those currently with those resources it creates a more stable psychosocial environment.<sup>9</sup>

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<sup>1</sup> Gunning-Schepers, L.J., A policy response to socio-economic health differences. In: A. Mielck and M.d.R. Giraldez (eds.), *Health Inequalities: Discussion in Western European Countries*, pp. 193-202, Waxmann Publishing Company, Münster; New York (1994).

<sup>2</sup> See page 179.

<sup>3</sup> Thomas Phaer's 1544 admonition appeals: 'to do them good that have the most nede, that is to say chyldren.' Bowers, R., Thomas Phaer and The Boke of Chyldren (1544). *The New England Journal of Medicine*, **342** (2000).

<sup>4</sup> Roberts, H., Children, inequalities and health. *British Medical Journal*, **314**, 1122-5 (1997).

<sup>5</sup> The after-housing poverty picture did not look so optimistic, apparently due to a compositional shift in the types of families in after-housing poverty.

<sup>6</sup> Harding, A. and Szukalska, A., Trends in Child Poverty 1982 to 1995-96, *Australian Association for Social Research Annual Conference*, NATSEM, National Centre for Social and Economic Modelling. (1999).

<sup>7</sup> Commonwealth of Australia, Children, Australia: A Social Report, pp. 135, Australian Bureau of Statistics, Canberra (1999).

<sup>8</sup> See page 21 for discussion of the Barker hypothesis.

<sup>9</sup> Bartley, M., Blane, D. and Montgomery, S., Health and the life course, why safety nets matter. *British Medical Journal*, **314**, 1194-6 (1997).

However, Erikson and Goldthorpe's argument, elaborated in Chapter 6,<sup>1</sup> and supported both by research in Australia and by Caldwell's work in other cultures is persuasive - there is a gradient in the propensity of parents to transfer material resources to their children via early development, schooling, tutoring, labour market entry and transfers for housing acquisition etc. This propensity will subvert income redistributive policies and presents a powerful argument, on equality of opportunity and equality of outcome grounds, for the imbalance of opportunity to be redressed via transfers funded from death duties and wealth taxes, consistent with a number of other countries. The department needs to add a voice to these policy debates.

The research effort into the social gradient in health needs to compare more than favourably with, for example, the research effort on heart disease as the preventable deaths are at least as large. Moreover, the research effort on heart disease has had at least a forty-year head start over material and relative material effects. Therefore I propose that a large proportion<sup>2</sup> of the research effort, via all funds dispersed through the department and agencies such as the NHMRC, be allocated to research into the social gradient in health and, of that proportion, funds be distributed roughly in accord with Tarlov's estimates ie. 2% to biological research, 17% to medical care and 81% to material and relative material effects. These funds to be committed to the policy related work outlined above.

The impact of hierarchical relations in the workplace in producing the social gradient in health must not be ignored. A Department of Health charged with making a difference to the social gradient in health would actively promote, sponsor, and fund interventions and research in demand and control in the workplace, with the specific aim of attenuating the gradient in health evident in the workforce. The 'Bingham doctrine' of lowest feasible risk asserts that health protection is a pre-eminent value.<sup>3</sup> In this approach the principle is that if the industrial market is politically powerful and the idea of reducing workplace inequality is relatively impotent then it is appropriate for the Department to take an 'unbalanced' position versus the 'balanced' view that workers don't have rights to risk-free jobs.<sup>4</sup> The interventions would be based on the 'best guess' consensus of the scientific community in order to move the interventions forward. Since there are short and long term effects it might do this both via the National Occupational

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<sup>1</sup> See page 150.

<sup>2</sup> That is, say, above 15%.

<sup>3</sup> Graham, J.D., Green, L.C. and Roberts, M.J., *In Search of Safety*, p. 260, Harvard University Press (1988).

<sup>4</sup> This is borrowing from the author, whose argument is from an occupational health/ hazard perspective; the original idea is that if polluting industries are politically powerful and environmental groups are relatively impotent then it is appropriate for the government body to take a pro- environment, or 'unbalanced' position versus the 'balanced' view that workers don't have rights to risk-free jobs.

Health and Safety Commission and via independent research partnerships. The Department would continue to sponsor the visits of eminent researchers in the field, like Marmot, Bartley, Karasek and Theorell, both to seek advice on interventions and to promote public discussion about the effects and encourage independent research.

To take such an approach might also be a positive, risk-free way for employers to contribute positively to health. Given relative material effects however, the 'costs' to employers might include reductions in the ratio of highest paid to lowest paid workers, which is counter to current trends.<sup>1</sup> The benefits, however, are predicted to be greater productivity and commitment to the workplace.

### **Intra-departmental priorities**

I offered health creation as the new vision for the department in the introduction to this chapter. Nominating health creation, or health production, as the pre-eminent value is not far removed from the original aims of Health for All and the 1978 agenda of Primary Health Care, see page 3. 'Health creation' also does not necessarily have great semantic differences with the 1986 WHO sentiment of health promotion. Some additional qualifications are necessary to avoid the propensity for individualism to reconstruct a health creation idea in individualist terms as it has with health promotion and primary care. Care would need to be taken not to frame major policies or goals of the department in individualist terms; disease focussed priority areas might be abandoned, replaced by a population focus, with sub-populations defined socially and geographically, not as aggregates of individuals with particular diseases/ conditions/ injuries.

To create energy for change, the department might publicise its failure to reach inequality goals after twenty years (Health for All by the year 2000) and state clearly the relative resource level, for income or expenditure units at which the newly defunct goals were being met. The report might say, for example, that the target for cardiovascular disease was met or exceeded only for those whose material resources are in the top 'x' deciles of income/ expenditure. Similarly the department might publicise the underlying explanations it uses for a current goal, that is, for example, explain why 'improved life expectancy, health expectancy and infant mortality rates for low income Australians' are *not* 'comparable with the general population'.

It follows that the department would look at its own organisational structure because it would be a recipe for inaction to have an external body, devoted to the social gradient in health, advising a department that was dominated by

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<sup>1</sup> See also Miller's insightful suggestions on workplace pay and benefit differentials, footnote 1 item 12 on page 127.

'pragmatists'<sup>1</sup>, modernist professionals who keep returning to disease- based frameworks in a policy loop, see Figure 40 on page 3.

### *Structure*

The department needs to reduce greatly the policy concentration on service delivery and service providers in favour of populations and regions. An independent body might usefully examine the research-to-policy process in order to understand and provide an alternative to the policy loop, at Figure 40 on page 3, which impedes action. Again, if Tarlov's estimates of the various contributions to life expectancy provide a starting point, (biology 2%, medical care 17%, behaviour 0%,<sup>2</sup> material and relative material resources – marking our social will - 81%), then the department might be inclined to diminish greatly the propensity to draw policy formulation advice from individualist professions and cease to regard individualist health services workforce as a natural ally to enlist in health matters.

The creation of health is within the domain that 'public health' claims, and it would be a major step forward to have public health, rather than the current health services, as the pre-eminent role for the department, the top layer, in between health services and the political process, so as to give public health advice to the minister. However the role of public health in Australia is very much open to a critical analysis from a health creation perspective. A survey to identify core activities of public health had practitioners identifying prevention, surveillance and control of communicable diseases as the top priority.<sup>3</sup> The 'population', the term invoked to distinguish public health from medical care, in this case is the aggregate of individuals with a medical condition and is an individualist approach. It should be noted that, in the survey, activity on structural factors, such as food and water quality, also rated highly, but it seems, nevertheless, that the potential for a public health approach to be displaced, mainly into individualist and disease -based action, is strong. This is not to argue that these public health functions are not necessary, but that it is necessary to look and act beyond protection to maximise the health of the nation and so avoid repeating the failure to address material determinants.

Since the major part of public health activity, disease control and surveillance, is at the sub-national (state) level there is an opportunity for a jurisdictional partnership of functions which leaves state level arrangements in place and has the national effort mainly directed at material and social/ ecological determinants, where it also

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<sup>1</sup> See page 157

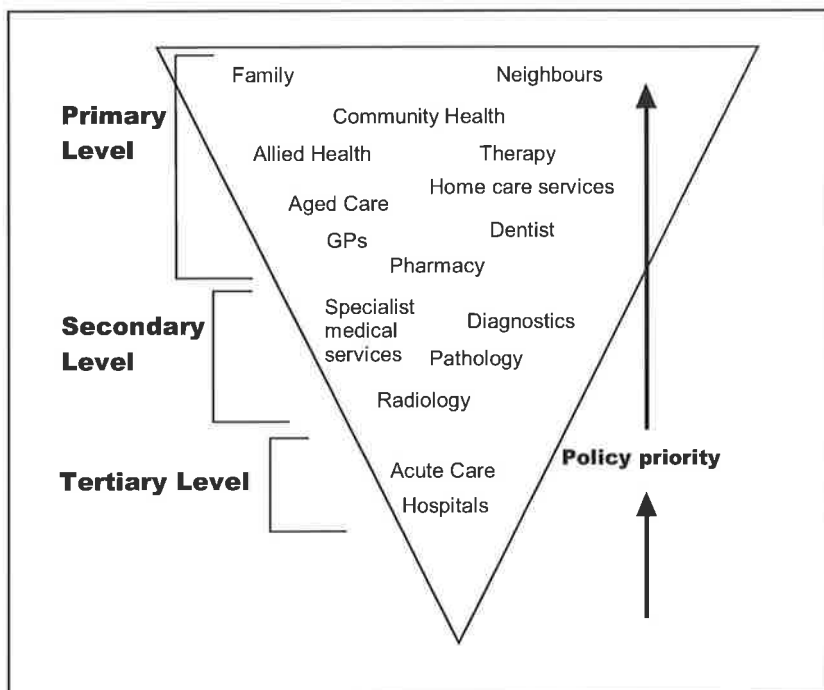
<sup>2</sup> Until the social production and reproduction of behaviour is separated from random behavioural difference

<sup>3</sup> National Public Health Partnership Delphi Study accessed May 2000.  
See table 18 of: <http://hna.fth.vic.gov.au/nphp/delphi/phfncaus.htm>

has the major health-influencing policy levers. There is, and would need to be, overlap in functions, as staff for the national effort are likely to be drawn from sub-national jurisdictions, so care would need to be taken to ensure individualist disease paradigms were not transported to the national program. One way of giving practical effect to this may be to create a distinction between health creation and quality of life, where care and treatment were located in a quality of life unit, subordinate to health creation. The two units would need to be in the same department in order that the political processes could focus on health rather than being swamped by decision making on the large expenditures under 'quality'. Such an approach might provide a structure that can overcome the cycle outlined in chapter seven where health policy is continually drawn away from health creation by the mass of the health services system.

One of the consequences of re-configuring the department this way is that it would regard hospitals, a major focus financially, as a failure to keep people healthy and in the community, that is, at the bottom of the policy considerations instead of the top. The model in Figure 44 might provide a framework for discussion with the medical profession about policy priorities for a 'quality of life' branch, which, in turn, contributes a minor part of health creation, and a minor, albeit important part in attenuating the social gradient in health. The health creation section would require an energetic and continuing education campaign to promote the new role of the department of health against entrenched individualist perspectives.

**Figure 44 Schematic of policy priority for the 'quality' section of the department.**



These thoughts on structure are offered as the beginning of policy work the department needs to undertake on how it would be organised if it were to reflect the research and what data/ information needs it has in order to respond to developments in theory.<sup>1</sup> Theory driven information development and data collection is essential to a health-production approach. If settings in political economy, or labour policy, or evaluation of non-market goods, such as spaces and places for recreation, matter for health production, those settings need articulation. If they are not articulated, the dynamics of target-setting by the health services workforce will ensure narrow, self-justifying data sets. Action on departmental structures needs to take into account the kinds of relationships/ communication with other departments that would enhance public policy debate about respective roles in health production outlined at the national level above. A primary consideration would be the role the Department could take in replacing the dominant concept and imagery of a poverty/ non-poverty dichotomy with the concept of a social gradient in health, in the media.

#### *Departmental/ Public Sector Workforce*

Consistent with a national effort on workplace health gradients<sup>2</sup> a department interested in and responsible for the social gradient in health would take the lead in workplace health gradient interventions. It would sponsor workshops aimed at attenuating worker gradients in health by intervening in the distribution of material resources, power and support as indicated by the evidence. It would work with the National Occupational Health and Safety Commission and an independent research organisation in trials so that it is in a better position to inform the national debate on what works in a particular setting. Part of this effort would be to consider ways of incorporating research into industrial agreements so that employers can maximise productivity. The area responsible for this would be located in the health creation branch as it is not services- oriented.

#### *A review of departmental policy papers and proposals*

As part of an internal health equity impact assessment, all current and prospective policy papers would be reviewed from a social gradient in health perspective – or health equity impact assessment. An example might be to re-examine papers written for The National Strategy on Ageing.<sup>3</sup> Papers on the health costs of ageing could be re-examined by quantile of socioeconomic status. An increase in material inequality in old age - the probable impact of occupational superannuation - is

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<sup>1</sup> I have already discussed one problem with the data dictionary see page 154.

<sup>2</sup> See page 172

<sup>3</sup> Commonwealth of Australia, The National Strategy for an Ageing Australia. Healthy Ageing Discussion Paper - Draft, pp. 23, Department of Health and Aged Care, Canberra (1999).

predicted, by relative materialist explanations for the social gradient in health, to impact negatively on the gradient in health. What would the financial impact be under different assumptions? This could test the hypothesised sensitivity of health costs to changes in material inequality. As I have noted, the National Health Data Dictionary does not specify collection of data for material circumstances, see page 3. A review of data needs is essential and will be informed by the independent body.

#### *Existing programs and policies*

There is a social gradient in health and material circumstances, and an associated spatial distribution of these in Australia. Therefore, area-based analyses of government programs can reveal unintended impacts of policy and provide a focus for policy change.<sup>1</sup>

A department interested in the social gradient in health would identify and evaluate government and private funding programs from a social gradient in health perspective, and can do this via area-based analyses in the absence of good information about real gradients. Evaluations could be part of comprehensive health impact studies within and across portfolios. Such an approach would also help identify data needs and the implications for data collection tools. Any age-based criteria for funding programs for older people should be scrutinised as life expectancy has a social gradient.

Examples of such analysis could include:

- The supply of medical general practitioners (GPs). It is known that the supply of GPs is greater in higher socioeconomic areas, while morbidity and visits to GPs are higher in lower socioeconomic areas. Lower socioeconomic areas will have more co-morbidities and people with fewer personal resources to deal with them. This will not be a dichotomy; there will be a gradient in areas too. Questions of equity in health or treatment outcome, mindful that we start in health services with an expectation that we are working on 17% of health outcome, may mean investigating GP workloads, time per patient, private and public contributions to GP income, and referral patterns etc to ensure outcomes are equitable from both GP and patient perspectives. Policy levers could include different Medicare rebates and/or consultation times by region, and differential inputs to GP divisions;
- The intergenerational reproduction of the social gradient in health, which is likely to be determined by the health of mothers, so there may be implications for the distribution of services for them;

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<sup>1</sup> Note that area-based analyses attenuate real, underlying gradients, as do occupational, class-based analyses.

- Disability and culturally diverse populations, which are differentially distributed by socioeconomic area, so funding input formulae need to take this into account. The health department has a role in illuminating this characteristic to other Departments;
- Age-based and area-based funding parameters which occur in Commonwealth-only aged care services' planning.

I will explore this last example in detail as an example of how knowledge of the social gradient in health may impact on a particular program, albeit one applied after material inequalities have had their effect, rather than prior.



## Chapter 9 Health equity evaluation of a specific policy domain - Aged Care

I have argued that structural change is required in the department in order to shift its primary orientation to health creation. It is clear, nonetheless, that the great majority of the effort and attention of the Department is oriented to funding health services, and so I have also argued both that: the bulk of these programs could be administered from a quality of life unit, see page 3, and; the programs should be reviewed from a social gradient in health perspective.<sup>1</sup> Such an evaluation could be undertaken immediately, where health-creation policy evaluation would be largely formative. In this section I will demonstrate how an evaluation, from a social gradient in health perspective, would impact on policy, in this case in the Department of Health and Ageing. While having little impact on the social gradient in health per se, the method I propose takes the policy approach toward consideration of socioeconomic relationships with health, as a contribution to a more general advancement of social-gradient policy formulation.

I will show that that the existing policy approach to planning services for older Australians contains a structural bias that delivers relatively more services to areas with higher socioeconomic profiles. I will demonstrate an alternative approach, based on mortality, which will make for a fairer and more rational, graded, targeting of resources.

### Background

Responsibility for formal aged care in Australia is shared between national and state jurisdictions in a federal system<sup>2</sup>. The Commonwealth has primary responsibility for residential aged care services under the *Aged Care Act 1997*.<sup>3</sup> The Act includes planning objectives “to identify community needs, particularly in respect of people with special needs; and to allocate places in a way that best meets the identified needs of the community”<sup>4</sup>. People with special needs, in the Act, among others, includes: people from Aboriginal and Torres Strait Islander

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<sup>1</sup> I have proposed a broad quality unit for health services generally. Since I began this work the heading under which budget funds are allocated for aged care changed from 'Aged and Community Care' to 'Enhanced Quality of Life for Older Australians'. This change of title, however, does not represent the structural change I am proposing. See contents pages of the 1999 and 2000 budget papers. Commonwealth of Australia, Portfolio Budget Statements 1998-99. Health and Family Services Portfolio, pp. 315, Department of Health and Family Services, Canberra (1999). Commonwealth of Australia, Portfolio Budget Statements 2000-01, Health and Aged Care Portfolio, pp. 329, Department of Health and Aged Care, Canberra (2000).

<sup>2</sup> The majority of care is informal and mainly provided by spouses and partners.

<sup>3</sup> I will refer to aged care services, for this example about Commonwealth planning, as including high care (formerly nursing home care) low care (formerly hostel care) and community aged care packages (whose origins are as a home-based substitute for residential hostel care). However the majority of data presented is for residential, or institutional aged care, which includes high care and low care only. The Commonwealth also funds a number of other community services for older people and their carers.

<sup>4</sup> Aged Care Act 1997 Chapter 2. Part 2.2 Division 12 12-2 (b) and (c) Reprint 1. p29  
Website: <http://scaletext.law.gov.au/html/pasteact/2/3051/top.htm>

communities; non-English speaking backgrounds; people who live in rural or remote areas; and, for this thesis, *people who are financially or socially disadvantaged*.<sup>1,2</sup> There is no definition of this last term in the legislation<sup>3</sup>. For the first three groups the task of identifying needs is assisted by community organisations, advocacy groups and routine data collection. Targeting financial and/or social disadvantage, for aged care services, is more problematic. It should be noted here that the tacit, underlying principle in the identification of special needs is of barriers to access to services rather than a different requirement for the supply of services.<sup>4</sup>

The supply and distribution of these services is regulated by a population-based formula, 100 places per thousand persons aged 70 years or more, which is not contained in the legislation but has been adopted as policy by successive cabinets since 1986.<sup>5</sup> In 1986, the 1985 supply of aged care places was compared by jurisdiction for populations aged 65 years or more, (65+) and seventy years or more, (70+), see Table 10.

**Table 10: Total hostel and nursing home places per '000 persons June 1985**

	65+ years (inc disabled)	70+years (inc disabled)	70+ n/h (Aged only)	70+ hostel (Aged only)	Total 70+ (Aged only)
NSW	70.5	107.9	74.3	29.3	103.6
Vic	56.4	84.1	53.2	27.8	81.0
Qld	75.3	114.9	68.7	41.6	110.3
SA	77.9	117.4	70.9	44.0	115.0
WA	79.6	117.7	73.5	38.6	112.1
Tas	64.1	97.5	74.8	20.7	95.5
ACT	55.8	91.1	57.9	26.1	98.9
NT	56.5	98.9	72.8	33.2	91.1
Australia	68.7	103.8	67.2	32.8	100.0

Source: Tables 2.10, 2.12, 2.13, 3.1 Nursing Homes and Hostels Review.

The reasoning for selecting 100 places per 1000 persons aged 70+ was that this ratio would maintain the then existing average national supply at comparable international levels while delivering equity over time between the states and territories.<sup>6</sup> Since that time the ratio has also been used to plan for population-

<sup>1</sup> Aged Care Act 1997 Part 2.2 Division 11 11-3 (a)(b) (c) and (d) Reprint 1. p27

<sup>2</sup> An additional category of Veterans, was added in May 2001.

<sup>3</sup> There is a potentially related definition of 'concessional resident', for a particular funding purpose, see Aged Care Act 1997 Chapter 3. Part 3.1 Division 44 44-7 Reprint 1. P147

<sup>4</sup> Note also, however that the addition of veterans was not consistent with that principle.

<sup>5</sup> Commonwealth of Australia, Nursing Homes and Hostels Review, pp. 129, Department of Community Services and Health, Canberra (1986).

<sup>6</sup> See page 42 of the Nursing Homes and Hostels Review 1985. A comparison with international supply at the time showed that Australia's total was similar to 11 other 'high provision' countries but more heavily oriented to nursing care places. Another aim therefore was to shift the balance between nursing home care and hostel care, so the formula of 100/1000 70+ was divided into 40 nursing home and 60 hostel, and later, 40 high care, 50 low care and 10 packages

based parity of services *within* states, down to areas defined as Statistical Local Areas (SLAs), which corresponded closely to local government boundaries until about 1998.<sup>12</sup> So, while it was not created as an indicator of 'need', the then existing national ratio was adopted, and has been used since, as a benchmark for the purpose of planning, distributing and providing additional services. The department routinely obtains population projections, by SLA, from the Australian Bureau of Statistics (ABS), computes the benchmark and uses the results to inform decisions about the location, or distribution, of additional services, since there is a growing population 70+. The department controls the distribution of aged care services by advertising for bodies to apply to be the provider of services in those locations. Assessment for entry by individuals to aged care services (high care, low care and community aged care packages) is carried out independently of the services by Aged Care Assessment Teams (ACAT) on a regional basis.

The benchmark, based on persons age 70+, has limitations, both for the overall supply of services for older people and the distribution of those services. These will be major headings in the following analysis.

For supply, the current 'years-from-birth' planning age, 70+, is different to the median age at which most people use the services; it has, and acknowledges, little relationship with 'need', and; it produces different proportions of the population over time. There are three main distributional issues with the benchmark formula. First, it requires an overlay to consider access; SLAs have large variation in geographic area, with some large sized rural SLAs having relatively small 70+ populations. So the distribution of services within an SLA becomes important. Second, the formula distributes services to SLAs in a way that is affected by spatial settlement patterns; some SLAs, settled at particular times, have a cohort effect where a relatively large proportion can reach the planning age together. Third, the formula delivers proportionately more services to SLAs that have longer-lived populations, that is, to SLAs that have higher indicators of material resources.

An examination of these two limitations, the overall level of supply; and their distribution, requires some understanding of life expectancy calculations. Life expectancy is calculated from life tables using current age-specific death rates, that is, using the current rate of deaths per population between exact age 'x' and exact age 'x+1'.<sup>3</sup> Life expectancy, at age 'x' can be regarded as the probable mean length of

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<sup>1</sup> Australian Bureau of Statistics, *Statistical Geography Volume 1 Australian Standard Geographical Classification (ASGC)*, pp. 317, Canberra (1996).

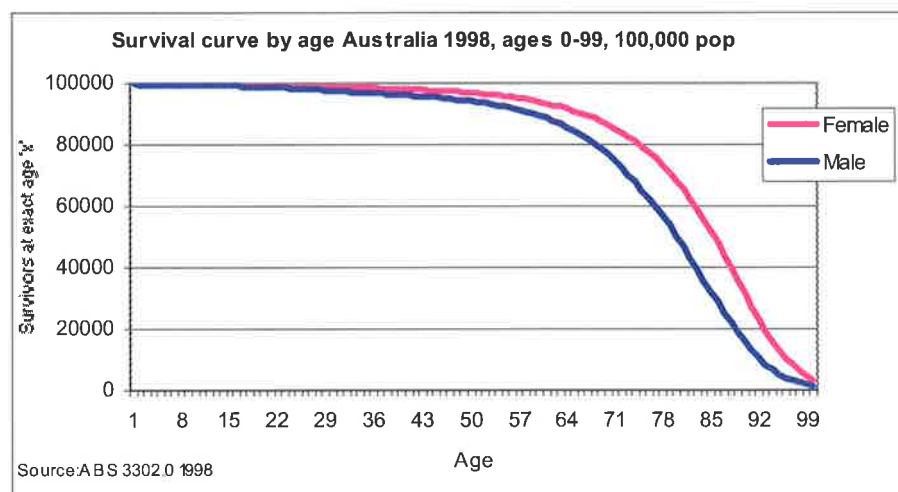
<sup>2</sup> There was a concerted effort to amalgamate local governments, which resulted in boundary changes.

<sup>3</sup> Note this is the 'current' life table method. An alternative is the cohort life table method, where the death rate experience of birth cohorts is used, see Armitage and Berry p 470 Armitage, P. and Berry, G., *Statistical Methods in Medical Research*, Third ed., p. 620, Blackwell Science Ltd, Oxford (1994).. Current life tables can also be produced for age groups and these are referred to as abridged life tables. I am using life tables produced by the Australian Bureau of Statistics.

additional life beyond age 'x' of all the people alive at age 'x' if they had the overall current population experience. Life tables are produced based on a hypothetical starting population of 100,000 persons at exact age zero, with Australian tables ceasing at age 99years.<sup>1</sup> Males and females experience markedly different age-specific death rates and so life tables are produced separately by sex. Deaths in each year reduce the population at the next age, and if plotted, produce a curve of 'survival'. Life tables are useful for comparing one population's experience with another's as they standardise for different age structures.

A visual example of the 1998 Australian lifetable, appears at Figure 45. It has a curve typical of developed countries with high survival until older ages. Death rates for males are higher than for females, particularly at younger ages, and this affects their surviving population, so that the male survival curve is always below that of the female.

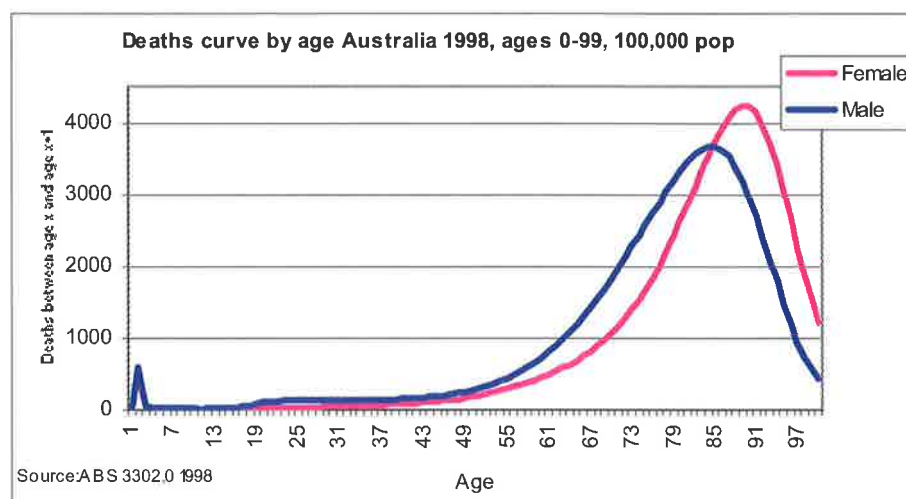
**Figure 45 Lifetable survival curves, Australia, male and female.**



In Figure 46 the same 1998 life-table information is presented as deaths by single age, rather than survivors, for these representative 100,000 populations. It can be seen that, compared with female deaths, male infant deaths are higher, there is a rise in male deaths in late teens, and age-specific deaths in older age begin to rise earlier. These circumstances combine to give males a 5-year reduction in the mean expectation of life at birth compared to females.

<sup>1</sup> There are smoothing formula applied in official tables to adjust for annual fluctuations. In Australia that has meant using three years of data to produce life tables for the middle year.

Figure 46 Lifetable deaths curves, Australia, male and female.



#### *Limitations of the benchmark formula for overall supply of aged care services*

For the overall supply of services, I will address the three limitations described above in turn. These are that the age that is used in the current aged care supply benchmark - 70 years- has, and acknowledges, little relationship to 'need'; is different to the median age at which people use the services; and describes different portions of the population over time.

First, the relationship of the formula to 'need'.<sup>1</sup> A formula that delivers more services proportionate to an increasing population size, as the current approach does, has appeal. Health services utilisation, however, is much more closely related to time until death than time from birth.<sup>2</sup> One estimate is that health service expenditure in the last year of life is 6.6 times (in the next to last year, 2.3 times) as large as for those who survived at least two years.<sup>3</sup> So aged care services would be better targeted if based on years from death than years from birth, as is now the case.<sup>4</sup>

A years from death, or mortality, approach is supported by evidence, in aged care in Australia, that the expected length of stay in residential care, Table 11, varies very

<sup>1</sup> The term 'need' is used loosely here, as objective measures of need are notoriously difficult to identify; high levels of personal care can be met by committed and skilled carers, and carer support, or lack of it, is a critical factor in admission to residential aged care, in addition to objective clinical measures of the individual.

<sup>2</sup> Fuchs, V.R., "Though Much is Taken": Reflections on Aging, Health, and Medical Care. *Milbank Memorial Fund Quarterly/Health and Society*, **62**, 143-67 (1984).  
Himsworth, R.L. and Goldacre, M.J., Does time spent in hospital in the final 15 years of life increase with age at death? A population based study. *BMJ*, **319**, 1338-1339 (1999).  
van Weel, C. and Michels, J., Dying, not old age, to blame for costs of health care. *Lancet*, **350**, 1159-60 (1997).

<sup>3</sup> Fuchs, V.R., "Though Much is Taken": Reflections on Aging, Health, and Medical Care. *Milbank Memorial Fund Quarterly/Health and Society*, **62**, 143-67 (1984).

<sup>4</sup> Note that there is a separate, economic, debate about projecting the need for health services, as distinct from an equity, or distributional debate - the topic of this paper - and the so-called 'Fuch' effect' may not be as relevant to estimations of 'need', for Commonwealth budgetary outlay purposes, as it is to the distribution of services. See, for example, Richardson, J. (1999). Ageing and the Cost of Health Services. Australian and New Zealand Health Services Research Conference, Sydney. Productivity Commission and Melbourne Institute of Applied Economic and Social Research (1999). Policy Implications of the Ageing of Australia's Population. Policy Implications of the Ageing of Australia's Population Conference.

little by age at entry.<sup>1</sup> A summary measure of expected length of stay in residential aged care, by age at admission, is relatively constant at about one year for males and two years for females. If anything, the trend is that the younger the age at entry the shorter the length of stay, up to age 90, contrary to what might intuitively be expected.<sup>2</sup> It does make sense, however, as the people being assessed for residential aged care are not well at the time of admission, regardless of their age.

**Table 11 Expected length of stay in residential care by age, compared with life expectancy at that age.**

	Age 'x'	Life expectancy at age 'x'	Expected length of stay (years) at age 'x'
Males	65	16.1	0.7
	80	7.2	0.9
	90	4.0	1.1
Females	65	19.8	1.9
	80	9.0	2.2
	90	4.6	2.1

Source: AIHW<sup>3</sup>

In this section I establish that information about the lifetable model of deaths offers a reliable surrogate indicator for the pattern, by age, of entry to residential aged care.

The aim was to gain an understanding of relationships between life expectancy and residential care use, which I am using as the expression of 'need'. I obtained data from the Department of Health and Aged Care on the current age of all persons in residential aged care in South Australia at 30 June 2000.<sup>4</sup> The age distribution of actual use of residential aged care in South Australia in June 2000 is shown in Figure 47 below. Note that few people aged exactly 70 years, the planning age, use aged care. The median age of permanent residents in South Australia is about 82 years, so using the population 70+ includes the majority of people who use aged care but the planning age itself is not a representative descriptor of that population, in a statistical sense. This has led to suggestions that raising the planning age to 80+ years would make more sense, as this would be closer to the median age at entry.<sup>5,6</sup> This idea is criticised later in this section for its distributional effects.<sup>1</sup>

<sup>1</sup> Australian Institute of Health and Welfare, *Australia's Welfare 1999: services and assistance*, Australian Institute of Health and Welfare (1999).

<sup>2</sup> While most departures will be due to death, this may be affected by transfers.

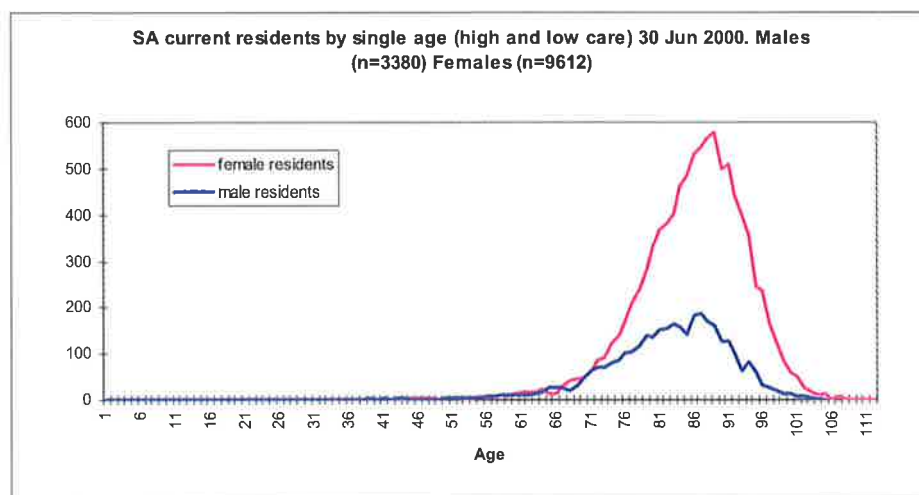
<sup>3</sup> This table is much abbreviated from the table in the publication, page 196. Australian Institute of Health and Welfare, *Australia's Welfare 1999: services and assistance*, Australian Institute of Health and Welfare (1999).

<sup>4</sup> The Department of Health and Aged Care became the Department of Health and Ageing from November 2001.

<sup>5</sup> Gibson discusses the concepts of inclusivity versus specificity of particular 'planning ages', and the trade-off between them. Gibson, D., *The changing availability of residential aged care in Australia*. *Health Policy*, 32, 211-224 (1995).

<sup>6</sup> The South Australian government made a submission to a national body to have the formula changed viz: 'The formula is based upon a target of 100 places per 1000 people aged more than 70 years, despite the fact that the average age of those

Figure 47 The distribution of females and males in aged care in South Australia by age, June 2000.



The lifetable deaths for South Australia are the product of rising age-specific death rates by age and a diminishing population by age. It is likely that these are related as life expectancy in aged care is limited, see Table 11 on page 3, and most separations are due to death. To test this, data on residents in aged care services were overlaid with deaths data, below, and are discussed separately by sex.

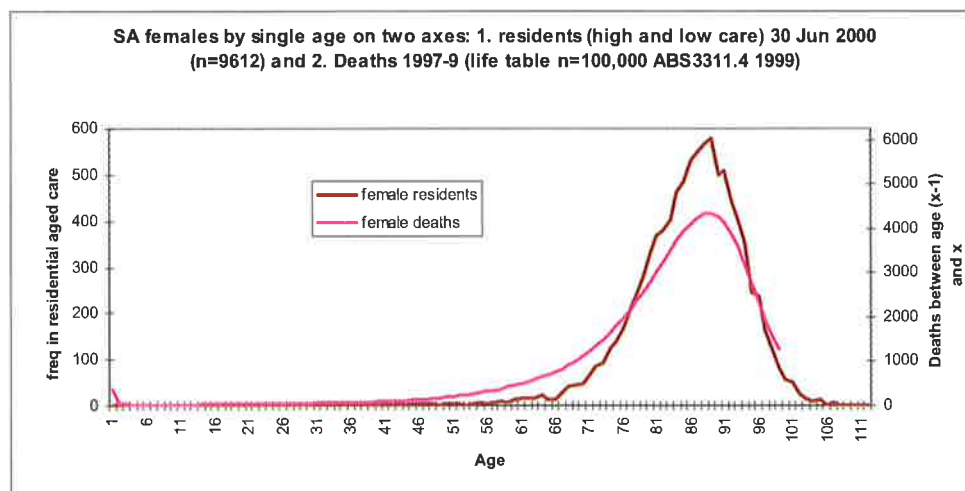
For females the data were for current residents. From Gibson, see Table 11, on page 3, the female length of stay is about two years, independent of age, so, assuming an average of one year in care for current female residents the deaths data were translated forward one year so that the number of deaths relates to the age less one year. This puts the 'deaths in two years' data roughly in line with the resident data at entry to aged care, for females. The result is plotted in Figure 48. The data are a very good visual match. At Figure 49 the scatter plot of the two sets of data is shown, with a very high proportion of the variance in aged care explained by variance in deaths data:  $r\text{-squared} = 0.968$   $p < .0001$  using linear regression on all data points and similar if data on infant deaths and residents aged above 99 are excluded.<sup>2</sup>

people currently assisted through Commonwealth-funded aged care is more than 80. It has been estimated that, for SA, use of a formula based on 80+ would see about \$2 million of critical additional resources injected into aged care. 'Productivity Commission, Review of government service provision. Report on government services 1998. 9. Aged Care Services Attachment 9A.1 Jurisdictions' comments. Vol. 2003, Commonwealth of Australia (1998).

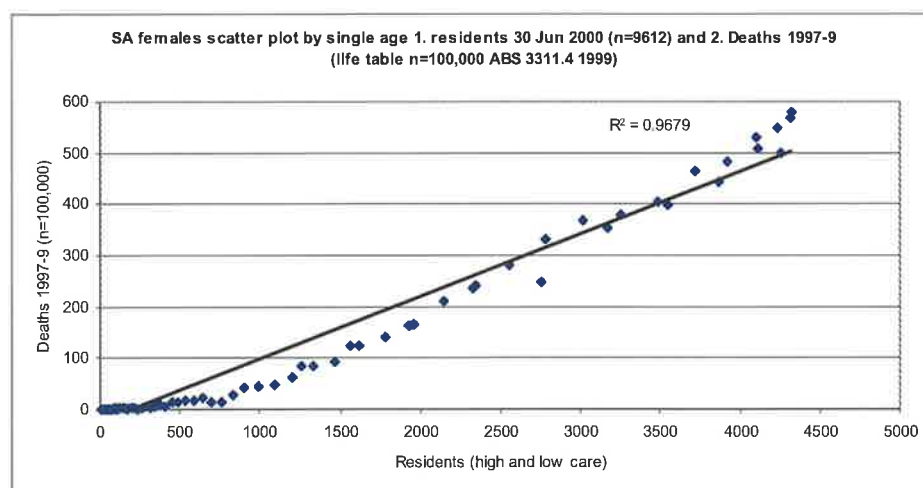
<sup>1</sup> See page 207.

<sup>2</sup> The latter as data on deaths above age 99 are missing

**Figure 48** The distribution of females in residential aged care in South Australia by age, June 2000, and deaths from South Australian lifetable.

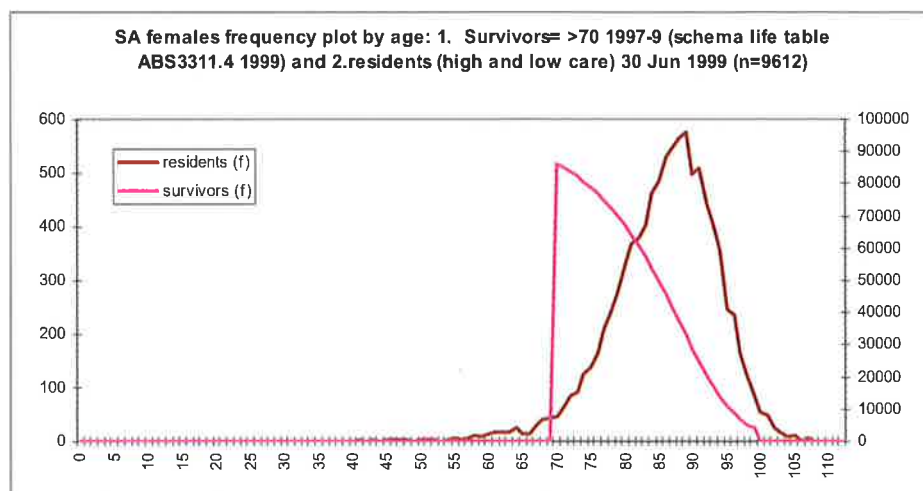


**Figure 49** Are deaths data related to aged care use two years prior: linear regression of females in residential aged care on deaths.



In order to compare a years from death approach with the current planning approach, I used the South Australian (SA) lifetable to describe the pattern of SA survivors at aged 70 or more. Given that the lifetable is based on current age-specific death rates the shape of this curve reflects the South Australian experience of survival at these ages, the actual numbers are not relevant at this stage. It can be seen from Figure 50 that the current method of counting the population aged 70 years or more is a much poorer fit than deaths data, with a much lower r-squared term; 0.352,  $p < 0.0001$ .

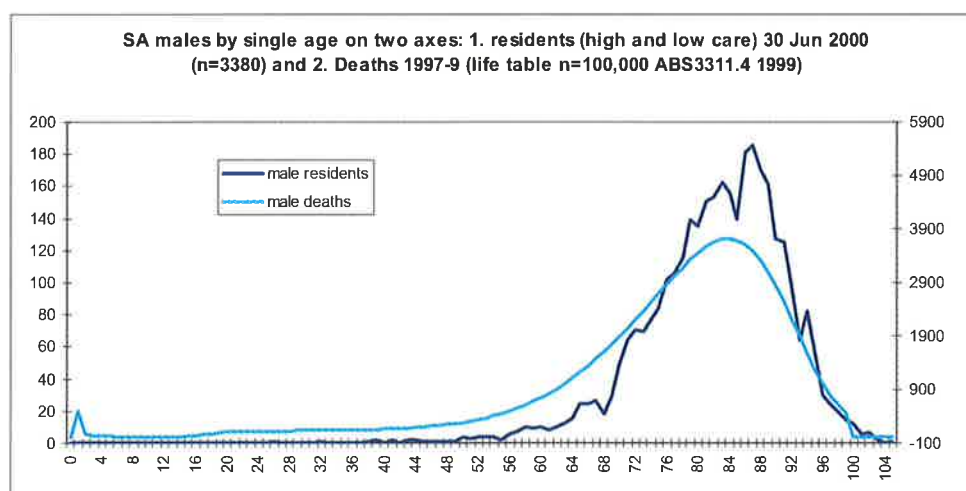
**Figure 50** The distribution of females in residential aged care in South Australia by age, June 2000, and survivors 70years or more from South Australian lifetable.



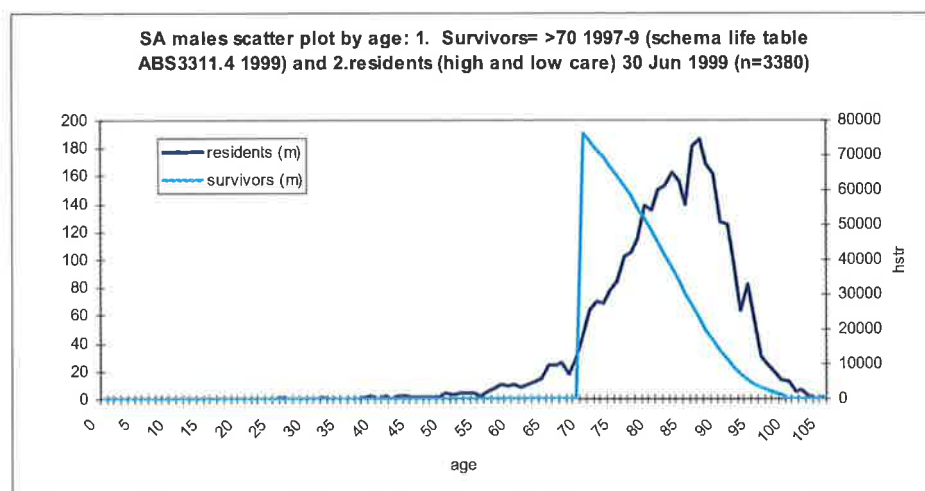
For the following two figures I repeated the exercise for data on males in residential care in South Australia, without shifting the deaths data by one year. This is because the average length of stay is only one year for males and so the current age will already be roughly 6 months older than age at entry.

Again, for males, a very high proportion of the variance in aged care explained by variance in deaths data. The r-squared value is 0.93  $p < .0001$  using linear regression on all data points and similar if data on infant deaths and residents aged above 99 are excluded. Similarly the current method of counting the population aged 70 years or more, for males, is a much poorer fit than deaths data, with a much lower r-squared term; 0.46,  $p < 0.0001$ .

**Figure 51** The distribution of males in residential aged care in South Australia by age, June 2000, and deaths from South Australian lifetable.



**Figure 52** The distribution of males in residential aged care in South Australia by age, June 2000, and survivors 70years or more from South Australian lifetable.



From this analysis it is clear that, for the overall supply of aged care services, the first two limitations, that the age used in the supply formula is not the same as the median age of the population using residential aged care and that it is a poor descriptor of that population, are confirmed. Mortality data are so strongly associated with entry to aged care that it warrants consideration as a proxy for the age-specific utilisation of residential aged care. It is tempting then to imagine that a summary statistic of deaths data, such as life expectancy at birth, or median age at death, could be used to estimate a consistent population supply *and* distribution of residential aged care in future. However, these vary over time, and this is the third limitation of the current benchmark approach, which has remained fixed over time. The effect can be illustrated by referring to a component of lifetables – the age-specific probability of death.

One of the columns in a life table is  $q_x$  – the probability of death between exact ages  $x$  and  $x+1$ . Women are a majority of users of aged care, so the following table, Table 12, presents, as a starting point,  $q_x$  for females aged 70 in 1985;  $q_x = 2.014\%$ . This is to say the probability of death in the next year for a woman aged 70 in 1985 was about 2%. This cell is shaded in yellow. The other cells, also shaded yellow, are where  $q_x = 2.014\%$ . or nearest that percentage, for males and females over time, and Aboriginal and Torres Strait Islander (A&TSI) female and A&TSI males from an experimental 1998 lifetable produced by the Australian Bureau of Statistics in 1999.

Similarly, in 1985,  $q_x = 3.846\%$  for males aged 70, and the cells shaded in blue correspond to the age in subsequent years at which that probability was nearest 3.846%.

Table 12: Probability of death ( $q_x$ ) at different ages 1985-98

	Age	1985	1990	1993-5	1996-8	1998-2000
Male	63	0.02033	0.01767	0.01729	0.01381	0.01254
	64				0.01535	0.01392
	67					0.01908
	68					0.02120
	70	0.03846	0.0339	0.03152	0.02843	0.02610
	71		0.03726			
	72			0.03787		
	73				0.03808	0.03538
74					0.03908	
Female	70	0.02014	0.01794	0.0166	0.01501	0.01389
	71		0.01998			
	72			0.1998		
	73				0.02074	0.01946
	74					0.02180
Male A&TSI 1991-6 <sup>1</sup>	43	na	na	na	0.01501	
	48				0.02086	
	53				0.02878	
Female A&TSI 91-6	48	na	na	na	0.01547	
	52				0.02057	

Source ABS deaths 3302.0 1998

The current planning formula was introduced in 1986, using 1985 data. For a female aged exactly 70 years in 1985, the risk of dying in the following year was about the same as a:

- 63 year old male in 1985,
- 71 year old female in 1990,
- 72 year old female in 1993-5,
- 73 year old female in 1996-8,
- 52 year old A&TSI female in 1991-6 and,
- 48 year old A&TSI male in 1991-6.

For a female aged 70 in 1996-8,  $q_x$  was similar for a

- 64 year old male,
- 48 year old A&TSI female and,
- 43 year old A&TSI male 91-96.

The age at which there is an equal probability of death changes over time as life expectancy in the population has increased. The implication is that planning on a 'years to death' basis would be at different ages for different populations, including the populations of men and women, and would vary over time as age-specific death rates changed. If the 'risk of death in the next year' were used to determine the age at which survivors were counted, for an aged care benchmark, that age would have

<sup>1</sup> Note that the Aboriginal and Torres Strait Islander tables are produced over a longer period due to the smaller population. They are regarded as experimental by the ABS.

increased from 70 years in 1985 to 73 in 1999. Increases in life expectancy since the current planning ratio was introduced are shown in Table 13.

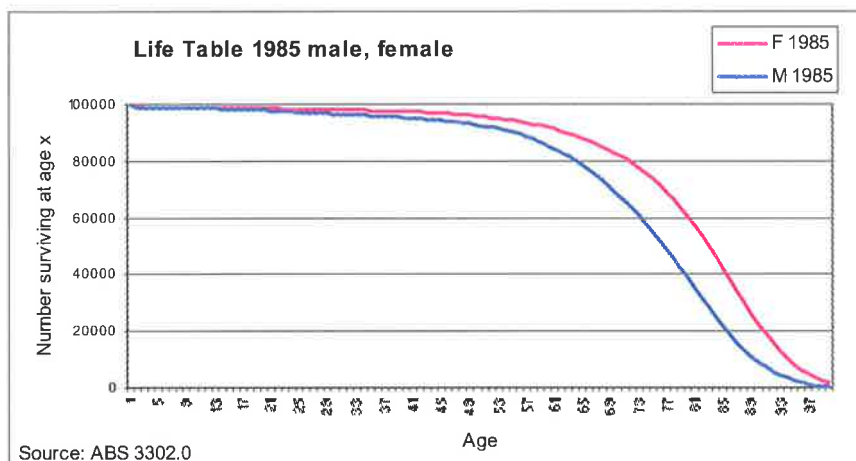
**Table 13: Expectation of life at birth and at 65 years 1985 and 1997**

Expectation of life	c1985		1996-8	
	Male	Female	Male	Female
At birth	71.2	78.2	75.86	81.52
At age 65	13.7 (78.7)	17.9 (82.9)	16.32 (81.32)	20.01(85.01)

Source: ABS 3302.0

In 13 years the expectation of life at age 65 has increased by over two years for both male and female populations, so ‘years to death’ has increased by the same amount, on a whole population basis, since the aged care planning formula was introduced. In Figure 53, and Figure 54, I show, respectively, the survival curves for males and females in 1985 and 1997. These are combined in Figure 55 to illustrate the changes over time.

**Figure 53 Lifetable survival curves, Australia, 1985, male and female.**



**Figure 54 Lifetable survival curves, Australia, 1997, male and female.**

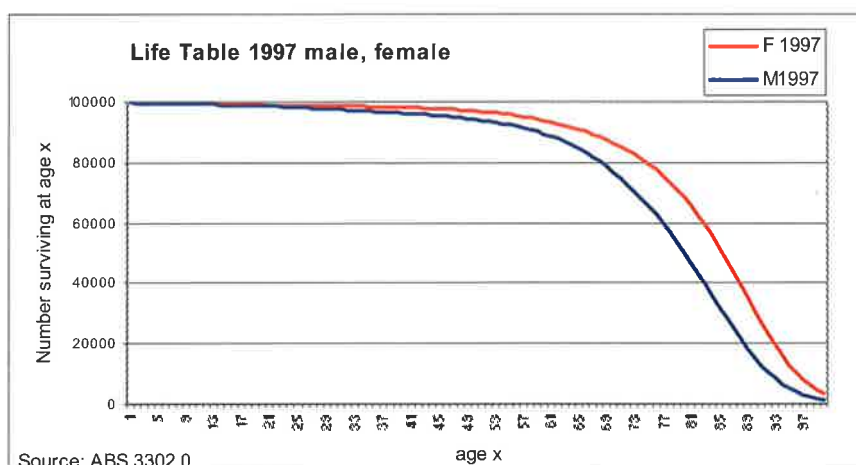


Figure 55 Life table graph, Australia, 1985 and 1997, male and female.

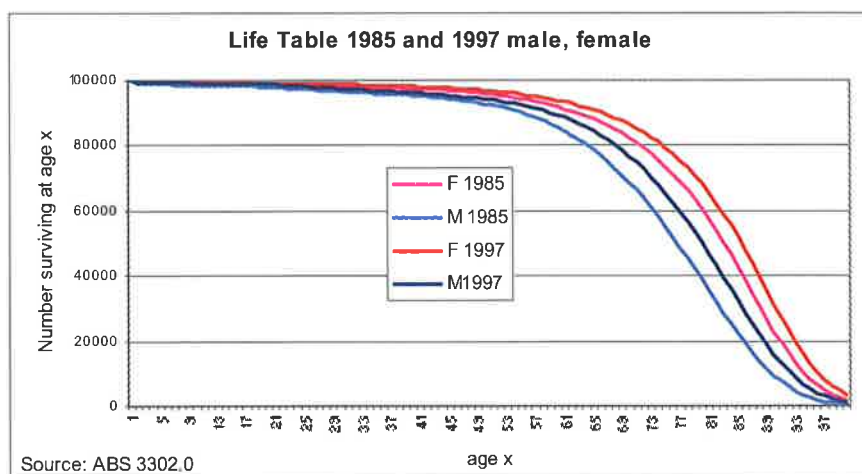
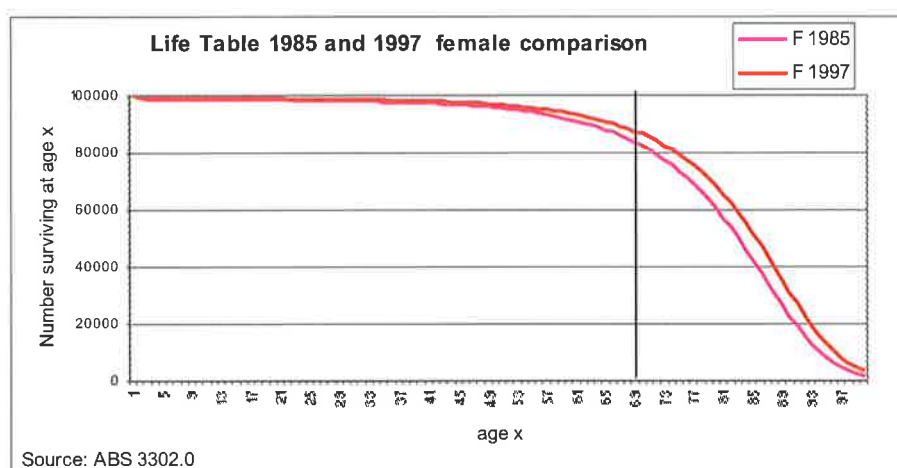


Figure 56 Lifetable survival curves, Australia, 1985 and 1997, female.



Life expectancy is increasing but the absolute period of life with a disability is either not changing or may be slightly decreasing.<sup>1,2</sup> This means that the disability-free years of life are increasing, and increasing as a proportion of life. People were not 'sicker' or more frail, for longer at the end of life, to the extent that they needed residential aged care, in 1998 than they were in 1985. It is clear, however, that the aged care planning formula delivers different proportions of the population over time, increasing as life expectancy increases. This is the third limitation of the supply part of the formula.

#### Discussion - aged care supply

The current aged care planning formula has limitations for the calculation of supply based on the known pattern of use of residential aged care and the increase in life expectancy since the introduction of the formula in 1986. Looking at the increase in

<sup>1</sup> Mathers, C.D. and Robine, J.M., International trends in health expectancies: a review. *Australasian Journal on Ageing*, 17, 51-5 (1998).

<sup>2</sup> The compression of morbidity thesis was advanced by Fries in 1989 Fries, J.F., The Compression of Morbidity: Near or Far? *The Milbank Quarterly*, 67, 208-228 (1989).

life expectancy in isolation, given the same absolute periods of frailty, at the end of life, one might imagine that Australians would be no worse off in 1999, at a given frailty level, by planning supply based on, say, a benchmark population aged 73 or more, as an increase of about three years would represent an equal probability of death compared with 1985, when the planning ratio was introduced.<sup>1</sup> Fewer places of aged care would be warranted to meet a similar level of frailty, other things remaining the same. For South Australia, for example, this would mean 3,518, fewer places, see Table 14. At the same time, however, there is increasing public demand for aged care services.<sup>2</sup>

**Table 14: The number of places in South Australia based on planning age 73+**

	<i>Persons</i>
<i>pop 70+</i>	155124
<i>pop 73+</i>	119948
<i>Diff</i>	35176
<i>places equiv to</i>	3518

Source: ABS 3311.4

Over the same period from 1985 there has also been an expansion of programs to assist older people to remain at home.<sup>3</sup> So, what is driving demand? An investigation of this topic is beyond the scope of this thesis, but two possibilities are the increasing participation over time of carers, mainly women, in the workforce, and structural ageing.<sup>4</sup> Gibson discounts the first of these, pointing out that the majority of carers are spouses and the children of people entering aged care services are themselves nearing retirement ages.<sup>5</sup> Gibson and Liu suggest instead that structural ageing has an effect.<sup>6</sup> This is to say that the need for aged care increases with age, such that the portion of the population 80+ has a higher risk of admission to aged care, and so an increasing proportion of people 80+ increases demand, equal to 'need' in this context. In an Australian Institute of Health and Welfare paper on disability and ageing this point was reiterated, suggesting a one in three chance of a person over 65 years ever needing aged care compared with a

<sup>1</sup> The difference between the equal probability of death approach and life expectancy approach, in terms of the additional years that might be added to the planning base, is that the reductions in age specific death rates have been large in older age groups. About 40% of all male and 50% of all female life expectancy gains over the past 30 years has been due to reductions in death rates of people over 65. See page 47 ABS Deaths 1998 Australian Bureau of Statistics, Deaths Australia 1998, Australian Bureau of Statistics, Canberra (1999).

<sup>2</sup> The demand for aged care places, and health services generally, is outside the scope of this work, and related to technology and supply, as well as demography, see for example Richardson, J. (1999). Ageing and the Cost of Health Services. Australian and New Zealand Health Services Research Conference, Sydney.

<sup>3</sup> The Home and Community Care program is a home care program cost-shared between Commonwealth and State Governments.

<sup>4</sup> Another possibility, even probability, is that supply itself is driving demand, see Richardson, J. (1999). Ageing and the Cost of Health Services. Australian and New Zealand Health Services Research Conference, Sydney.

<sup>5</sup> Gibson, D., Reforming aged care in Australia: change and consequence. *Journal of Social Policy*, 2, 157–79 (1996).

<sup>6</sup> Gibson, D. and Liu, Z., Planning ratios and population growth: will there be a shortfall in residential aged care by 2021? *Australian Journal on Ageing*, 14, 57– 62 (1995).

population in aged care at any one time aged 65 years being about 3%.<sup>1</sup> It was acknowledged that this conclusion was drawn from examining the existing population in residential care, and so could not be regarded as a statement about any objective measure of need.<sup>2</sup> Nevertheless, some adjustment, downward, of Gibson's analysis is required for increasing life expectancy, given a compression of morbidity of the severity that would necessitate residential aged care.

There is potentially some difficulty in accepting, conceptually, that summary statistics from deaths describe aged care use without knowing anything about the medical conditions of people going into aged care.

For example one of the prevalent medical conditions in residential care is dementia. Dementia incidence is related to age, that is, years from birth.<sup>3</sup> There may not be as strong an association of that condition with socioeconomic circumstances as there is of mortality. The prevalence of dementia in nursing homes has been estimated at 60.3%, and hostels at 28.4%.<sup>4</sup> Aged Care Assessment Team data show the most commonly recorded primary diagnosis is dementia/confusion in 22.8% of all assessments; of these 45.1% recommend nursing home admission and 22.5% recommend hostel accommodation.<sup>5,6</sup> Gibson, however, suggests that cognitive impairment rather than a diagnosis of dementia per se is more predictive.

Figure 57 shows a schematic of the 'need' for dementia services, or dementia prevalence, by age. The curve beginning at about 90% represents population survival by age (lifetable) starting at age 55 years. The curve beginning at zero, and rising with age, represents the known relationship between age and dementia diagnosis. The familiar 'top hat' shape of the numbers with dementia represents the product of those two curves, that is, the number of people, in thousands, alive with dementia, by age, out of a 100,000 birth cohort population<sup>7</sup>. The curve is roughly centred on age 82-85, the age of highest prevalence.

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<sup>1</sup> Australian Institute of Health and Welfare, Disability and ageing: Australian population patterns and implications., Australian Institute of Health and Welfare., Canberra (2000).

<sup>2</sup> Gibson's papers point to use of disability as a guide to demand, but these measures are not available at SLA level so are not feasible yet.

<sup>3</sup> This is  $\log_e(p) = -12.43(0.62) + 0.12(.008)Age$ . Ritchie, K., International comparisons of dementia-free life expectancy: a critical review of the results obtained. In: C. Mathers, J. McCallum and J.-M. Robine (eds.), *Advances in Health Expectancies*, pp. 271-279, Commonwealth of Australia, Australian Institute of Health and Welfare, Canberra (1994).

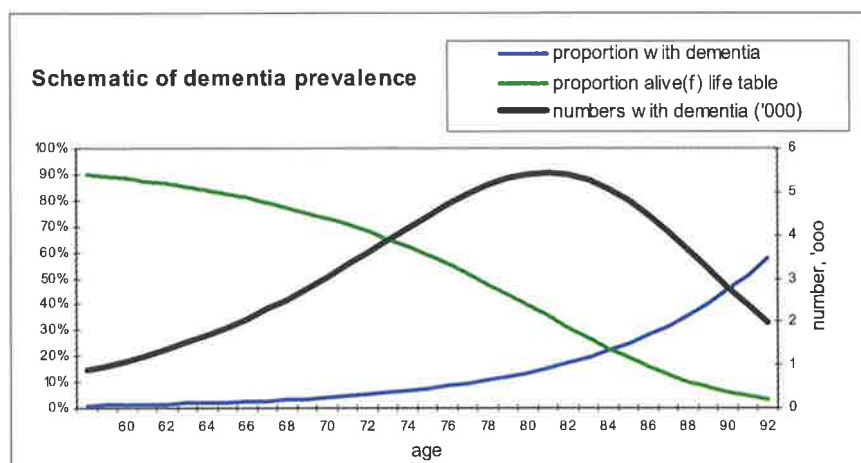
<sup>4</sup> Australian Institute of Health and Welfare, Older Australia at a glance, Australian Institute of Health and Welfare., Canberra (1999).

<sup>5</sup> Basso, P., Pretreger, L. and Christopher, H., Aged Care Assessment Program South Australia Evaluation Unit Report, pp. 60 plus appendices, State Government of South Australia Department of Human Services, Adelaide (1999).

<sup>6</sup> Basso et al page 17

<sup>7</sup> That is, given successive cohorts of 100,000 live births at current age specific death rates.

Figure 57: Schematic of dementia numbers, female in a 100,000 population



Source: Based on Ritchie, ABS life tables.<sup>1</sup>

However, life expectancy with dementia, beyond age 65, for both sexes is 1 year at all ages, so the condition is feeding in to lifetables via age-specific death rates.<sup>1</sup> A variety of factors point to using information on mortality for the supply and distribution of aged care services.

This thesis is concerned with the social gradient in health and the relevance of the preceding discussion on the supply of aged care services will become clear in an analysis of the second set of limitations of the current planning formula – the distributive effects.

#### *Limitations of the benchmark formula for the distribution of aged care services*

There are three distributional issues with the benchmark formula. The distribution within Statistical Local Areas (SLAs) is important for equity of access, but not the main focus of this section. Second, spatial settlement patterns in South Australia mean that some SLAs, which were settled at particular times, have a cohort effect where a relatively large proportion can reach the planning age, 70 years, together. As Australia's population expanded, particularly over the last fifty years, with post World War II migration, new housing areas were established from greenfields. If, for example, most people settled in an area in 1955, when they were 25, they will turn 70 together in 2000 and be counted for planning purposes, while not needing services, on average, for say another ten years. By proposing a different distributional method based on life expectancy, which standardises for population structure, this limitation may be overcome and so very little attention will be paid to settlement patterns.

<sup>1</sup> Ritchie, K., International comparisons of dementia-free life expectancy: a critical review of the results obtained. In: C. Mathers, J. McCallum and J.-M. Robine (eds.), *Advances in Health Expectancies*, pp. 271-279, Commonwealth of Australia, Australian Institute of Health and Welfare, Canberra (1994).

The third distributional limitation is the subject of the following section; the current formula delivers proportionately more services to SLAs that have longer-lived populations, that is, to SLAs that have higher indicators of material resources.

Life expectancy is related to material circumstances, and, if there is substantial spatial segregation by measures of material circumstances then life expectancy will vary spatially, or geographically. In Australia, and South Australia a series of social atlases illustrate a variation of health outcome by area, along with the spatial distribution of material and other resources, in the expected pattern – the higher the material indicators the better the health indicators, including mortality.<sup>2</sup>

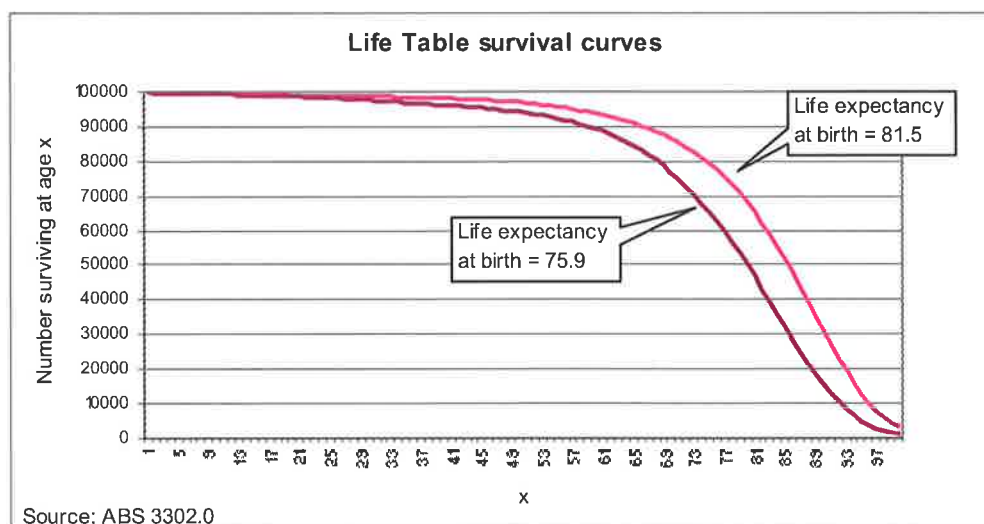
If one area has lower life expectancy than another then its population will experience the last two years of life at a lower age; the survivors above a given age will be fewer. So a funding formula based on a particular age, say 70 years, will deliver greater resources to areas that have a higher survival, other things, such as age structure, being equal. For example, take two areas A and B with about a five-and-a-half year difference in life expectancy; 81.5 and 75.9 years respectively. Typical survival curves for the two areas are shown at Figure 7. If the populations required care in the last two years of life, then on average, population A would need care from 79.5 to 81.5 years and population B 74 to 76 years, with similar numbers of people requiring care. The population aged between 81 and 82 in Area A would be 62285 and between 79 and 80 in area B 62545. However, under the present benchmark formula of 100/1000 70+, the difference in the surviving population at age seventy is  $85238 - 74697 = 10541$ . Under the benchmark formula for aged care the Commonwealth would supply 8524 places in area A compared to 7470 in area B, a difference of 1054 places.

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<sup>1</sup> *ibid*

<sup>2</sup> Glover, J., Shand, M., Forster, C. and Woollacott, A *Social Health Atlas of South Australia*, Second ed., p. 440, SA Health Commission, Adelaide (1996).  
Glover, J. and Tennant, S., *A Social Health Atlas of Australia*, 2nd ed., p. 400, Commonwealth of Australia, Public Health Information Development Unit., Adelaide (1999).  
Glover, J. and Tennant, S., *A Social Health Atlas of Australia*, 2nd ed., p. 411, Commonwealth of Australia, Public Health Information Development Unit., Adelaide (1999).

Figure 58 Survival curves for two populations whose life expectancy is about 5 years different.



There are eleven South Australian planning regions, four metropolitan and seven non-metropolitan, used by the Commonwealth Department of Health and Ageing. The four metropolitan regions are, conveniently, North, South, East, and West. The consistent overall pattern is that the East region experiences the best health and socioeconomic circumstances, with the North the poorest, and West and South in-between.<sup>1</sup> Life expectancy is therefore expected to reflect these general patterns. However regional and SLA life tables are not currently produced by the Australian Bureau of Statistics.<sup>2</sup> An indication of what regional life tables might reveal, in terms of the variability of regional life expectancy, is given by some research in the Australian State of Victoria; a page extracted from the publication, which is available on the internet, is at Figure 59.<sup>3,4</sup> This shows the expected regional variation in life expectancy, in this case for males, by local government area. It also shows clustering of LGAs that higher and lower than the state figure, particularly in the metropolitan area.

<sup>1</sup> Glover, J. and Woollacott, T., *A Social Health Atlas of Australia*, p. 320, Commonwealth of Australia, Adelaide (1992).

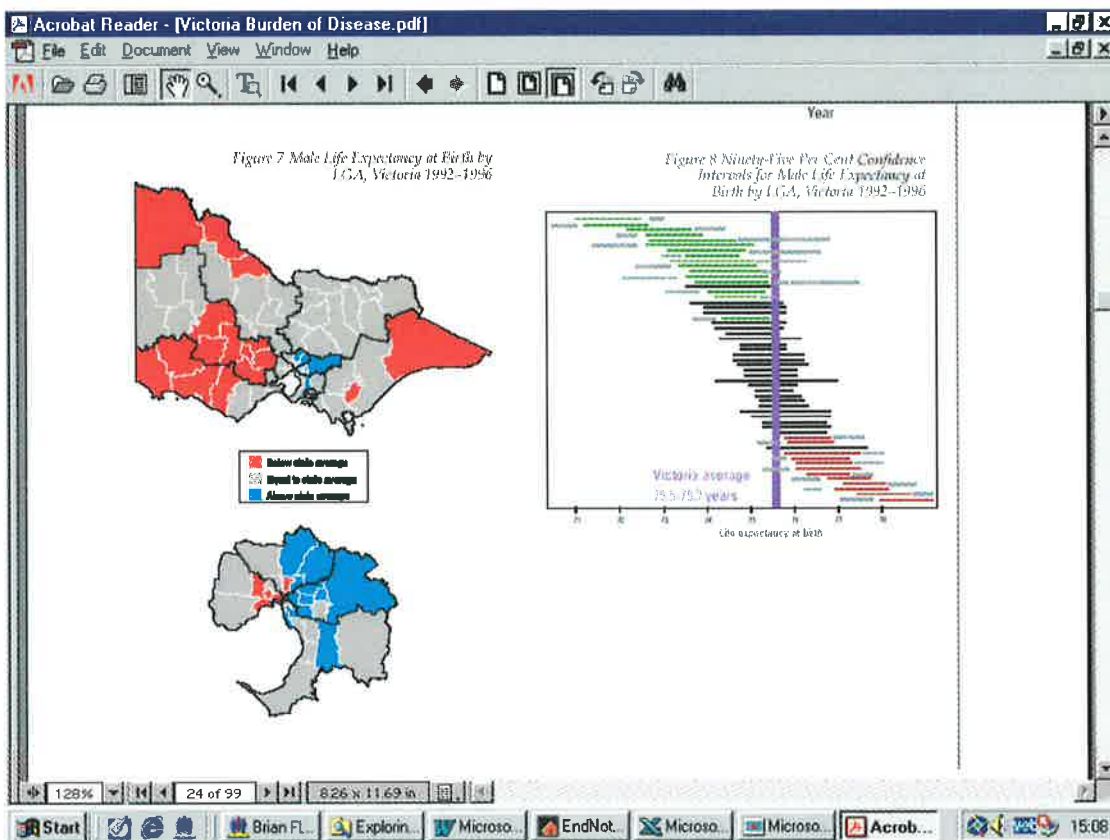
<sup>2</sup> Regional life expectancy tables were not available at the time this work was undertaken. A paper based on this thesis was published in 2001 – see Fleming, B. (2001). Targeting Aged Care to People who are Financially or Socially Disadvantaged: Policy Evaluation Study About The Social Gradient in Health of Older South Australians. Competing Visions: Refereed Proceedings of the National Social Policy Conference 2001, SPRC Report 1/02. T. Eardley and B. Bradbury. Sydney, Social Policy Research Centre, University of New South Wales: 155-179.

In December 2002 the Australian Bureau of Statistics released life expectancy tables for statistical areas see Australian Bureau of Statistics Demography series for Australian jurisdictions 3311.x. See appendix 2 on page 216 for a discussion of the impact of these data on this research.

<sup>3</sup> Victoria Burden of Disease Study. <http://www.dhs.vic.gov.au/phb/9903009/9903009.pdf>

<sup>4</sup> This was the case at the time that this research was undertaken, see footnote 2 on page 196.

Figure 59 An Australian example of life expectancy by local area.



In order to demonstrate how a method based on years to death would work, I have used median age at death by SLA as a proxy measure for life expectancy.<sup>1</sup> The median age at death is similar to life expectancy at birth in most jurisdictions of Australia but does not adjust for age structure, see Table 15. For example, younger age structures in the Northern Territory and the ACT affect the size of the difference between life expectancy and median age at death.<sup>2</sup>

<sup>1</sup> The 'median age' statistic does not standardise for the population structure, as life expectancy does, and so will deliver a younger age where there is a younger age structure.

<sup>2</sup> The Northern Territory has a younger population and a relatively large indigenous population, which has high standardised-mortality (2.2 for males and 1.5 females in 1997-8). The Australian Capital Territory, the home of the national government, has a healthy, educated and young worker-in-migration effect.

**Table 15 Compare median age at death with expectation of life at birth, Australian jurisdictions.**

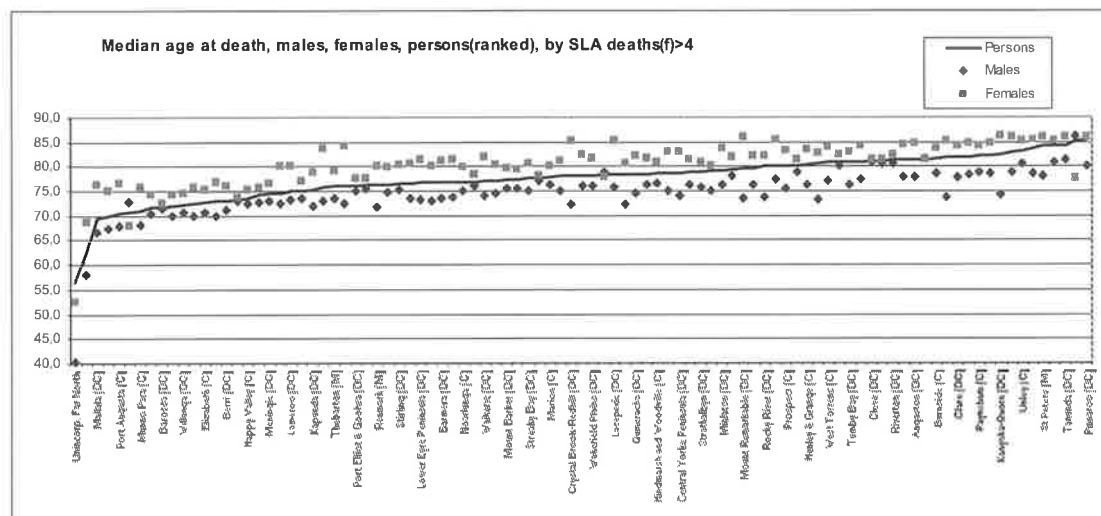
	Median age death		$e_0^{96/8}$		delta (LE-median)	
	Males	Females	Male	Female	Male	Female
NSW	74.4	81	75.8	81.6	1.4	0.6
Vic	74.8	81.6	76.3	81.7	1.5	0.1
Qld	73.7	80.3	75.6	81.5	1.9	1.2
SA	75.3	81.7	76	81.6	0.7	-0.1
WA	73.6	80.8	76.1	81.9	2.5	1.1
Tas	75.1	80.5	75.1	80.4	0.0	-0.1
NT	53.7	57.7	70.6	75	16.9	17.3
ACT	72.6	78.8	77.5	81.6	4.9	2.8
Aust	74.3	81	75.9	81.5	1.6	0.5

Source: ABS 3302.0 1998 Table 1.1 p12

The Australian Bureau of Statistics (ABS) supplied data on the average annual number of female deaths, male deaths, male, female and person median age at death by SLA for the years 1997-9. A wider range of years was not readily obtainable due to boundary changes. Aggregates of those SLAs, however were in current use in planning aged care through 1999. Only SLAs with more than an average of 5 female deaths per year were used in the subsequent analysis.<sup>1</sup>

A scatter plot of median age by Statistical Local Area for South Australia, 1997-9 appears at Figure 60.

**Figure 60 Median age at death, males, females, persons (ranked), by SLA.**



In Table 16 below I have set out some basic features of the data. The full table appears in an appendix to this chapter, page 3.

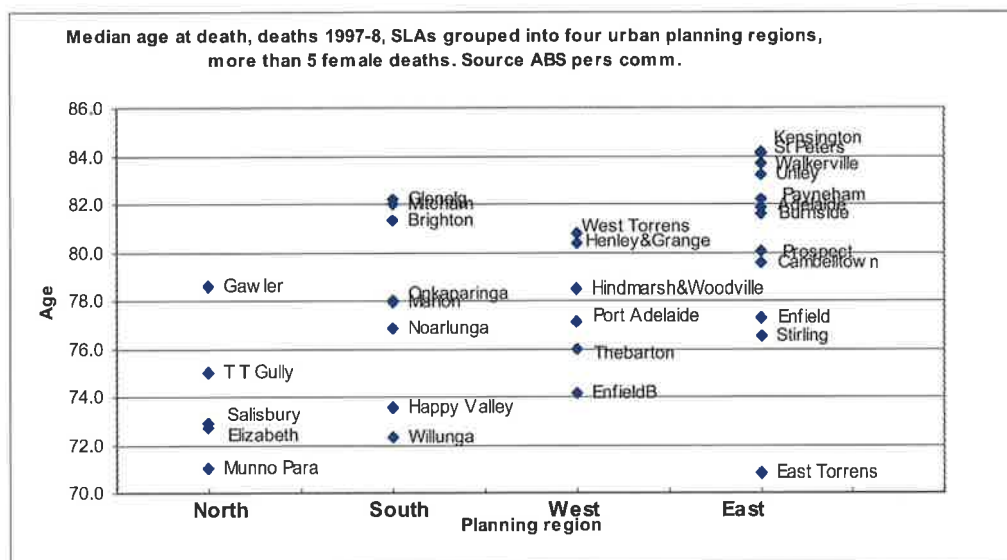
<sup>1</sup> The decision to use five deaths was based on discussion with ABS. Five female deaths was chosen as the population in aged care is mainly female and it is a more conservative approach as male deaths usually exceed female deaths.

**Table 16 Median age at death data- selected features**

SLA	Avg ann male deaths	Avg ann female deaths	Median age death male	Median age death female	Median age death persons
Lowest median age at death persons	18	5.5	40.2	52.5	56.6
Highest	6	8	80.0	86.0	85.3
With most (male and female deaths)	478.5	404.5	76.5	80.8	78.5
With largest population (111,910)	287	226.5	70.0	76.8	72.9

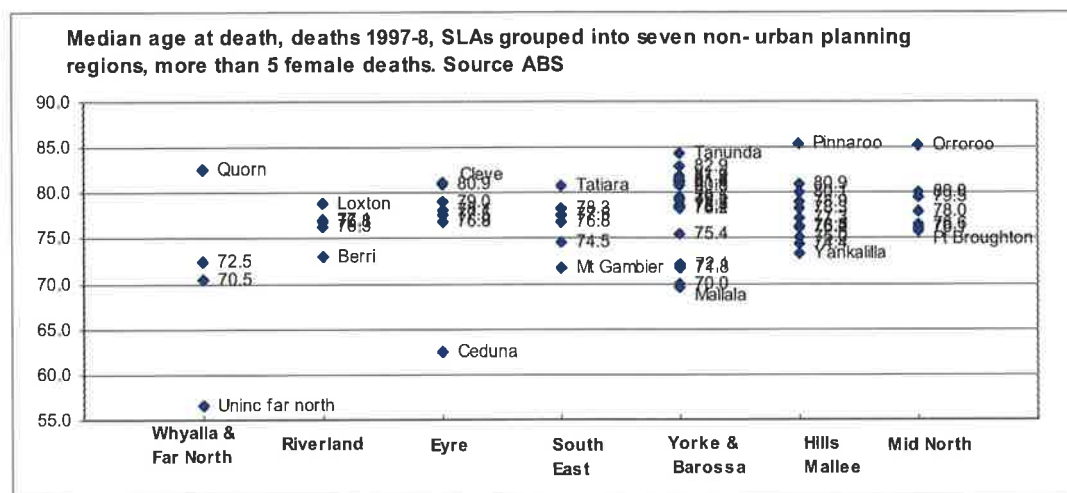
When separated into the planning regions used by the Commonwealth the metropolitan regions show the expected relationship with Metropolitan East showing the highest group of median ages and Metropolitan North the lowest, see Figure 61.

**Figure 61 Median age at death, persons, metropolitan areas (SLAs) grouped into Commonwealth planning regions**



The non-metropolitan data are graphed at Figure 62.

Figure 62 Median age at death, persons, non-metropolitan areas (SLAs) grouped into Commonwealth planning regions



In order to arrive at a representative median age at death by region I treated the medians as means and population-weighted each median to arrive at the ‘medians’ in Table 17. This is mathematically wrong, of course. However, while it would be a relatively straightforward exercise for the ABS to make the median age at death calculations, by particular regions, based on the original deaths data, it is expensive for an individual to obtain these data, and not warranted as the exercise is illustrative. The result, nevertheless, is consistent with other spatial information and indicates clearly a range of median age at death, by locality, for both metropolitan Adelaide and the rest of South Australia.

Table 17 Median age at death, persons, South Australian areas (SLAs) grouped into Commonwealth planning regions

South Australian Region		Median age at death (yrs)
Whyalla and Far North	Non-metropolitan planning regions	70.3
Riverland		76.3
Eyre		76.4
South East		76.6
Yorke Lwr North & Barossa		77.4
Hills Mallee		77.4
Mid North		77.8
North	Metropolitan regions	73.7
South		78.0
West		78.4
East		80.3

The analysis of deaths data and residents by age suggests that one distributional possibility would be to count the number of deaths and use the subsequent proportions by planning area to distribute aged care. Note that the very strong correlation, between deaths data and resident data, is for these two sets to move

together by age, see Figure 48 and Figure 51 on pages 3 and 3 respectively. At SLA level, deaths are quite small in number, and, while adequate to determine median age at death, are too unstable by single year to discriminate well between SLAs for planning purposes. A surviving population measure is more stable. What is needed is a distribution that matches the residential aged care residents' age profile by SLA. The curve of survival above the (SLA) life expectancy age is the same shape as the last half of the curve of residents in aged care. If that last part of the survival curve, by SLA, were mirrored about the vertical from the life expectancy age, the resulting distribution would more closely match the residential distribution. This would have the effect of doubling the population survival count at a given age. Since the resulting count is to be used relatively, as it is distributional, the effect of doubling the count and allocating proportions is the same as counting the original half and allocating proportions.

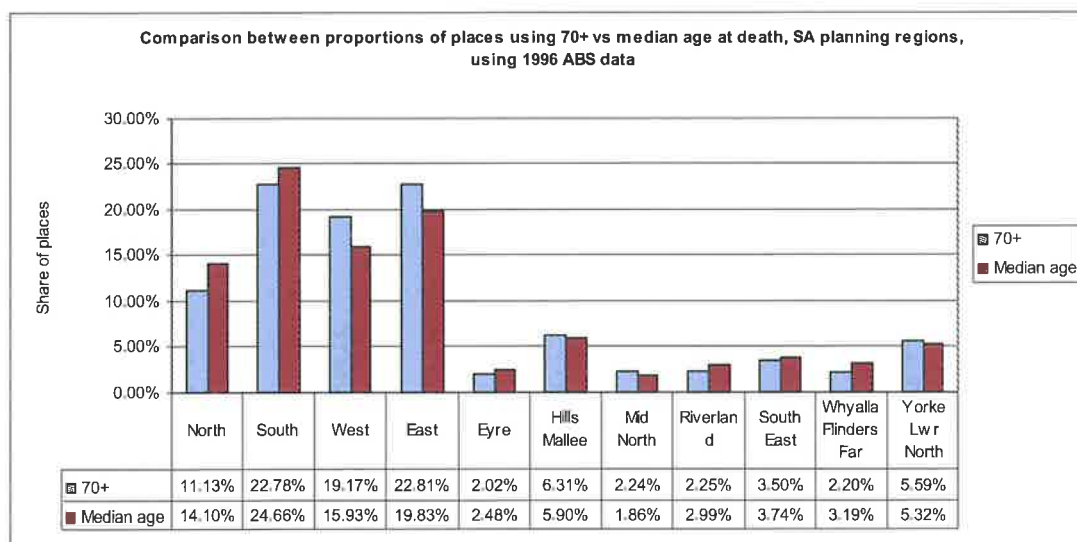
The method is illustrated in Figure 63. Take the region from the top row and the median age at death from the corresponding column in the second row. The survivor population greater than or equal to the median age at death is read from the bottom of the table.

The existing process reads the population of each region from the 70+ survivor row. So, for the northern metropolitan region the median age at death is 74 and the corresponding population 74 years and older is 9845, shown shaded in red. A comparison of the proportion of places allocated to different regions using the 70+ population versus the median age + is shown at Figure 64, and the proportion of places that would 'move' is about 15%, or, given say 13,000 total places in South Australia, about 2,000, summarised in Table 18.

Figure 63 Determining the population by using an equal probability of death approach.

Planning region	North	South	West	East	Eyre	Hills Mallee	Mid North	Riverland	South East	Whyalla Flinders Far North	Yorke Lwr North Barossa	Totals
Med age at death - persons = 'X'	74	78	78	80	76	77	78	76	77	70	77	
Population 'X' +	9845	13438	11030	12141	1521	4065	1302	1603	2292	3043	3684	63964
Region share of total based on 70+ pop	11.13%	22.78%	19.17%	22.81%	2.02%	6.31%	2.24%	2.25%	3.50%	2.20%	5.59%	1
Region share based on median age "X" +	15.39%	21.01%	17.24%	18.98%	2.38%	6.36%	2.04%	2.51%	3.58%	4.76%	5.76%	1
abs (med -70+)	4.26%	1.77%	1.93%	3.83%	0.35%	0.04%	0.20%	0.26%	0.08%	2.56%	0.17%	0.154686133
Population 65 +	24099	44037	36962	42721	4133	12711	4586	4610	7129	4881	11274	
66+	22208	41648	34927	40544	3842	11917	4277	4321	6658	4447	10534	
67+	20367	39199	32988	38290	3559	11085	3987	4032	6156	4099	9814	
68+	18671	36704	30899	36058	3298	10302	3686	3703	5710	3696	9110	
69+	17009	34134	28756	33886	3070	9524	3377	3410	5277	3362	8393	
70+	15410	31541	26547	31591	2802	8738	3101	3113	4850	3362	7734	138470
71+	13887	29014	24294	29256	2573	7964	2824	2839	4422	2736	7020	
72+	12490	26566	22197	27096	2335	7220	2589	2612	4029	2469	6390	
73+	11128	24177	20038	24865	2122	6518	2315	2349	3657	2219	5841	
74+	9845	21734	18011	22703	1911	5874	2080	2078	3271	1954	5233	
75+	8631	19376	16033	20630	1727	5215	1870	1833	2943	1743	4704	
76+	7453	17095	14051	18591	1521	4645	1639	1603	2596	1520	4166	
77+	6341	15097	12319	16731	1370	3205	1452	1432	2272	1339	3256	
78+	5594	12438	11030	15198	1194	3611	1302	1266	2029	1186	3256	
79+	4876	11792	9754	13660	1052	3153	1140	1113	1778	1033	2866	
80+	4239	10223	8543	12141	916	2755	992	972	1548	861	2469	

Figure 64 Comparison of the proportion of aged care services by region using median age at death(+) versus 70 years from birth(+).



**Table 18 The change in service distribution using median age at death.**

	Pop 70+ (%)	Median age (%)	Change (%)	Absolute change (%)
North	11.13	14.10	2.97	2.97
South	22.78	24.66	1.88	1.88
West	19.17	15.93	-3.24	3.24
East	22.81	19.83	-2.98	2.98
Eyre	2.02	2.48	0.46	0.46
Hills Mallee	6.31	5.90	-0.41	0.41
Mid North	2.24	1.86	-0.38	0.38
Riverland	2.25	2.99	0.74	0.74
South East	3.50	3.74	0.24	0.24
Whyalla Flinders Far North	2.20	3.19	0.99	0.99
Yorke Lwr North Barossa	5.59	5.32	-0.27	0.27
	100.00%		0.00	14.56

The results are consistent with what one would expect from a distribution of services based on life expectancy given the spatial segregation of South Australia shown in social atlases.<sup>1</sup> The North Metropolitan region 'share' of a given resource would rise, as the last two years of life would be experienced at a younger age. The demonstration has been with median age, as a proxy for life expectancy, and so would distribute relatively more services to structurally younger populations. A more sophisticated approach could be envisaged by calculating male and female provision separately, based on a one- year expected residence for males and two years for females, see Table 11 on page 3.

It should be noted that, in South Australia, based on the planning benchmark of 100 aged care places per '000 persons 70+, there is a large 'oversupply', against the benchmark, of places in the Metropolitan East region, and an 'undersupply' in Metropolitan North region - a residential aged care variant of the inverse care law.<sup>2,1</sup> Life expectancy, if calculated by region, or by Statistical Local Area (SLA), uses deaths data and it is known that the calculation is affected by the recorded 'usual residence' at death. So, if people from poorer regions, who are likely to die younger, are unable to receive care, in the last two years of life, in their home region and move to the East, to gain access to the high supply, the life expectancy of the East will reduce as a result, understating the differences were the residents able to receive residential care in their home region. So the method, if anything, will

<sup>1</sup> Glover, J., Shand, M., Forster, C. and Woollacott, A *Social Health Atlas of South Australia*, Second ed., p. 440, SA Health Commission, Adelaide (1996)., Glover, J. and Tennant, S., *A Social Health Atlas of Australia*, 2nd ed., p. 411, Commonwealth of Australia, Public Health Information Development Unit., Adelaide (1999).

<sup>2</sup> 'The availability of good medical care tends to vary inversely with the need for it in the population served... This ... operates more completely where medical care is most exposed to market forces, and less so where such exposure is reduced.' Hart, J.T., Commentary: Three decades of the inverse care law. *BMJ*, **320**, 18-19 (2000)., Hart, J.T., The inverse care law. *Lancet*, i, 405-412 (1971).

underestimate the size of the redistribution required, both for median age at death and life expectancy.

*The expectation of a social gradient in residential aged care use is confirmed by data on actual use of residential aged care*

In the next section the theory, that there will be spatial differences in the age at which populations use aged care services, consistent with mortality experience, is confirmed in two ways: one is that potential residents are assessed at different ages by region; another is that the actual use of residential aged care shows a variation of age by region.

Assessment for entry to aged care is carried out independent of services by an Aged Care Assessment Team (ACAT) in each planning region. The ACAT evaluation team report shows a picture of assessments at higher ages in the east compared with other regions.<sup>2</sup>

**Table 19: ACAT client age by team(s) 1998**

<i>ACAT team(s)</i>	<i>median</i>	<i>mean</i>
Northern	82	80.4
Western	82	80.6
Southern	83	81.8
Eastern	83	82.1
All Metro	83	81.2
All Country	82	81.4

Source ACAT Evaluation Unit Report Jan-Jun 1998.

While the variation in age is small, it should be noted that ACATs assess for more than residential aged care and the variation in age at assessment is consistent, for example, with higher life expectancy in the East<sup>3</sup>. The median age is higher than the mean age in each case indicating some skewness in assessment age in the distribution.

For residential aged care, data were obtained from the Department for Health and Aged Care on the age at entry to residential aged care. A potential confounder is, as noted on page 3, that there is high residential aged care supply in the Metropolitan East region and low supply in the Metropolitan North region, against the 70+ population benchmark. This means that the age of existing residents, in situ, will not truly reveal any pattern in the predicted direction, to the extent that younger residents move from North to East to gain services. Accordingly, cross-sectional

<sup>1</sup> A 'Supply Table' produced by the South Australian Office of the Department of Health and Aged Care, as at June 2001, is included at Appendix . The differences in the regional operational ratios are evidence of the uneven distribution of supply between the regions.

<sup>2</sup> See the period January to June 1998 page 22 Basso, P., Pretreger, L. and Christopher, H., Aged Care Assessment Program South Australia Evaluation Unit Report, pp. 60 plus appendices, State Government of South Australia Department of Human Services, Adelaide (1999).

<sup>3</sup> A caution must be noted that this is assessment of eligibility for, not the same as admission to aged care.

data was extracted on residents in permanent residential aged care at 31 December 2000 and divided into regions based on the address recorded when the aged care assessment had been made. The address comes from the assessment form, 'the 2624', which asks for 'preferred contact address' and it is possible that a proportion of these will have the address of a friend or relative not in the same home region as the resident; this is a limitation of the data collection. The results are shown in Table 20 by sex, separately for metropolitan and non-metropolitan regions and ranked by female mean age, females being the main users of residential aged care.

**Table 20 Age at admission by region: SA residents.**

*Residents in permanent care in SA on 31/12/2000 by preferred contact address.  
Age at date of admission.  
Ranked by female mean age.*

<i>Metro</i>	<i>Female</i>		<i>Male</i>	
	<i>Mean Age</i>	<i>Median Age</i>	<i>Mean Age</i>	<i>Median Age</i>
<i>MetroNorth</i>	83.6	84	80.3	81
<i>MetroWest</i>	84.7	86	81.5	82
<i>MetroSouth</i>	85.3	86	82.3	83
<i>MetroEast</i>	85.4	87	81.5	83
<i>Non-Metro</i>				
<i>WhyallaFlindersFarNorth</i>	81.4	83	78.8	80
<i>Riverland</i>	84.3	85	82.1	84
<i>SouthEast</i>	84.4	85	82.0	83
<i>MidNorth</i>	84.6	86	79.5	82
<i>YorkeLwrNthBarossa</i>	84.7	86	81.1	82
<i>HillsMalleeSouthern</i>	85.0	86	81.0	82
<i>Eyre</i>	87.4	88	80.3	81

The range of mean ages is notable. For comparison, a two-year difference in life expectancy is the estimated impact of eliminating all cancer, a major cause of death recorded in Australia. So a difference in mean age between regions of about two years is substantial.

The use of contact address is unlikely to have an impact. There would have to be younger aged care residents from higher socioeconomic areas systematically giving lower socioeconomic area contact addresses, and/or older people from lower socioeconomic areas systematically giving higher socioeconomic area contact addresses, for the result to be in doubt. This may happen if the individual circumstances of the person were not that of the area, the ecological fallacy, in which case the underlying association with socioeconomic circumstances would, ironically, be confirmed. It seems more likely that the impact would be to attenuate the real differences by younger people from lower socioeconomic areas giving a higher socioeconomic area as, say, the child's address. A possible alternative explanation could be that female residents entry is dependent on the absence of

spouse support. In couples males tend to be older but die at a younger age. So males tend to receive support from spouses and spend a shorter time in residential care, suggesting they are more frail at entry. Females also tend to enter residential care more if they live alone. So regional, socioeconomically-related differences in spouse support may be an area for future research.

The ranking by age of the regions, for median age at death, from Table 17 on page 3, and mean age at entry by contact address, from Table 20 on page 3, is similar, with an outlier of Eyre region, see Table 21 below. The median age at death of persons in Eyre is affected by the size of the indigenous population relative to the non-indigenous population, with indigenous deaths at younger ages. The residential aged care data are from non-indigenous providers obtained via the payments system for standard, aged care services. Data were not obtained on the ages of people in indigenous aged care programs in the Eyre region, which have a different funding mechanism, where age is not recorded. With Eyre excluded, the association between the rank of the planning region based on median age at death (persons) and the rank of the region based on the mean female age at entry to aged care is significant<sup>1</sup>. With Eyre included the rank correlation two tailed  $p = 0.117$ , and with Eyre excluded  $p = 0.009$ .<sup>1</sup>

**Table 21 The ranking of regions by median age at death (persons) compared with age of female residents**

*Ranking of regions by a) median age at death (persons) and b) age of female residents at entry by contact address*

	<i>Including Eyre</i>		<i>Excluding Eyre</i>	
	<i>Rank a</i>	<i>Rank b</i>	<i>Rank a</i>	<i>Rank b</i>
<i>Whyalla Flinders Far North</i>	1	1	1	1
<i>North</i>	2	2	2	2
<i>Eyre</i>	3	11		
<i>Riverland</i>	4	3	3	3
<i>Hills Mallee</i>	5	8	4	8
<i>South East</i>	6	4	5	4
<i>Yorke Lwr North Barossa</i>	7	6	6	6
<i>South</i>	8	9	7	9
<i>West</i>	9	7	8	7
<i>Mid North</i>	10	5	9	5
<i>East</i>	11	10	10	10

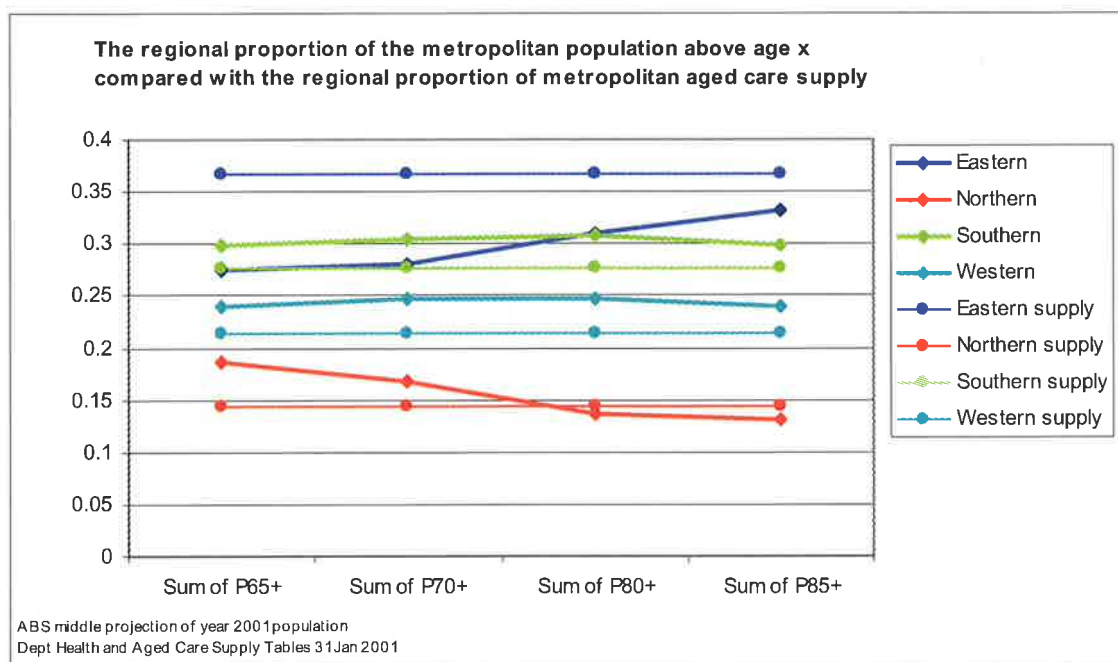
### Discussion – the distribution of aged care places

The fact that use of aged care services increases with age has contributed to calls for the 80+ population to be used as a better indicator of need. However, as has been demonstrated, age-based formulae deliver a higher proportion of services to

<sup>1</sup> Note that the deaths data was for persons as it is intended to use general population data as the planning tool. The age at entry is for females, the main users of aged care.

longer lived populations, that is, to higher socioeconomic areas. The higher the age the greater that distribution. To illustrate this effect, consider the following graph, Figure 65. It shows the proportion of the metropolitan population above a particular age, by region, against the proportion of the existing metropolitan aged care supply by region. The large movements in share by age are in the North and East. The North share of population declines as the age increases, and the East share rises. This is expected given lower life expectancy in the North; the higher the age the fewer survivors. The aged care supply stays as horizontal lines by age. The gap between the two lines is regarded as the 'need' – at a given age it is the population share minus supply share. At lower ages the East supply substantially exceeds population but this narrows as the age increases. In the North, supply is below population at age 70+ but not at age 80+. A planning benchmark age of 80+ would see the current distribution of supply as being appropriate, perversely, because there would be fewer survivors in the North<sup>2</sup>. The major points from the graph are that the volatility of age based planning makes age a poor indicator of 'need', and a poor distributor.

Figure 65 The proportion of regional population by age.



The current planning method, based on years from birth, also distributes services to areas that were settled at particular times. As Australia's population expanded, particularly over the last fifty years, with post World War II migration, new housing areas were established from greenfields. If, for example, most people settled in an

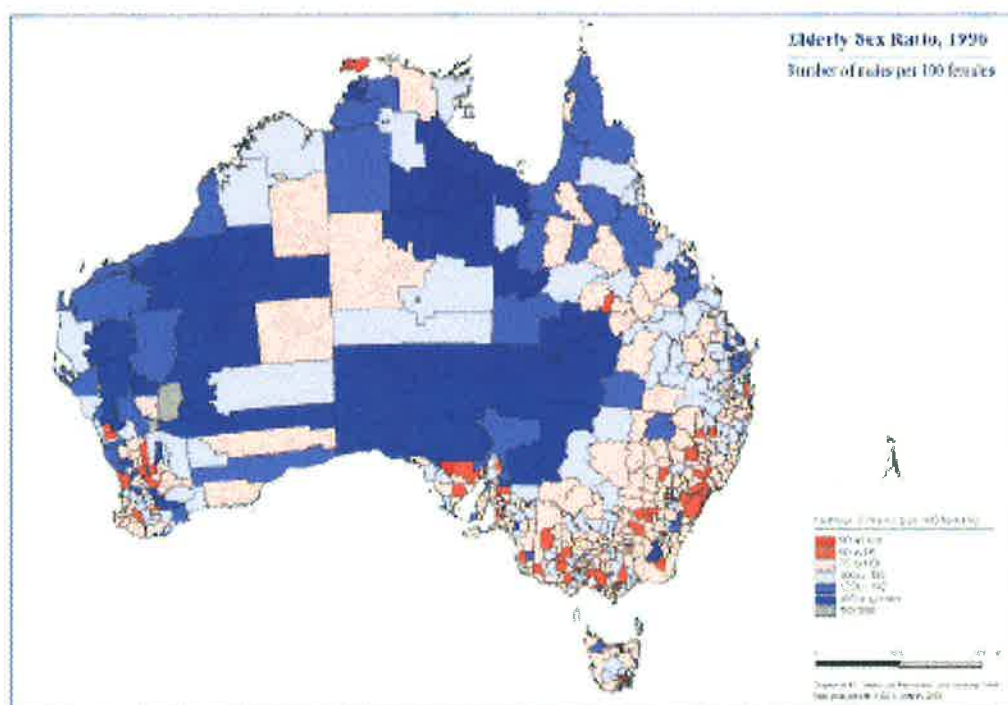
<sup>1</sup> Given the method used to estimate median ages, the rank test was used here, rather than, for example, a test on difference in means. Even so, given the method, it would not be prudent to read too much into this rank order association.

<sup>2</sup> Note this is not adjusted for any cohort settlement effects.

area in 1955, when they were 25, they will turn 70 together in 2000 and be counted for planning purposes, while not having the age distribution of longer settled areas. Planning based on mortality would overcome this weakness.

There is a spatial distribution of the sex ratio, the number of males to 100 females. In metropolitan areas the number of females 65+ outnumbers males but this reverses in remote and some rural regions in Australia.<sup>1</sup> This is illustrated in Figure 66. Since men die younger than women, a fixed planning age delivers more services to longer-lived women and therefore disadvantages remote Australia for aged care services, albeit at low numbers. Planning based on life expectancy would incorporate adjustments for such populations.

**Figure 66 Sex ratio, Australia population 65+, 1996**



Source: National Key Centre for Social Applications of GIS

### *Conclusion*

The social gradient in health persists into old age, and there is a clear social gradient in age at death. There is a spatial distribution of socioeconomic circumstances and therefore of life expectancy. An aged -based planning mechanism, that is, years from birth, therefore distributes finite resources spatially to longer lived populations if the length of stay in residential aged care is no different between regions. Perversely, the older the planning age, the greater the distribution of services would be to higher socioeconomic areas. Choosing a planning age closer to the median age at entry to aged care services, say 80 years or

more, an apparently more meaningful age statistically, would have a distributive effect *towards* higher socioeconomic areas<sup>2</sup>.

Aged care legislation includes the capacity to consider financial or social disadvantage and there are no current mechanisms to address this special needs group. An approach based on life expectancy, such as years to death or equal probability of death would better predict the distributed use of residential aged care services. It would therefore better target aged care resources.

Planning on an equal probability of death in the next year, drawn from regional life tables would have a number of advantages: It would be a more rational way of delivering health services as it is a better predictor of patterns of use; the method can be applied to particular populations, so that there need not be a separate age for planning services for indigenous populations<sup>3</sup>. Similarly for rural areas, as the method adjusts for the sex ratio change that is experienced by remote Australia, given the lower life expectancy of males. The method also adjusts for different age structures.

The method requires the calculation of single-age life tables by region and SLA, and populations projected by single age. While these are not routinely available, they do not require any additional data collection by the ABS to be produced. Home address mobility, a potential problem for such calculations, is lowest at age 65 years.<sup>4</sup>

I have demonstrated the method using median age at death, a reasonable proxy for the majority of Australia's jurisdictions, in the absence of readily available data, but with the acknowledged limitation of not adjusting for different age structures.

Data on the age structure of persons in residential aged care confirm a spatial pattern of use of aged care services consistent with the association between the expectation of life and socioeconomic circumstances.



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<sup>1</sup> Haberkorn, G., Hugo, G., Fisher, M. and Aylward, R., Country Matters Social Atlas of Rural and Regional Australia, pp. 116, Commonwealth of Australia Bureau of Rural Sciences, Canberra (1999).

<sup>2</sup> There are also cohort effects of areas settled at particular times.

<sup>3</sup> Tacit acceptance of planning for aged care bearing some relationship to life expectancy has been the different planning age used by the Commonwealth for Aboriginal and Torres Strait Islander populations, that is, the population aged 50+ rather than 70+.

<sup>4</sup> Bell, M. and Hugo, G., Internal Migration in Australia 1991-1996, pp. 172, Commonwealth of Australia. Australian Population, Immigration and Multicultural Research Program, Canberra (2000).

### Appendix 1 to chapter 9, data table

SLA	Median age at death	Median age at death	Median age at death	Region	
	Males	Females	Persons		
Unincorp. Far North	40.2	52.5	56.6	10	Whyalla Flinders Far North
Port Augusta (C)	67.8	76.7	70.5	10	Whyalla Flinders Far North
Whyalla (C)	69.9	75.9	72.5	10	Whyalla Flinders Far North
Kanyaka-Quorn (DC)	74.2	86.3	82.5	10	Whyalla Flinders Far North
Berri (DC)	71.1	75.9	72.9	8	Riverland
Renmark (M)	72.0	80.0	76.3	8	Riverland
Barmera (DC)	73.6	81.1	76.8	8	Riverland
Waikerie (DC)	73.9	81.9	77.1	8	Riverland
Loxton (DC)	76.3	81.4	78.9	8	Riverland
Ceduna (DC)	57.9	68.8	62.5	5	Eyre
Lower Eyre Peninsula (DC)	73.3	81.3	76.8	5	Eyre
Franklin Harbor (DC)	76.0	78.3	76.9	5	Eyre
Streaky Bay (DC)	75.0	80.6	77.5	5	Eyre
Port Lincoln (C)	76.1	82.3	78.1	5	Eyre
Kimba (DC)	75.0	80.0	79.0	5	Eyre
Tumby Bay (DC)	76.3	82.9	80.9	5	Eyre
Cleve (DC)	80.8	81.3	81.1	5	Eyre
Mount Gambier (DC)	70.4	74.2	71.7	9	South East
Millicent (DC)	72.5	80.2	74.5	9	South East
Mount Gambier (C)	72.9	80.2	76.8	9	South East
Naracoorte (M)	73.8	81.5	76.8	9	South East
Penola (DC)	77.1	78.1	77.5	9	South East
Lacepede (DC)	75.9	85.3	78.3	9	South East
Tatiara (DC)	73.2	82.7	80.7	9	South East
Mallala (DC)	66.6	76.3	69.5	11	Yorke Lwr North Barossa
Light (DC)	67.5	75.0	70.0	11	Yorke Lwr North Barossa
Barossa (DC)	71.5	72.5	71.8	11	Yorke Lwr North Barossa
Ridley-Truro (DC)	70.0	74.2	72.1	11	Yorke Lwr North Barossa
Kapunda (DC)	71.9	78.8	75.4	11	Yorke Lwr North Barossa
Wakefield Plains (DC)	76.0	81.5	78.2	11	Yorke Lwr North Barossa
Walleroo (M)	76.3	81.5	78.4	11	Yorke Lwr North Barossa
Central Yorke Peninsula (DC)	73.9	82.8	78.7	11	Yorke Lwr North Barossa
Minlaton (DC)	76.4	83.8	79.1	11	Yorke Lwr North Barossa
Yorke town (DC)	78.1	82.0	79.5	11	Yorke Lwr North Barossa
Eudunda (DC)	80.0	82.5	80.8	11	Yorke Lwr North Barossa
Northern Yorke Peninsula (DC)	80.5	81.5	81.1	11	Yorke Lwr North Barossa
Riverton (DC)	80.6	82.5	81.3	11	Yorke Lwr North Barossa
Angaston (DC)	78.0	84.5	81.4	11	Yorke Lwr North Barossa
Burra Burra (DC)	81.5	81.3	81.4	11	Yorke Lwr North Barossa
Clare (DC)	77.9	84.1	81.9	11	Yorke Lwr North Barossa
Blyth-Snowtown (DC)	78.8	86.0	82.9	11	Yorke Lwr North Barossa
Tanunda (DC)	81.3	86.0	84.2	11	Yorke Lwr North Barossa
Yankalilla (DC)	73.1	73.8	73.3	6	Hills Mallee
Meningie (DC)	73.0	76.4	74.4	6	Hills Mallee
Lameroo (DC)	73.3	80.0	75.0	6	Hills Mallee
Port Elliot & Goolwa (DC)	75.0	77.5	76.2	6	Hills Mallee
Kingscote (DC)	75.6	77.5	76.3	6	Hills Mallee
Murray Bridge (RC)	74.8	79.8	76.4	6	Hills Mallee
Mount Barker (DC)	75.5	79.6	77.3	6	Hills Mallee
Mannum (DC)	78.8	77.9	78.3	6	Hills Mallee
Mount Pleasant (DC)	72.5	80.6	78.3	6	Hills Mallee
Gumeracha (DC)	74.4	82.2	78.3	6	Hills Mallee
Strathalbyn (DC)	75.8	80.8	78.9	6	Hills Mallee

Victor Harbor (DC)	78.8	81.4	80.1	6 Hills Mallee
Karoonda East Murray (DC)	77.5	84.2	80.9	6 Hills Mallee
Pinnaroo (DC)	80.0	86.0	85.3	6 Hills Mallee
Port Broughton (DC)	72.9	83.8	75.8	7 Mid North
Peterborough (M)	72.5	84.2	76.1	7 Mid North
Port Pirie (C)	73.5	80.6	76.6	7 Mid North
Crystal Brook-Redhill (DC)	72.5	85.2	78.0	7 Mid North
Mount Remarkable (DC)	73.5	86.0	79.5	7 Mid North
Rocky River (DC)	73.8	82.1	80.0	7 Mid North
Jamestown (DC)	77.5	85.5	80.0	7 Mid North
Orroroo (DC)	86.3	77.5	85.2	7 Mid North
Munno Para (C)	68.2	75.7	71.0	1 North
Elizabeth (C)	70.6	75.4	72.7	1 North
Salisbury (C)	70.0	76.8	72.9	1 North
Tea Tree Gully (C)	73.4	77.1	75.0	1 North
Gawler (M)	74.9	82.9	78.6	1 North
Willunga (DC)	70.6	74.4	72.3	2 South
Happy Valley (C)	72.6	75.4	73.5	2 South
Noarlunga (C)	75.1	79.9	76.8	2 South
Marion (C)	76.3	80.2	77.9	2 South
Onkaparinga (DC)	75.0	81.1	78.0	2 South
Brighton (C)	78.1	84.5	81.3	2 South
Mitcham (C)	78.4	84.5	82.0	2 South
Glenelg (C)	78.6	84.6	82.2	2 South
Enfield (C) - Pt B	72.7	75.7	74.1	3 West
Thebarton (M)	73.5	79.1	76.0	3 West
Port Adelaide (C)	74.4	80.3	77.1	3 West
Hindmarsh and Woodville (C)	76.5	80.8	78.5	3 West
Henley & Grange (C)	76.4	83.4	80.4	3 West
West Torrens (C)	77.4	83.9	80.8	3 West
East Torrens (DC)	73.0	68.0	70.8	4 East
Stirling (DC)	75.2	80.4	76.5	4 East
Enfield (C) - Pt A	75.6	79.4	77.3	4 East
Campbelltown (C) (SA)	76.2	82.0	79.6	4 East
Prospect (C)	75.6	83.1	80.0	4 East
Burnside (C)	78.7	83.6	81.6	4 East
Adelaide (C)	73.8	85.3	81.9	4 East
Payneham (C)	78.8	84.2	82.2	4 East
Unley (C)	80.6	85.1	83.2	4 East
Walkerville (M)	78.7	85.5	83.7	4 East
St Peters (M)	78.0	85.9	84.1	4 East
Kensington & Norwood (C)	80.8	85.2	84.2	4 East
The SLAs below had fewer than 5 female deaths (ave/yr) in the period				
SLA	Median age at death	Median age at death	Median age at death	Region
	Males	Females	Persons	
Unincorp. West Coast	65.0	na	52.5	5 Eyre
Elliston (DC)	80.0	75.0	77.5	5 Eyre
Le Hunte (DC)	78.8	85.8	80.0	5 Eyre
Peake (DC)	70.0	85.0	75.0	6 Hills Mallee
Coonalpyn Downs (DC)	67.5	77.5	70.0	6 Hills Mallee
Dudley (DC)	78.3	82.5	79.4	6 Hills Mallee
Carrieton (DC)	67.5	na	67.5	7 Mid North
Peterborough (DC)	70.0	87.5	72.5	7 Mid North
Unincorp. Pirie	75.0	na	67.5	7 Mid North
Pirie (DC)	71.3	77.5	73.3	7 Mid North
Hallett (DC)	70.0	82.5	76.3	7 Mid North
Paringa (DC)	62.5	71.3	63.8	8 Riverland
Morgan (DC)	73.8	80.0	74.2	8 Riverland

Naracoorte (DC)	67.5	na	67.5	9	South East
Beachport (DC)	80.0	73.8	75.8	9	South East
Lucindale (DC)	71.7	60.0	70.0	9	South East
Port MacDonnell (DC)	71.3	76.3	72.5	9	South East
Robe (DC)	69.2	75.0	69.5	9	South East
Roxby Downs (M)	na	na	na	10	Whyalla Flinders Far North
Unincorp. Whyalla	na	67.5	55.0	10	Whyalla Flinders Far North
Unincorp. Flinders Ranges	67.5	67.5	67.5	10	Whyalla Flinders Far North
Hawker (DC)	72.5	65.0	67.5	10	Whyalla Flinders Far North
Cooper Pedy (DC)	62.5	45.0	57.5	10	Whyalla Flinders Far North
Bute (DC)	75.0	67.5	72.5	11	Yorke Lwr North Barossa
Spalding (DC)	57.5	82.5	80.0	11	Yorke Lwr North Barossa
Robertstown (DC)	68.8	72.5	70.0	11	Yorke Lwr North Barossa
Saddleworth & Auburn (DC)	76.7	80.0	76.7	11	Yorke Lwr North Barossa
Warooka (DC)	69.2	80.0	76.3	11	Yorke Lwr North Barossa

Appendix 1 to chapter 9, Departmental aged care supply table and notes



AGED CARE SERVICES: SUPPLY TABLES<sup>1</sup>  
SOUTH AUSTRALIA  
as at 30 June 2001



(70+ Benchmark Ratios)<sup>2</sup>

70+ Population<sup>10</sup>  
2001

LOCAL GOVERNMENT AREAS	Population	HIGH CARE 40:1,000					LOW CARE 18:1,000					CACP 10:1,000										
		Mainstream Places <sup>3</sup>	Flexible Places <sup>4</sup>	MPS <sup>5</sup>	Provisional Allocations <sup>6</sup>	Transfers <sup>7</sup>	Total Operational <sup>8</sup>	Total Approved <sup>9</sup>	Mainstream Places <sup>3</sup>	Flexible Places <sup>4</sup>	MPS <sup>5</sup>	Provisional Allocations <sup>6</sup>	Transfers <sup>7</sup>	Total Operational <sup>8</sup>	Total Approved <sup>9</sup>	Mainstream Places <sup>3</sup>	Flexible Places <sup>4</sup>	MPS <sup>5</sup>	Provisional Allocations <sup>6</sup>	Transfers <sup>7</sup>	Total Operational <sup>8</sup>	Total Approved <sup>9</sup>
<b>NORTH METRO</b>																						
Playford	4,909	118	12				130	130	193	8		87	201	288	85	5					90	90
Gawler	2,073	107		7			107	114	40		9		40	49	36						36	36
Salisbury	7,114	211			20		211	231	192		113		192	305	105						105	105
Tea Tree Gully	6,885	215					215	215	191		53		191	244	93						93	93
<b>Totals</b>	<b>20,215</b>	<b>651</b>	<b>12</b>	<b>0</b>	<b>7</b>	<b>20</b>	<b>663</b>	<b>690</b>	<b>616</b>	<b>8</b>	<b>0</b>	<b>262</b>	<b>614</b>	<b>636</b>	<b>319</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>324</b>	<b>324</b>
		<b>Regional Ratios<sup>11</sup></b>																				
							<b>32.8</b>					<b>34.1</b>										
<b>SOUTH METRO</b>																						
Onkaparinga	10,914	467			39		467	506	348		66		348	414	188						188	188
Holdfast Bay	6,644	333					333	333	291				291	291	76						76	76
Marion	10,766	326					326	326	247		20		247	267	136						136	136
Mitcham	8,165	461					461	461	503				503	503	94						94	94
<b>Totals</b>	<b>36,379</b>	<b>1587</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>39</b>	<b>1587</b>	<b>1626</b>	<b>1389</b>	<b>0</b>	<b>0</b>	<b>86</b>	<b>1389</b>	<b>1475</b>	<b>494</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>494</b>	<b>494</b>
		<b>Regional Ratios</b>					<b>43.6</b>					<b>44.7</b>										
<b>WEST METRO</b>																						
Charles Sturt	14,909	646					646	646	426		46		426	472	254						254	254
Port Adelaide & Enfield (exc. Enfield A)	6,658	239					239	239	238				238	238	112						112	112
West Torrens	7,885	333					333	333	309		40		309	349	127						127	127
<b>Totals</b>	<b>29,652</b>	<b>1218</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1218</b>	<b>1218</b>	<b>973</b>	<b>0</b>	<b>0</b>	<b>86</b>	<b>973</b>	<b>1059</b>	<b>493</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>493</b>	<b>493</b>
		<b>Regional Ratios</b>					<b>41.1</b>					<b>41.1</b>										
<b>EAST METRO</b>																						
Adelaide	1,262	127					127	127	168				168	188	26						26	26
Adelaide Hills: <i>Stirling &amp; East Torrens</i>	1,491	35					35	35	54				54	54	14						14	14
Burnside	6,184	269					269	269	326				326	326	54						54	54
Campbelltown	5,422	178					178	178	306				306	306	57						57	57
Norwood, Payneham & St Peters	5,249	484					484	484	456				456	456	83						83	83
Port Adelaide & Enfield: <i>Enfield A SLA</i>	6,570	372					372	372	102				102	102	82						82	82
Prospect	2,104	155			38		155	193	41				41	41	16						16	16
Unley	4,337	664					664	664	404		31		404	435	47						47	47
Walkerville	1,370	87					87	87	100				100	100	10						10	10
<b>Totals</b>	<b>33,698</b>	<b>2371</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>38</b>	<b>2371</b>	<b>2409</b>	<b>1937</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1937</b>	<b>1988</b>	<b>389</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>389</b>	<b>389</b>
		<b>Regional Ratios</b>					<b>70.5</b>					<b>71.7</b>										
<b>EYRE PENINSULA</b>																						
Ceduna	251	0	4.5	10			15	15	0	4	22	6	26	32		6.5					7	7
Cleve	266	0		4			4	4	0		16		16	16			5				5	5
Elliston	111	0					0	0	0				0	0	2						2	2
Franklin Harbor	186	0		4			4	4	0		10		10	10	4						4	4
Kimba	160	0		3			3	3	0		10		10	10	3						3	3
Le Hunte	160	0					0	0	0				0	0	3						3	3
Lower Eyre Peninsula	377	0					0	0	14				14	14	8						8	8
Port Lincoln	1,346	49					49	49	66		8		66	74	27						27	27
Streaky Bay	174	0		10			10	10	0		27		27	27	4						4	4
Tumby Bay	880	0					0	0	10		4		10	14	8						8	8
<b>Totals</b>	<b>3,359</b>	<b>49</b>	<b>4.5</b>	<b>31</b>	<b>0</b>	<b>0</b>	<b>85</b>	<b>85</b>	<b>90</b>	<b>4</b>	<b>33</b>	<b>18</b>	<b>179</b>	<b>197</b>	<b>59</b>	<b>6.5</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>71</b>	<b>71</b>
		<b>Regional Ratios</b>					<b>25.2</b>					<b>25.2</b>										
<b>HILLS, MALLEE &amp; SOUTHERN</b>																						
Adelaide Hills: <i>Gum &amp; Onka, SLAs</i>	1,174	25					25	25	57				57	57	30						30	30
Alexandrina	2,397	60					60	60	0				0	0	25						25	25
Barossa: <i>Mount Pleasant SLA</i>	201	8					8	8	0				0	0	2						2	2
Coorong	665	5					5	5	24				24	24	9						9	9
Kangaroo Island	428	0		5			5	5	0		24		24	24	0	4					4	4
Karoonda-East Murray	165	3					3	3	8				8	8	6						6	6
Mid Murray	472	6					6	6	10				10	10	9						9	9
Mount Barker	1,259	52			20		52	72	76		20		76	96	15						15	15
Murray Bridge	1,058	56					56	56	47				47	47	29						29	29
Southern Mallee	276	4					4	4	8				8	8	12						12	12
Victor Harbor	2,244	85			25		85	110	62		20		62	82	31						31	31
Yankalilla	518	0			10		0	10	0		50		0	50	9						9	9
<b>Totals</b>	<b>12,885</b>	<b>304</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>45</b>	<b>309</b>	<b>364</b>	<b>343</b>	<b>0</b>	<b>34</b>	<b>130</b>	<b>369</b>	<b>519</b>	<b>177</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>181</b>	<b>181</b>
		<b>Regional Ratios</b>					<b>25.6</b>					<b>30.2</b>										



## EXPLANATORY FOOTNOTES

1. **The Aged Care Supply Tables** are a snapshot of places and ratios at the date shown.
2. **70+ Benchmark ratios.** The Commonwealth Government is committed to ensuring that frail older Australians have reasonable access to quality residential and community care which will enable them to live in dignity. To ensure an equitable distribution of residential care places and Community Aged Care Packages (CACPs), the Government has established a comprehensive planning framework which aims to provide 100 residential aged care places and Community Aged Care Packages, for every 1,000 people aged 70 years and over. This overall benchmark is sub-divided into three ratios: high care (40:1,000), low care (50:1,000) and CACPs (10:1,000).
3. **“Mainstream places”** refers to operational places in aged care homes (formerly known as nursing home and hostel places). Places for people with special needs (see s11-3 *Aged Care Act*) are included here.
4. These **flexible places** are provided under the Aboriginal and Torres Strait Islander Aged Care Strategy.
5. **Multipurpose services (MPSs)** are jointly funded by the Commonwealth and State and Territory Governments to provide coordinated, cost-effective services to people living in rural and remote regions. The figures show the Commonwealth’s allocation of resources to MPSs in the regions.
6. **Provisional allocations** (see s15–1 *Aged Care Act 1997*). Under the Act, places are *provisionally allocated* until a provider is in a position to provide the care. While community care places usually take only a few months to become operational, low care and high care places may take longer (see s15–7 of the Act). Provisional places have been shown because they are a firm contractual commitment on the part of the Commonwealth.
7. **Transfers.** Approved providers of aged care may apply to the Department to transfer operational places from one home to another, and this sometimes results in places being temporarily on hold while new rooms are built.
8. **Total operational places:** this column is the sum of mainstream places, flexible places, and MPSs.
9. **Total approved places:** this column is the sum of mainstream places, flexible places, MPSs, provisional allocations and transfers.
10. **70+ Population:** the 2001 population figures shown are from, *Australian Bureau of Statistics, SLA Population Projections 1999 to 2019 (unpublished data, 2001)*.
11. **Regional ratios.** The benchmark ratios for high care, low care and CACPs are 40:1,000 50:1,000 and 10:1,000 respectively. The regional ratios are the actual supply ratios in each region.
12. Three South Australian regions have a number of high care places approved for dispersion across State Government country hospitals. These can be shifted readily, in line with changing community need. The 23 high care places in the South East planning region are a provisional allocation yet to be distributed across the region.
- 14.&15. **SA total operational places actual ratios:** these are the ratios explained in *Note 12* above, except they are ratios applying to the overall state totals.

Disclaimer: it is important for users to note that these “snapshot-in-time” tables have to be interpreted with caution. *Organisations who make decisions which rely on information contained in this document do so at their own risk. If you would like to discuss information contained in the tables, please ring the Department's Planning Officer for Aged Care Services for SA, on 8237 8111.*

The tables are approved for public release under s86-9(1) of the Aged Care Act 1997.

David Kemp  
 Assistant State Manager, SA  
 Department of Health & Aged Care  
 10 Sep 2001

## Appendix 2 to Chapter 9

The health equity evaluation of a specific policy domain - Aged Care, in chapter 8, page 3, endeavoured to show how an understanding of the social gradient in health might be applied to policy evaluation. It predicted variation in life expectancy by region, given the spatial distribution of socio-economic circumstances, in South Australia. In the absence of life expectancy tables by planning region, a proxy variable of the median age at death was estimated. In December 2002 the Australian Bureau of Statistics released life expectancy tables for statistical areas, see Australian Bureau of Statistics Demography series for Australian jurisdictions 3311.x.<sup>1</sup>

The variation in life expectancy is not as large as predicted see table 23 below. The comparison is complicated by a) the statistical divisions having changed, so that the regions no longer directly correspond and b) the variable estimated was for persons where the life table is separated by sex. Nevertheless, the metropolitan regions are roughly comparable and where life expectancy for Metropolitan North was expected to be much lower than Metropolitan East, which was expected to have the highest life expectancy at birth, this is not the case.

Table 22 Comparing Regional Median Age at Death with Life Expectancy

South Australian Region		Median age at death (yrs) As estimated	Australian Standard Geographical Classification 2001	Life expectancy at birth ABS	
				Males	Females
Whyalla and Far North	Non-metropolitan planning regions	70.3	Northern	74.9	81.1
Riverland		76.3	Murray Lands	75.2	81.5
Eyre		76.4	Eyre	75.8	81.1
South East		76.6	South East	76.7	82.5
Yorke & Barossa		77.4	Yorke & Lower North	76.3	81.4
Hills Mallee		77.4	Outer Adelaide	78.4	82.8
Mid North		77.8			
North		Metropolitan regions	73.7	Northern Adelaide	77.3
South	78.0		Southern Adelaide	78.1	83.3
West	78.4		Western Adelaide	76.9	82.7
East	80.3		Eastern Adelaide	77.6	82.6

One reason this might not be the case was anticipated on page 3, that is, if there is a maldistribution of aged care homes, in favour of an area with high material resources A, then migration of older people who need residential care from areas of low material resources B, will have the effect of reducing life expectancy in A. This is because we expect the residents from B, on average, to die younger but to record their usual address on the death certificate as A. Indeed this is the case in

metropolitan South Australia. The 'migration' of people into nursing homes was given as the main reason for excluding deaths of persons 65 and older from SMR calculations in the South Australian Social Atlas.<sup>2</sup>

However, although the life expectancies for the majority of statistical subdivisions in South Australia have been published, the accompanying life tables have not. An officer of the Australian Bureau of Statistics advised in June 2003 that these could be purchased at five year age group categories. This is not, yet, fine enough to discriminate between areas for the purpose of aged care planning using the method proposed above. That is, using the distribution of the survivors at a given probability of death in the next year to distribute aged care resources. In the absence of these tables, median age at death may be a more practical indicator.

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<sup>1</sup> There had been a limited regional pattern, see page 56 of Australian Bureau of Statistics 2000 Deaths Australia 3302.0

<sup>2</sup> The spatial concentration of some other accommodation, eg mental health, was also noted see pages 117-118 of Glover, J., Shand, M., Forster, C. and Woollacott, *A Social Health Atlas of South Australia*, Second ed., p. 440, SA Health Commission, Adelaide (1996).

## Thesis conclusion

This thesis has explored theoretical perspectives on the social gradient in health, and the production of health in order to examine, critically, Australian policy approaches to the issue up to 1999, and to suggest a course of action for a department of health to begin to make a difference.

I have argued that the meaning of 'inequalities', in the term 'health inequalities', is commonly interpreted as a simple difference or dichotomy between the haves and have-nots, a threshold material idea that is contrary to the evidence. Referring to a gradient or 'social gradient' in health would convey a more accurate message to policy makers. While explanations for the social gradient in health have varied over time, there is mounting evidence for two explanations for its existence. A materialist explanation holds that (successive increments in material resources buy successive increments in health and a relative materialist explanation holds that, above a threshold, more equally distributed, and movement toward more equally distributed, material resources, within jurisdictions, produces improvements in health. That is, health is marked by the material/ social environment, whose effect has only begun to be elaborated. However, both material and relative material explanations plausibly spring from the same source - political determinants of health, the distribution of material resources being an expression of the 'social will' in a society.

The theoretical work has occurred outside of Australia. While Australia has a reasonable descriptive effort, that is, describing that gradients in health exist, Australian research has been theoretically arid. The trend in the direction of theory, toward political determinants, does not augur well for Australia's health as income inequality in Australia is high by international standards, and I have presented some evidence that is consistent with relative material effects on male health.

A dominant force acting to oppose elaboration of materialist and relative materialist explanations is individualism, manifest in individualist economic ideas and individualist epidemiology. Individualism also acts to make policy responses to particular explanations for the social gradient in health inconceivable, and/ or to keep them off the agenda. Materialist and relative materialist explanations for the social gradient in health challenge fundamental economic ideas, which do not account for the negative health effects, on welfare, of an increase in material inequality. Forces acting to oppose individualism include the accumulation of anomalies in underlying individualist theories of health and increasing studies in, and sophistication of, ecological epidemiology.

Australian policy making has nodded in the direction of the World Health Organisation, (WHO) but the separation of developed from developing countries in

international WHO health fora acted to diffuse policy interest in materialist and political explanations for the social gradient in health, and a 'health creation' agenda, in favour of a health promotion agenda, which, in Australia, was and remains mainly interpreted as individualist lifestyle ideas.

The Commonwealth Department of Health<sup>1</sup> ought to be responsible for national health creation and the social gradient in health, but developments outside the department made a greater contribution to life expectancy over the last twenty years than those within its narrow purview. There is no social consensus on how both individual health and societal health is produced, the Commonwealth concentrates on health services, rather than health production or creation. Commonwealth health policy documents adopted managerial and individualist goals for diseases, while separating material determinants to a social justice goal, for which there was no responsible authority, and so policy action on materialist explanations for the social gradient in health was placed outside the mainstream activity of the department. The remnant idea in the department is to interpret health 'inequalities' as the health effects of poverty, in a material threshold sense,<sup>2</sup> but the gradient in health is not accepted at senior levels. Data are not collected and there are very few longitudinal research studies funded.<sup>3</sup> The health data dictionary, which could provide information, is a victim of inter-jurisdictional argument.

There exists a policy loop that displaces policy interest in the social gradient in health to human, organ-based action. Policy interest has only rarely, and in extraordinary political circumstances, been translated into policy action that is likely to have had any impact on the social gradient in health. The balance of international forces is against government taking a major role that would contradict its regulation in favour of private capital. There is also no naturally forming interest group that would benefit from policies that are materially redistributive and so a government oriented towards attenuating the social gradient in health would need to externalise its policy advice to an 'unbalanced' organisation that can shed light on the choices being made, and their effects, and develop and advocate alternatives.

A simple set of three policy dimensions, a social/ material inequality dimension, a workplace/ individual dimension and a 'reproduction' dimension, in which the social gradient in health is reproduced, provide a framework for policy analysis and development. A Department of Health determined to influence the social gradient in

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<sup>1</sup> In its various incarnations.

<sup>2</sup> ,and, paradoxically, even though poverty is determined relatively in Australia,

<sup>3</sup> For example the longitudinal study into ageing, at Flinders University, had its core funding from the United States.

health would work in all three dimensions at international, national and intra-departmental levels. I have set out a set of actions and structures that may begin to have an effect, and have undertaken an evaluation of aged care planning policy, as an example of the research to policy transfer in the field.

An agenda to reduce gradients in health was set in 1978 - Health for All by the year 2000. This has not been achieved, and governments must address the problem because: lives can be saved, action to address the problem is the same action that is likely to lead to a healthier society, gradients are amenable to government policy, and - the best of Australian reasons- it is not fair.



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