

# HEALTH INEQUALITIES AND WELFARE STATE REGIMES: THEORETICAL INSIGHTS ON A PUBLIC HEALTH 'PUZZLE'

**Clare Bamba**

Address for correspondence: Professor Clare Bamba, Department of Geography, Wolfson Research Institute, Queen's Campus, Durham University, Stockton on Tees, TS17 6BH. Tel: 0191 3340417, Fax: 0191 3340361, [clare.bamba@durham.ac.uk](mailto:clare.bamba@durham.ac.uk)

The Corresponding Author has the right to grant on behalf of all authors and does grant on behalf of all authors, an exclusive licence (or non-exclusive for government employees) on a worldwide basis to the BMJ Publishing Group Ltd and its Licensees to permit this article (if accepted) to be published in Journal of Epidemiology and Community Health and any other BMJPG products to exploit all subsidiary rights, as set out in our licence (<http://jech.bmj.com/ifora/licence.pdf>).

Article word count = 2644

## **ABSTRACT**

Welfare states are important determinants of health. Comparative social epidemiology has almost invariably concluded that population health is enhanced by the relatively generous and universal welfare provision of the Scandinavian countries. However, most international studies of socio-economic inequalities in health have thrown up something of a public health 'puzzle' as the Scandinavian welfare states do not, as would generally be expected, have the smallest health inequalities. This essay outlines and interrogates this 'puzzle' by drawing upon existing theories of health inequalities - artefact, selection, cultural-behavioural, materialist, psychosocial, and life course - to generate some theoretical insights. It discusses the limits of these theories in respect to cross-national research; it questions the focus and normative paradigm underpinning contemporary comparative health inequalities research; and it considers the future of comparative social epidemiology.

130 words

## BACKGROUND

It is now widely acknowledged that welfare states are important determinants of health as they mediate the social determinants of health.[1] Welfare state provision varies extensively, but typologies have been put forward to categorise them into distinctive types - *welfare state regimes*. [1][2][3] Welfare state regimes have increasingly been used within social epidemiology to analyse cross-national differences in population health. [4][5][6][7][8] These studies have almost invariably concluded that population health is enhanced by the relatively generous and universal welfare provision of the Social Democratic *Scandinavian* countries, especially when contrasted to the *Anglo-Saxon* welfare states.[4][5][6][7][8] The different types of welfare state and their constituent countries are described in Box 1. However, in contrast to their comparatively strong performance in terms of overall health, data from most – but not all - of the recent comparative studies of health inequalities in the general population suggest that the Scandinavian welfare states do not have the smallest health inequalities. [9][10][11][12] For example, Mackenbach et al's Europe wide study of inequalities in mortality found “*no evidence for systematically smaller inequalities in health in countries in northern Europe (Scandinavia)*”.[9] Indeed, relative inequalities in mortality were smaller in the *Southern* (Italy, Spain, Portugal) and *Bismarckian* (Netherlands, Belgium, Germany, France) countries.[9] Data is provided from three other example studies of health inequalities in Europe in Table 1.[10][12] Given the higher levels of social expenditure in the Scandinavian welfare states, the smaller income inequalities, and the commitment to equality underpinning the Social Democratic welfare model in Scandinavia, it has long been something of a ‘puzzle’ in public health as to why the Scandinavian countries do not have the smallest health inequalities.[13][14][15] This essay draws upon the theories of health inequalities to scrutinise this ‘puzzle’.[16][17][18][19][20]

## THEORETICAL INSIGHTS ON COMPARATIVE HEALTH INEQUALITIES

Box 2 outlines the main theories of health inequalities. [16][17][18][19][20] These are commonly used to explain socio-economic health inequalities within countries. In this paper they are applied to cross-national differences in the magnitude of socio-economic health inequalities and used to offer insights into the ‘puzzle’ as to why health inequalities are not the smallest in the Scandinavian welfare states.

## **Artefact**

The artefact explanation questions the existence of health inequalities, considering them to be a mere artefact of data collection and measurement (Box 2). Applying it to the issue of comparative health inequalities, leads to the conclusion that the 'public health puzzle' - of why health inequalities are not the smallest in the Scandinavian countries - is not in fact a real puzzle, but simply the result of the data and methods used. Certainly, the application of different indicators of social inequality (e.g. income, occupation and education) and the use of different datasets has produced divergent results (see Table 1). Different cross-national patterns also emerge in terms of the different ways in which specific indicators of inequality are calculated. For example, studies of educational inequalities can compare those with average years of education to those with one standard deviation below the national average, [21] or the difference between those with no education or only primary education compared to those with tertiary education (Box 2).[22] There are also more general issues in terms of making cross-national comparisons of health inequalities as it is not clear whether the bottom groups are the same in each country and whether their composition changes over time.[21][23] The use of relative or absolute measures of health inequalities is also an important issue (see Discussion section). There is of course another clear measurement problem which is the use of 'welfare state regimes', a concept which assumes a homogenous approach to welfare provision within and between the countries of any particular regime type.[1][24]

## **Health Selection**

The health selection approach asserts that health determines socio-economic class status rather than socio-economic class determining health (Box 2). This would imply that the social consequences of ill health would need to be greater in the Scandinavian countries and that people who have ill health are more likely to be concentrated in the lower socio-economic groups. Instinctively, such direct selection seems unlikely given the extensive employment protection for people with ill health within the Nordic countries and their comparatively high replacement rates for people out of the labour market due to sickness or disability.[18] Selection is also considered to be more influential in respect to income related inequalities than educational ones and so it is unlikely to explain the results of the comparative studies of educational inequalities in health.[24]

## **Culture and Behaviour**

The cultural-behavioural approach asserts that the link between socio-economic class and health is a result of differences between socio-economic classes in terms of their health-related behaviour (Box 2). In terms of physical activity and diet, there is no evidence of larger inequalities in the Scandinavian countries, at least as measured by educational inequalities in obesity.[9] However, socio-economic inequalities in smoking are much higher in the Nordic countries than in the other welfare state regimes.[9][14] Similarly, inequalities in deaths from cardiovascular disease are higher in the Scandinavian countries (except Denmark) as compared to other European countries.[9] This, it is argued, is because the Scandinavian countries are at a very mature stage of the smoking epidemic with the majority of smoking behaviour concentrated in the least educated groups.[25] This suggests that one consequence of the Social Democratic welfare states is that the universal health messages and health promotion interventions are taken up by the middle classes first.[14] This results in what has been referred to as 'intervention generated inequalities', as whilst the health of everyone improves, that of the middle classes does so at a faster rate.[26]

## **Materialist Explanations**

The (neo)materialist explanation focuses on income and what income enables such as access to goods and services and the limitation of exposures to physical, and psychosocial, risk factors (Box 2). Applying a materialist perspective may initially seem somewhat limited as the Scandinavian countries have the smallest income inequalities and offer largely universal welfare services.[27] However, as Diderichsen has commented, lower levels of income inequality do not negate inequalities in exposure to the other material determinants of health.[28] Further, as has consistently been shown, social inequalities in access to services remain even within universal systems e.g. the inverse care law in relation to nationalised health services.[29][30] There is certainly tentative evidence to suggest that inequalities in total avoidable mortality (as a result of diseases amenable to medical intervention) are higher in the Scandinavian countries than elsewhere.[31] From a slightly different angle, there have been long standing criticisms that the Social Democratic welfare states operate on an insider/outsider

basis with vulnerable 'outsider' groups, such as immigrants, often marginalised and without entitlement to the full benefits of the universalist system.[32]

### **Psychosocial**

Psychosocial explanations focus on the biological and health consequences of how social inequality makes people feel (Box 2). From a psychosocial perspective then, it has been speculated that 'relative deprivation' may be a factor behind the larger than expected relative health inequalities in the Scandinavian welfare states.[14] Relative deprivation will occur in all unequal societies, including the Nordic welfare states. Following Dahl and colleagues, it is possible to speculate that the effects of relative deprivation may be more extensive in the Nordic welfare states because of the high levels of expectation of upward social mobility and prosperity that they generate amongst the less privileged, expectations that are seldom met.[14][15][33] This may increase health inequalities especially in stress related conditions, such as heart disease, or indeed self-assessed health.[33]

### **Life course**

Life course epidemiology has highlighted how different causal mechanisms and processes may lie behind the social gradient in different diseases (Box 2).[16] This may also be the case in terms of the inequalities in different welfare state regimes. For example, a study found that in both Britain and Sweden, lone mothers were more likely to report poor health than couple mothers.[34] However, the pathways leading to the health disadvantage of lone mothers were very different in the two countries: poverty and worklessness were the primary issues in Britain, but not in Sweden.[34] Extrapolating from this example, it is possible to suggest that the same outcomes - socio-economic health inequalities - may be present in all welfare state regimes to a greater or lesser extent, but as a result of different causal mechanisms. This suggests that the welfare state regimes approach is perhaps too generalised and only able to offer a rough guide to inequalities.[35]

## **DISCUSSION**

These theoretical insights are rather limited and somewhat speculative: none of the theories alone can provide a wholly convincing explanation. Whilst there appears to be some power to the cultural-

behavioural perspective, really, beyond issues of artefact, it is very difficult to explain why health inequalities are not smaller in the Scandinavian countries through reference to existing theories of health inequalities. This is perhaps because all the other theories (selection, psychosocial, materialist, life course) to a greater or lesser extent expect health inequalities to be smaller in the Scandinavian countries. This may indicate that the existing theoretical explanations are lacking and need to be combined and developed. Certainly, no single theory is able to empirically explain within country inequalities, never mind between country ones.

Alternatively, of course, it may be that the contrasting performances of the Scandinavian welfare states in regards to overall health versus health inequalities cannot really be considered to be a 'puzzle' at all. Firstly, there have only been a small number of cross-national comparative studies conducted to date and these have focused on the health gap rather than the social gradient.[9][10][11][12] Secondly, the use of welfare state typologies has been extensively critiqued not least on the grounds that it obscures important policy differences between welfare states (e.g. the flexicurity of Denmark compared to the protectionism of Sweden or Norway).[35][36] Further, some have argued that there is a need to move beyond Scandinavian welfare state exceptionalism and to acknowledge the commonalities that there are between, say, the Bismarckian and Scandinavian models, particularly in terms of the status of the lowest socio-economic groups; as well as the progress of other welfare states, such as Japan, in terms of creating healthy environments.[37] This suggests that comparative social epidemiology should shift focus and conduct comparisons of more precise policy areas and specific social determinants (such as the work environment) instead.[38][39] This could enable a deeper and more nuanced understanding of how particular national policies, or the shared policies of specific welfare state regimes, impact on health inequalities.[35]

Another factor that needs to be taken into consideration is that the 'puzzle' has emerged partly as a result of the focus of comparative epidemiological research on relative, as opposed to absolute, measures of health and inequality. This has meant that the Scandinavian countries are effectively victims of their own success, as whilst they have substantially improved the health of all, the high level of health of the middle classes has meant that relative social inequalities remain.[35] This, it could be argued, is the real issue in terms of why the Scandinavian countries perform comparatively poorly in

terms of relative health inequalities, and, as Lundberg (2008) has pointed out, this is an achievement, not something to be criticised.[35] The lowest socio-economic groups in the Scandinavian countries are objectively better off in absolute terms than the lowest socio-economic groups in the other welfare state regimes. For example, the absolute mortality risk difference between manual and non-manual is lowest in Sweden and Norway.[40] There is also emerging evidence to suggest that amongst the most vulnerable social groups - the old, the sick, and children - there are smaller socio-economic inequalities in the Social Democratic welfare states.[41][42][43] Indeed, there is by no means an accepted research consensus that relative health inequalities amongst the general population are not the smallest in the Nordic countries as, for example, Borrell and colleagues' analysis of data from individual country health interview surveys suggested that the Social Democratic countries did exhibit the smallest adult health inequalities.[44] Further, it has been shown that relative measures of inequalities are negatively associated with total population health: countries with lower overall mortality tend to experience larger inequalities in mortality.[45] This is perhaps because the social determinants of population health differ from the determinants of health inequalities.[46]

The use of absolute or relative measures of health inequality also raises important normative and political issues about whether the role of the welfare state is to improve the status of those at the very bottom of society or whether it is about promoting general equality. Implicitly, cross-national research to date has tended to favour the latter view, however, it is possible to suggest that it should move beyond relative comparisons and focus instead on absolute ones. This would perhaps also enhance the policy relevance of such research,[47] after all, as Geoffrey Rose famously commented, "*relative risk is not what decision-taking requires ... relative risk is only for researchers; decisions call for absolute measures*".[47] Future comparative research could therefore benefit from examining the absolute health of the most marginalised, poorest and vulnerable within different types of welfare state.

The limits of the study of the formal welfare state are also perhaps exposed by the 'puzzle'. Comparative social epidemiology has to date largely focused on analysing the influence on health and health inequalities of the formal and the public – the state, the economy, politics, public policies, welfare services and social benefits. In contrast, there has been relatively little attention paid to the

potential influence on differences in cross-national health and health inequalities of the informal and the private side of welfare capitalism - unpaid care, the family, community and social support, and different constructions of gender roles.[48][49][50] For example, some studies have suggested that those countries with a higher proportion of unpaid family care and domestic labour by women have smaller health inequalities.[50] Such social differences in the informal welfare sector could therefore be a factor behind the smaller than expected health inequalities found by some studies in the Southern and Bismarckian, welfare states.[50][51] The impact of the social - the private and the informal welfare sphere - on comparative health inequalities is under-explored in public health and might provide important insights. However, as Raphael and Bryant's research has noted, women's health is more sensitive to public welfare and is improved by high levels of state social welfare, [52] so Bartley's assertion that analysing the social sphere is challenging and complex is therefore well made.[50] The intersectional nature of inequality – gender, social class and ethnic stratifications – is therefore also something that needs to be considered in future cross-national research on health.[53]

## **CONCLUSION**

The existence, extent, interpretation and causes of the Scandinavian public health 'puzzle' remain controversial. On the one hand, the 'puzzle' highlights the limitations of existing theories of health inequalities and thereby challenges conventional public health thinking. On the other hand, it has been seen to act as a distraction away from the real potential of comparative social epidemiology in providing detailed assessments of the public policies of different welfare states and how the social determinants vary. However, the issue of the 'puzzle' highlights the strong, and often unacknowledged, normative tensions within comparative social epidemiology in terms of whether the welfare state is about creating overall equality, or improving the situation of the poorest and most vulnerable, or both. The future of comparative social epidemiology research will be largely determined by the shifting balance of power in this debate both in terms of the empirical research agenda and the extent of theoretical evolution. The latter may well benefit from an increased interaction with social policy, social theory and political economy perspectives.[54]

## **ACKNOWLEDGEMENTS**

Earlier versions of this paper were presented at the Hertie School of Governance, Berlin; Department of Social Medicine, University of Copenhagen; Department of Sociology, University of Ghent; NOVA, Oslo; Department of Society and Globalisation, Roskilde University; Department of Geography, St Andrews University; and the Centre for Health Equity Studies, University of Stockholm. I am grateful for the informative feedback I received at these events.

## **COMPETING INTEREST**

None declared

**What is already known on this subject**

Population health is enhanced by the relatively generous and universal welfare provision of the Scandinavian countries. However, some international studies of socio-economic inequalities in health have thrown up a public health 'puzzle' as the Scandinavian welfare states do not, as would generally be expected, have the smallest health inequalities.

**What this study adds**

This paper outlines and interrogates this 'puzzle' by drawing upon existing theories of health inequalities - artefact, selection, cultural-behavioural, materialist, psychosocial, and life course. It finds that these theories provide little insight into the issue, and that whilst this may be a result of poor theory development in public health, it may also demonstrate the limitations – both methodological and conceptual - of contemporary comparative social epidemiology.

**Policy Implications**

The paper raises normative issues about whether the role of the welfare state and public health policy is about improving the status of those at the very bottom of society (absolute measures of health) or about promoting general equality (relative measures of health). A focus on the absolute health of the most vulnerable as well as an awareness of the social sphere and intersectionality could enhance the policy relevance of comparative health research.

## REFERENCES

- [1] **Bambra, C.** (2007), 'Going Beyond The Three Worlds of Welfare Capitalism: Regime theory and public health research', *Journal of Epidemiology and Community Health*, 61, 1098-1102.
- [2] **Ferrera, M.** (1996). The southern model of welfare in social Europe. *Journal of European Social Policy*, 6, 17-37
- [3] **Esping-Andersen, G.** (1990). *The Three Worlds of Welfare Capitalism*. London: Polity
- [4] **Navarro, V.,** Muntaner, C., Borrell, C. et al. (2006). Politics and Health Outcomes. *Lancet*, 368, 1033-1037
- [5] **Coburn, D.** (2004) Beyond the Income Inequality Hypothesis: Class, Neo-Liberalism, and Health Inequalities. *Social Science & Medicine*, 58, 41-56
- [6] **Bambra, C.** (2006), 'Health status and the worlds of welfare', *Social Policy and Society*, 5, 53-62.
- [7] **Chung, H.** and C. Muntaner. (2007). Welfare state matters: A typological multilevel analysis of wealthy countries. *Health Policy*, 80, 328-339
- [8] **Eikemo, T.A.,** Bambra, C., Judge, K. et al. (2008). Welfare State Regimes and Differences in Self-Perceived Health in Europe: A Multi-Level Analysis. *Social Science & Medicine*, 66, 2281-95
- [9] **Mackenbach, J.,** Stirbu, I., Roskam, A., et al. (2008). Socioeconomic Inequalities in Health in 22 European Countries. *New England Journal of Medicine*, 358, 2468-81
- [10] **Eikemo, T.,** Bambra, C., Joyce, K. et al. (2008), Welfare state regimes and income related health inequalities: a comparison of 23 European countries. *European Journal of Public Health*, 18, 593-599.
- [11] **Espelt, A.,** Borrell, C., Rodríguez-Sanz, M., et al. (2008) Inequalities in health by social class dimensions in European countries of different political traditions. *International Journal of Epidemiology*, 37, 1095-1105
- [12] **Eikemo, T.A.,** Huisman, M., Bambra, C. et al. (2008), 'Health inequalities according to educational level under different welfare regimes: a comparison of 23 European countries.' *Sociology of Health and Illness*, 30, 565-582.
- [13] **Lundberg, O.** and Lahelma, E. (2001). Nordic health inequalities in the European context, in M. Kautto, J. Fritzell, B. Hvinden, J. Kvist and H. Uusitalo (ed.) *Nordic welfare states in the European context*, pp. 42-65, London: Routledge
- [14] **Dahl, E.,** Fritzell, J., Lahelma, E., et al. (2006) Welfare state regimes and health inequalities in J. Siegrist and M. Marmot (ed.) *Social inequalities in health*, pp. 193-222, Oxford: Oxford University Press
- [15] **Huijts, T.** and Eikemo, T.A. (2009). Causality, selectivity or artefacts? Why socioeconomic inequalities in health are not smallest in the Nordic countries. *European Journal of Public Health*, 19, 452-453
- [16] **Bartley, M.** (2004). *Health Inequality: An Introduction to Theories, Concepts and Methods*. Cambridge: Polity Press
- [17] **Macintyre, S.** (1997). The Black Report and Beyond: what are the issues? *Social Science and Medicine*, 44, 723-45

- [18] **Bambra, C.** (2011) *Work, Worklessness and the Political Economy of Health*, Oxford: Oxford University Press.
- [19] **Skalická, V.**, Lenthe, F., Bambra, C., et al. (2009). Material, psychosocial, behavioural and biomedical factors in the explanation of socio-economic inequalities in mortality: evidence from the HUNT study. *International Journal of Epidemiology*, **38**, 1272–84
- [20] **Bambra, C.** (2011) Social inequalities in health: Interrogating the Nordic welfare state “puzzle”, in J. Kvist, J. Fritzell, B. Hviden, and O. Kangas (ed.) *Changing Equality: The Nordic Welfare Model in the 21<sup>st</sup> Century*. Bristol: Policy Press
- [21] **Eikemo, T.A.**, Huisman, M., Bambra, C. et al. (2008). Health inequalities according to educational level under different welfare regimes: a comparison of 23 European countries. *Sociology of Health and Illness*, **30**, 565-582
- [22] **Borrell, C.**, Espelt, A., Rodriguez-Sanz, M., et al (2007). Explaining variations between political traditions in the magnitude of socio-economic inequalities in self-perceived health. *Tackling Health Inequalities in Europe: Eurothine*, Rotterdam: Erasmus Medical Centre. pp. 213-229.
- [23] **Dibben, C.** and Popham, F. (2010). Are socio-economic groupings the most appropriate method for judging health equity between countries? *Journal of Epidemiology and Community Health* **65**: 4-5.
- [24] **Mackenbach, J.**, Bakker, M., Kunst, A. et al. (2002). Socio-economic inequalities in health in Europe: an overview, in J. Mackenbach and M. Bakker (ed.) *Reducing inequalities in health: A European perspective*, pp. 3-24, London: Routledge
- [25] **Cavelaars, A.**, Kunst, A., Geurts, J., et al. (2000). Educational differences in smoking: international comparison. *BMJ*, **320**, 1102-1107
- [26] **White, M.**, Adams, J., and Heywood, P. (2009) ‘How and why do interventions that increase health overall widen inequalities within populations?’ in Babones, S. (ed) *Social Inequality and Public Health*. Bristol: Policy Press.
- [27] **Ritakallio, V.M.** and Fritzell, J. (2004). *Societal Shifts and Changed Patterns of Poverty*. Luxembourg Income Study Working Paper Series.
- [28] **Diderichsen, F.** (2002). Impact of income maintenance policies, in J. Mackenbach and M. Bakker (ed.) *Reducing inequalities in health: a European perspective*, pp. 53-66, London: Routledge
- [29] **Tudor-Hart, J.** (1971). The inverse care law. *Lancet*, **297**, 405-12
- [30] **Watt, G.** (2002), 'The inverse care law today ', *The Lancet*, **360**, 252-254
- [31] **Stirbu, I.** (2008). *Inequalities in health: does health care matter?* Rotterdam: Erasmus MC
- [32] **Wiking E.**, Johansson S.E. and Sundquist, J. (2004), 'Ethnicity, acculturation, and self reported health. A population based study among immigrants from Poland, Turkey, and Iran in Sweden.' *J Epidemiol Community Health*, **58**, 574–582.
- [33] **Yngwe, M.**, Fritzell, J., Lundberg, O., et al. (2003). Exploring relative deprivation: Is social comparison a mechanism in the relation between income and health? *Social Science & Medicine*, **57**, 1463-73

- [34] **Whitehead, M.**, Burström, B. and Diderichsen, F. (2000), 'Social policies and the pathways to inequalities in health: a comparative analysis of lone mothers in Britain and Sweden', *Social Science & Medicine*, 50, 255-270.
- [35] **Lundberg, O.** (2008), 'Commentary: Politics and public health - some conceptual considerations concerning welfare state characteristics and public health outcomes', *Int J Epidemiol*, 37, 1105–1108.
- [36] **Bredgarrd, T.**, Larsen, F. and Kongshoj Madsen, P. (2005), 'The flexible Danish labour market: a review', Aalborg, Aalborg Univeristy.
- [37] **Lundberg, O.**, Yngwe, M., Bjork, L. **et al.** (2008), 'The Nordic Experience: Welfare states and Public Health (NEWS)', Stockholm, Centre for Heath Equity Studies.
- [38] **Dragano, N.**, Siegrist, J. and Wahrendorf, M. (in press). Welfare regimes, labour policies and workers' health: A comparative study with 9917 older employees from 12 European countries. *Journal of Epidemiology and Community Health* doi:10.1136/jech.2009.098541
- [39] **Lundberg, O.**, Yngwe, M., Kölegård Stjärne, M., et al. (2008). The role of welfare state principles and generosity in social policy programmes for public health: an international comparative study. *Lancet*, **372**, 1633–40
- [40] **Fritzell, J.** and Lundberg, O. (2005). Fighting inequalities in health and income: one important road to welfare and social development, in O. Kangas and J. Palme (ed.) *Social Policy and Economic Development in the Nordic Countries*, Basingstoke: Palgrave Macmillan
- [41] **Avendano, M.**, Jürges, H. and Mackenbach, J.P. (2009). Educational level and changes in health across Europe: longitudinal results from SHARE. *Journal of European Social Policy*, **19**, 301-316
- [42] **Dahl E**, Thielens K, van der Wel K. Health inequalities and work in a comparative perspective: a multilevel analysis of EU SILC. 13th Biennial Congress of the European Society for Health and Medical Sociology, 26-28 August 2010 Ghent, Belgium.
- [43] **Zambon, A., W.** Boyce, et al. (2006). Do welfare regimes mediate the effect of socioeconomic position on health in adolescence? A cross-national comparison in Europe, North America and Israel, *International Journal of Health Services*, **36**, 309-329
- [44] **Borrell, C.**, Espelt, A., Rodríguez-Sanz, M., et al (2009) Analysing differences in the magnitude of socio-economic inequalities in self-perceived health by countries of different political traditions in Europe, *International Journal of Health Services*, 39: 321-341
- [45] **Eikemo, T.**, Skalicka, V. and Avendano, M. (2009). Variations in relative health inequalities: are they a mathematical artefact? *International Journal of Health Equity*, **8**, 32
- [46] **Krieger, N.**, Rehkopf, D. et al. (2008). The fall and rise of US inequities in premature mortality: 1960–2002. *PLoS\_Medicine*, **5**, 227–241
- [47] **Rose, G.** (1992), *The Strategy of Preventive Medicine*, Oxford, Oxford University Press.
- [48] **Stanistreet, D.**, Bambra, C. and Scott-Samuel, A. (2005) Is patriarchy the source of male mortality?, *Journal of Epidemiology and Community Health* 59: 873-876.

- [49] **Bambra, C.**, Pope, D., Swami, V., Stanistreet, D., Roskam, A. Kunst, A. and Scott-Samuel, A. (2009) Gender, health inequality and welfare state regimes: a cross-national study of thirteen European countries. *Journal of Epidemiology & Community Health*, 63: 38-44.
- [50] **Bartley, M.** (2003) Health inequalities and societal institutions. *Social Theory and Health*, 1: 108-129.
- [51] **Alvarez-Dardet, C.** (2011) Personal communication, April 2011.
- [52] **Raphael, D.**, and Bryant, T. (2004) The welfare state as a determinant of women's health: support for women's quality of life in Canada and four comparison nations. *Health Policy*, 68: 63–79.
- [53] **Weber, L.** (2006) Reconstructing the landscape of health disparities research: Promoting dialogue and collaboration between feminist, intersectional and biomedical paradigms. In: A J Schulz and L Mullings (eds) *Gender, Race, Class and Health: Intersectional Approaches*. San Francisco: Jossey Bass, pp 21-59.
- [54] **Bambra, C.** (2009) Changing the world? Reflections on the interface between social science, epidemiology and public health. *Journal of Epidemiology and Community Health*, 63: 867-868.

**Table 1: Summary findings from three example comparative studies of socio-economic inequalities in self-reported health (bad/poor versus fair/good/very good) by welfare state regime**

Study	Measure of inequality		Summary of Results*			
			Men		Women	
			<i>Absolute Prevalence Rate Difference</i>	<i>Relative Prevalence OR (95% CI)</i>	<i>Absolute Prevalence Rate Difference</i>	<i>Relative Prevalence OR (95% CI)</i>
Eikemo et al [12]	Education - average education versus one sd below average	Bismarckian	<b>6.4</b>	<b>1.19</b> (1.14-1.24)	<b>5.7</b>	<b>1.25</b> (1.20-1.30)
		Anglo-Saxon	<b>9.6</b>	<b>1.35</b> (1.23 – 1.48)	<b>8.2</b>	<b>1.29</b> (1.18-1.41)
		Scandinavian	<b>10.5</b>	<b>1.44</b> (1.35-1.53)	<b>12.1</b>	<b>1.54</b> (1.44-1.64)
		Southern	<b>14.8</b>	<b>1.57</b> (1.47-1.69)	<b>17.3</b>	<b>1.69</b> (1.58-1.81)
Eikemo et al [10]	Income – top versus bottom income tertiles	Bismarckian	<b>9.8</b>	<b>1.68</b> (1.50 – 1.89)	<b>11.6</b>	<b>1.81</b> (1.62 – 2.03)
		Southern	<b>10.9</b>	<b>1.79</b> (1.46 – 2.19)	<b>14.8</b>	<b>2.14</b> (1.77 – 2.57)
		Scandinavian	<b>13.0</b>	<b>1.97</b> (1.70 – 2.27)	<b>15.8</b>	<b>2.14</b> (1.84 – 2.49)
		Anglo-Saxon	<b>17.4</b>	<b>2.86</b> (2.12 – 3.70)	<b>17.4</b>	<b>2.73</b> (2.17 – 3.44)
Espelt et al [11]	Social Class (Education aspects = secondary or more versus less than secondary)	Christian Democratic	<b>11.2</b>	<b>1.24</b> (1.12-1.37)	<b>12.7</b>	<b>1.31</b> (1.19-1.45)
		Social Democratic	<b>13.3</b>	<b>1.43</b> (1.26-1.63)	<b>13.7</b>	<b>1.36</b> (1.21-1.52)
		Late Democracies	<b>18.9</b>	<b>1.87</b> (1.45-2.42)	<b>24.2</b>	<b>1.75</b> (1.39-2.21)

\* Age standardised differences between the top and bottom socio-economic groups in each analysis

## **Box 1: Welfare state regimes [1]**

### Liberal/residual

In the welfare states of the liberal regime (UK, USA, Ireland, Canada, Australia), state provision of welfare is minimal, social transfers are modest and often attract strict entitlement criteria; and recipients are usually means-tested and stigmatised. In this model, the dominance of the market is encouraged both passively, by guaranteeing only a minimum, and actively, by subsidising private welfare schemes. The liberal welfare state regime thereby minimises the decommodification effects of the welfare state and a stark division exists between those, largely the poor, who rely on state aid and those who are able to afford private provision.

### Conservative/Corporatist/Bismarckian

The conservative welfare state regime (Germany, France, Austria, Belgium, Italy and, to a lesser extent, the Netherlands) is distinguished by its 'status differentiating' welfare programs in which benefits are often earnings related, administered through the employer; and geared towards maintaining existing social patterns. The role of the family is also emphasised and the redistributive impact is minimal. However, the role of the market is marginalised.

### Social Democratic/Scandinavian

The Social Democratic regime type (Nordic countries), is characterised by universalism, comparatively generous social transfers, a commitment to full employment and income protection; and a strongly interventionist state. The state is used to promote social equality through a redistributive social security system. Unlike the other welfare state regimes, the Social Democratic regime type promotes an equality of the highest standards, not an equality of minimal needs and it provides highly decommodifying programs.

### Southern/Latin

It has been proposed that the Southern European welfare states (Italy, Greece, Portugal and Spain) comprise a distinctive, southern, welfare state regime. The southern welfare states are described as 'rudimentary' because they are characterised by their fragmented system of welfare provision which consists of diverse income maintenance schemes that range from the meagre to the generous and welfare services, particularly, the health care system, that provide only limited and partial coverage. Reliance on the family and voluntary sector is also a prominent feature.

## **Box 2: Theories of Health Inequalities [16][17][18][19][20]**

### Artefact

The artefact approach suggests that socio-economic inequalities do not really exist but are a result of the data used and methods of measurement: that difference in health by socio-economic class can be explained by differences in measurement and that the size of the inequalities observed is due to differences in data measurement tools.

### Health Selection

The health selection approach asserts that health determines socio-economic class status rather than socio-economic class determining health. Individuals who are 'fitter' are more likely to move up the social hierarchy. In contrast, people with ill health are downwardly mobile (or less upwardly mobile) and are therefore concentrated within the lower socio-economic classes.

### Cultural-Behavioural

The cultural-behavioural approach asserts that the link between socio-economic class and health is a result of differences between socio-economic class in terms of their health related behaviour: smoking rates, alcohol and drug consumption, dietary intake, physical activity levels, risky sexual behaviour, and health service usage. Such differences in health behaviour, it is argued, are themselves a consequence of disadvantage and unhealthy behaviours may be more culturally acceptable amongst lower socio-economic class.

### Materialist

The (neo)materialist explanation focuses on income and what income enables such as access to goods and services and the limitation of exposures to physical, and psychosocial, risk factors. Materialist approaches give primacy to structure in their explanation of health and health inequalities, looking beyond individual level factors (agency), in favour of the role of public policy and services such as schools, transport and welfare in the social patterning of inequality.

### Psychosocial

Psychosocial explanations focus on how social inequality makes people feel and their biological and health consequences. Social inequality leads to long term feelings of subordination or inferiority which in turn stimulate chronic stress responses which have profound consequences for physical and mental health. The socio-economic class gradient is therefore explained by the unequal social and economic distribution of psychosocial risk factors.

### Life Course

The life course approach combines aspects of the other explanations, thereby allowing different causal mechanisms and processes, to explain the social gradient in different diseases. Health inequality between socio-economic classes is the result of inequalities in the accumulation of social, psychological, and biological advantages and disadvantages over time.