

**The Social Sources of the Gradient:
A Cross-National Analysis of the Pathways Linking
Social Class to Population Health**

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One of the most durable findings in social science reveals a close association between socioeconomic position and health. In all countries, people in higher social classes tend to have better health – a relationship valid for many diseases as well as general measures of health and mortality (Adler *et al.* 1994; Kawachi 2000; Lynch and Kaplan 2000; Wilkinson 2005; Quevedo *et al.* 2005; Ross *et al.* 2006). In empirical terms, the existence of this health gradient is well established. However, theoretical efforts to explain *why* there is a close association between social class and health are less advanced. A relationship described as “mysterious” fifteen years ago is only slightly less so today (Angel 1993; Adler and Newman 2002; Adler and Snibbe 2003). Two broad approaches to this explanatory problem characterize much of the literature.

One emphasizes how multi-faceted the connections between health and social class are.¹ In the most influential exposition of this perspective, Link and Phelan (1995, 2000) suggest that socioeconomic inequality is a ‘fundamental cause’ of health, rooted in so many disparities of resources that it is reasserted even when some of those disparities are mitigated or the prevalent types of morbidity shift. This argument offers a powerful antidote to influential views that inequalities in health can be overcome by improvements in medical care or public sanitation, and it has inspired a wide ranging view of the pathways linking class to health (Carpiano *et al.* 2008; Acheson 1998).

¹ Although the literature often refers to ‘socioeconomic status’, referencing social differences associated with levels of income, education and status, we employ the broader concept of ‘social class’ to capture the relational qualities of class as well as these differences and others associated with power.

A second approach adopted by most scholarship in the field concentrates on the impact of one or two specific features of social relations. Across a diverse range of populations, three factors turn up as consistently important. Health seems to be affected by household income, the extent to which a person is embedded in social networks, and the level of security, control or autonomy enjoyed in the workplace (Marmot *et al.* 1997; Berkman *et al.* 2000; van Doorslaer and Koolman 2004; Bartley 2005; Collins *et al.* 2005; Mackenbach 2006). Because each of these factors can be dependent on social class, this research has uncovered important pathways linking class to health.

As explanations for why class differences generate disparities in health, however, both of these perspectives suffer from some limitations. The fundamental cause approach is pitched at too general a level to satisfy some criteria of explanation. It leaves the causal mechanisms linking class differences to health largely unspecified; and more pointed efforts to fill this gap do not yet aggregate into systematic accounts of how class translates into health (Hedstrom and Swedberg 1998; Lutfey and Freese 2005).

The studies that focus on specific features of social relations often adduce causal mechanisms behind their operation, but they leave us uncertain about the relative importance of that factor or how it might operate in tandem with others.² Suggestive attempts have been made to integrate such accounts into an overarching causal logic linking social class to health (Marmot 2004; Wilkinson 2005), but these take approaches that are broadly psychosocial rather than sociological, in the sense that they emphasize

² There are exceptions. See, for example, Schnittker (2004).

generalized status anxieties and feelings of relative deprivation likely to be generated by any status order rather than effects that can be associated with specific variations in social structure. As Figure One indicates, there is substantial variation in the health gradient across countries (Beckfield and Olafsdottir 2006). If that is to be explained, we need more sociological accounts linking variation in specific features of the social structure to population health.

In short, there is still a theoretical gap in the literature. We lack middle-range range theories explaining why the structure of class relations gives rise to disparities in health. We need theories encompassing enough to cover the multiple pathways that link social class to health but integrated enough to link each of those pathways to a comprehensive view of how class structures operate. They should specify the causal mechanisms through which these pathways operate. Although there is a role for psychosocial processes in these accounts, such theories must be able to explain how specific variations in class structure give rise to variations in population health, and they should be attentive to the social and cultural dimensions of class differences as well as the economic disparities in which those differences are rooted.

In this paper, we develop a theory that constitutes one effort to fill this gap and report the results of an initial empirical assessment of it. Our approach understands social class as a phenomenon rooted in economic relations but replete with ancillary social and cultural dimensions. We devote attention to the ways in which cultural frameworks mediate the impact of social relations and consider their importance relative to the material dimensions of class. We compare our approach to another inspired by

Bourdieu (1998) that represents one of the most promising alternatives for explaining how social relations condition population health.

The empirical component of this paper speaks to another set of limitations in existing studies of the health gradient. The majority of those studies focus on only one or two of the paths linking socioeconomic position to health, thereby leaving open the question of how important each pathway is relative to the others. To establish this, we deliberately examine multiple pathways together. Many studies cover only one or two countries, because the highest quality data is often available only at that level. When physiological processes are at issue, there are few problems with such research designs. Because social relations vary across countries, however, estimates based on single-country studies tend to truncate the distribution on the explanatory variables and invite confounding country-specific effects. Accordingly, we test our propositions about social relations on cross-national data. Finally, statistical studies tend to neglect the impact of cultural frameworks on the gradient, because pertinent measures are difficult to find. For the most part, we cannot resolve this problem, but we incorporate cultural into the analysis in an explicit effort to address it.

Toward a Sociological Approach to the Gradient

One of the distinctive features of sociology is its insistence on seeing society as a structure of social relations, whether broadly horizontal as in Durkheimian perspectives or vertical as suggested by Weberian and Marxian perspectives. The key implication is that the effects of occupying a specific set of positions in a particular society are

essentially relational, i.e. they flow from the relationships with others associated with that social position. This viewpoint can be compared to economic perspectives that construe societies as collections of individuals possessing attributes and resource endowments. From that perspective, any person's welfare turns on the distribution of attributes and endowments. By contrast, sociologists are more likely to associate a person's well being with the quality of the relationships intrinsic to the social structure in which he is located. Therefore, a core question in any sociological account of the health gradient must be: how does a person's position within the prevailing structure of social relations impinge on his health?

The Collective Lifestyles Approach

One of the most promising efforts to answer this question has been advanced by a set of scholars associated with what is often termed the 'collective lifestyles' approach to population health (Frohlich *et al.* 2001; Veenstra 2005; Cockerham 2005, 2007; cf. Williams 2003). They take inspiration from Bourdieu's (1984; 1998) contention that constitutive of every set of positions in the structure of social relations is a particular *habitus*, understood as a set of dispositions or practices, prevalent among people who occupy those positions and powerful because they embody views about what it is possible or appropriate for people 'like me' to do. Swidler (1986) describes an analogous set of dispositions as the 'strategies for action' with which those in particular sub-cultures are conversant. Others describe the 'possible selves' that people carry around in their

heads, linked closely to the cultural dimensions of their social position (Markus and Nurius 1986; Oyserman *et al.* 2006).

Building on such formulations, proponents of a collective lifestyles approach to population health argue that, among the dispositions characteristic of certain social positions, are some that incline people toward or away from behaviors that are more or less risky for their health. Frohlich *et al.* (2002) have argued, for instance, that the incidence of smoking is affected by dispositions closely associated with particular social positions.

We attach particular importance to this perspective because it offers a sociological account for why people in some class positions tend to have poorer health than those in other class positions. It has good microfoundations and an interpretive orientation that understands social class – from the ‘inside looking out’ rather than merely from the ‘outside looking in’ – as an inter-subjective construct, created by habits of the mind and of the heart rather than by purely material modalities (Bellah *et al.* 1985).

However, these features also define the limitations of the approach for explaining the gradient. It assimilates health closely to lifestyle. That may account for the health effects that follow from bad habits and injurious practices, but there are other facets to the structure of social relations, less dependent on personal practice, that carry disadvantages for a person’s health. Social class is not entirely a construct of mind – even of collective mind – and we need ways of capturing a broader range of its structural effects. Accordingly, while we consider this approach in the empirical analysis that follows, we

turn first to the problem of developing an alternative perspective on the relationship between class and health.

A Capabilities Approach

Cross-national comparison of the developed democracies on which we concentrate shows that the most pronounced differences in rates of mortality occur within the working age population rather than among those too old or young to be in the workforce. This is a suggestive indication that the most important disparities in health occurring across large populations may well arise as a result of the kinds of pressures working people experience – what is often termed the ‘wear and tear of daily life’. That is the starting point for our analysis. If factors associated with the pressures of daily life contribute to differences in mortality across nations, they are likely to have special relevance for the disparities in health found across social classes.

Class-based disparities in health are unlikely to result from adventitious events or evanescent experiences. Because class structures are enduring relationships, their effects are likely to bear on many dimensions of social life and cumulate over time. Therefore, we think that their health effects are most likely to be rooted in the experiences of daily life. This standpoint draws some support from the fact that the principal sources of morbidity and mortality in the developed world are a set of chronic illnesses now linked by a substantial literature to physiological developments associated with the experience of stress and the emotional states associated with it, including anxiety, anger, resentment

and depression (Brunner 1997, 2000; Miller *et al.* 2007; Gallo and Matthews 1999; see also Pearlin 1989; Pearlin *et al.* 1981; Turner *et al.* 1995).

A number of studies document the physiological pathways whereby experiences of stress and its associated emotional states get ‘under the skin’ in ways likely to be damaging to long-term health (Taylor *et al.* 1999; O’Dea and Daniel 2001; Hertzman and Frank 2006). Some operate through elevated levels of cortisol and other elements associated with the hypothalamic-pituitary-adrenocortical (HPA) system. Others operate through the sympathetic-adrenal-medullary (SAM) and immune systems. Some contend that repeated instances of stress can shift a person’s ‘allostatic load’ thereby operating, much as aging does, to induce progressive increases in the physiological costs of meeting new challenges from the social environment (McEwen 1998; 2005; Seaman *et al.* 2004; Hawkey *et al.* 2005). While disparities in health across social classes may have other origins as well, it is reasonable to attribute a substantial portion of them to such processes.

Accordingly, our focus is on the health effects that follow from the experiences of daily life. The initial problem is to explain how much ‘wear and tear’ those experiences exact. To do so, we propose a relatively simple model, suggesting that it will turn on the relative balance between the *life challenges* a person faces and the *capabilities* s/he brings to them. All people face major life challenges, such as those associated with finding work, attracting a companion, securing good housing, and caring for children. To

these challenges, people bring a certain set of capabilities for taking effective action to cope with them.³ Those who confront more difficult life challenges or do so with fewer capabilities will consistently experience higher levels of stress, anxiety, anger and frustration. Although everyone experiences challenging moments, we are concerned here with a balance between life challenges and capabilities that is durable enough to take a toll over time on one's health. It is the consistent quality of such experiences that is most likely to work its way under the skin.

A number of factors condition a person's capabilities for coping with life challenges. They are constituted, in the first instance, by key attributes of personality initially developed in childhood and adolescence, including emotional resilience, reflective consciousness and self-esteem (Pearlin *et al.* 2007; Poulton and Caspi 2003; Keating and Hertzman 1999). Evidence suggests that such attributes condition a person's ability to avoid risky behaviors and complete many tasks successfully (Kohn *et al.* 1990; Schnittker and McLeod 2005; Steinberg *et al.* 2006). However, we contend that economic and social relations can also be constitutive elements of the capabilities people deploy.

From our perspective, the structure of economic relations is important to health in two broad ways. The distribution of material resources conditions the magnitude of life challenges facing people, and it can have significant effects on their capabilities for

³ Although resonant with it, our concept of capabilities is more delimited than the one presented by Sen (1999). See also Hall and Taylor (forthcoming).

meeting them. Income is a multipurpose instrument that people can use to secure a decent residence, child-care, and many of the other things associated with life's challenges. People with lower incomes will have more difficulty coping with such challenges. In short, this model incorporates the contention that inequalities in income feed into the health gradient.

The structure of economic relations also distributes power in the workplace, through a set of firm hierarchies, and job security, through workplace organization and the regulatory regimes that sustain it. People in positions offering characterized by low levels of autonomy and job security are likely to experience more stress at the workplace and more difficulty coping with challenges beyond it.

However, just as a person's position within the structure of economic relations offers a certain set of material resources, so a person's position within the structure of social relations provides him with a set of social resources that can also be used for coping with life challenges (Wheaton 1985; Link and Phelan 1995; Taylor and Seeman 1999; Kristenson 2006). We see three dimensions of social relations as especially salient to a person's capabilities.

First are the horizontal dimensions of social relations reflected most prominently in the extent and character of the social networks in which a person is embedded. It should be apparent that membership in social networks can enhance a person's capabilities for coping with life challenges, and different types of networks are useful for different purposes (Berkman 1995; Berkman et al. 2000; Haslam *et al.* 2005). Close ties to family members or friends allow a person to call on others for logistical support with

childcare or emotional support in the face of life challenges. An extensive network of weak ties is useful for finding a job or housing (Erickson 2001). There are good reasons for thinking that the types of networks available in a society and a person's position within those networks affect his capabilities for coping with life challenges.

Equally important, however, are the vertical dimensions of social relations. All societies are characterized by social hierarchies that distribute status or social prestige. As Marmot (2004) and others have noted, health may suffer from something akin to the 'ontological anxiety' people suffer simply from occupying positions of low status (Giddens 1991; Singh-Manoux *et al.* 2005; Wilkinson 2005). From our perspective, however, status is important because of its contribution to peoples' capabilities to cope with life challenges. Coping with many of them requires the cooperation of others, and it is reasonable to think that people with higher levels of status are more likely to secure such cooperation. The problem can be as simple as getting a bureaucrat to approve a housing application or persuading a school to accept one's child. In each case, cooperation is more likely to be forthcoming when sought by people of higher status. We contend that a person's position within status hierarchies feeds into his capabilities for coping with life challenges.

A person's status will be dependent, in part, on the shape of the status hierarchy in each country. From the perspective of comparative inquiry into the gradient, therefore, we need a better understanding of how status is distributed in different societies and of the dimensions along which it might vary. We see at least two dimensions of that distribution likely to have a bearing on a country's health gradient. One is the steepness

of its status hierarchy. Where it is steep, those at lower rungs of the ladder may have access to fewer resources than their counterparts in societies with flatter hierarchies. Another important factor is the dimensionality of the status hierarchy. It is common to assume that status corresponds closely to income, but the two may not always be tightly coupled. In some societies or communities, the status hierarchy may be multidimensional, such that people of low income acquire status – in their eyes and that of others – in multiple ways, by virtue of their prowess at a sport or on the job, for instance, and from the roles they play in the family.

To invoke issues of status, however, is to observe that social relations are not merely matters of social organization. Constitutive of them are a set of cultural frameworks that may be as consequential for health as the organizational dimensions of social relations (Taylor 1994; Lamont 2000; Hall and Lamont forthcoming). The social connectedness of a society, for instance, is specified, not simply by the density of its social networks, but by the messages they convey about social belonging, what one owes others, and what one can reasonably expect from them in return (Emirbayer and Goodwin 1994; Sayer 2005).⁴ These are linked, in turn, to what Thompson (1971) described as the ‘moral economy’ of a community – a set of customary attitudes with normative force specifying what is normally considered appropriate or just.

⁴ One of the principal limitations of efforts to describe social connectedness in terms of conventional conceptions of ‘social capital’ is that they tend to ignore these cultural dimensions. Cf. Putnam 2000.

At the national level, we attribute special importance to a set of representations that might be termed the ‘collective imaginary’ of a society.⁵ It is constituted, at least in part politically, by successive public narratives linking the nation’s past to its future, specifying its distinctive accomplishments, and painting a vision of what it means to belong to the community as a whole. The collective imaginary can feed into capabilities in a number of ways. Typically, it supplies some social resources available to all. By specifying standards of behavior to which people can hold others, it can affect people’s willingness to turn to others for help and the likelihood such help will be supplied.⁶ In the collective purposes it elaborates, people can find a sense of purpose for themselves and symbolic templates for new courses of action (Cornell and Kalt 1992). Collective representations can condition a person’s emotional resilience in the face of challenges. As Durkheim observed, such visions of the community can offset feelings of social isolation, and they can enhance optimism about the future – a factor often associated with health (Hobfoll *et al.* 2002). In other respects, however, the collective imaginary can limit the social resources available to some people. Where it defines some groups as marginal to the community or promulgates negative stereotypes, for instance, it can reduce the self-efficacy of members of those groups and damage their capacities to secure

⁵ The concept is influenced by Castoriades’ (1987) conception of the ‘social imaginary’ but refers to a more restricted range of representations (see also Bouchard 2003).

⁶ Sampson *et al.* (1997, 2002) find that levels of violence are lower in Chicago neighborhoods where people feel entitled to correct the conduct of their neighbors’ children. Their research suggests that such elements of the collective imaginary may be more potent than the relations of mutual reciprocity and levels of generalized social trust often associated with ‘social capital’.

cooperation, thereby reducing their capabilities for coping with a wide range of life challenges (Steele1999; Steele and Aronson 1998).

Let us summarize. In response to the question ‘why do people in the lower social classes usually have worse health than those in higher social classes?’ we have proposed an answer that focuses on the toll taken on health by the wear and tear of daily life and links that toll to the balance between a person’s life challenges and capabilities. We acknowledge that people in lower socioeconomic positions often face more stringent challenges, but emphasize the ways in which their position within the structure of social and economic relations conditions their capabilities. By virtue of their position within the structure of economic relations, people in the lower social classes typically have lower levels of income, job security and autonomy at work. By virtue of their position within the structure of social relations, they typically have less status and fewer social connections. We view these social resources as equally, if not more, important than economic resources to people’s capabilities and, therefore, to their health. We see the collective imaginary as a constitutive element of social relations that can offset some of these disparities by providing all citizens with a sense of social belonging but may reinforce others if it defines some groups as marginal to the community.

This schema emphasizes the contribution social structures make, in tandem with economic relations, to the construction of the health gradient. Although not incompatible with a collective lifestyles approach to the gradient, this capabilities approach is likely, in our view, to explain more of the class disparities in health because of its focus on experiences that are a feature of daily life with the potential to exercise cumulative effects

over years of wear and tear. In contrast to psychosocial approaches, with which ours has some affinities, this framework provides ways of understanding, not only why social class feeds into health, but why the shape of the gradient varies across countries. It suggests that variation may be attributable, not only to differences in the distribution of economic resources, but to cross-national differences in the character of social networks, the shape of the status hierarchy, and the nature of national collective imaginaries.

We are not claiming to have enumerated all the factors that affect the health of the poor. Our aspiration is rather to put some causal scaffolding in place with a view to showing how particular structures of social relations give rise to population health outcomes with a particular shape. We accept the premise that social inequalities generate health inequalities but want to show why that is the case in order to fill in some of the blanks left open by the view that social inequality is a fundamental cause of the gradient.

Cross-National Empirical Analysis

A number of empirical implications flow from this analysis. If we are correct, the distribution of social resources should be as consequential for health as the distribution of economic resources, and the impact of social relations should be reflected, not only in the impact of social networks or status hierarchies, but in the effects of the collective imaginary. Propositions such as these are intrinsically difficult to test with statistical analysis, because measures for the relevant social variables are scarce and inevitably crude. However, there is value in subjecting the kinds of contentions we have made here

to such tests, if only to provide a basis for further investigations using comparative case studies and more elaborate surveys.

Therefore, we have conducted a series of estimations designed to explore the determinants of the gradient and assess some of the contentions in our argument about it. As noted, we are skeptical of the value of estimating the impact of social relations on data drawn from a single country. Therefore, we have assembled a dataset of representative samples of the populations of fourteen developed democracies, which includes: Austria, Belgium, Britain, Canada, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Spain, and the United States.⁷ Our data is drawn from the 1990 World Values Survey, one of the few sources of cross-national data extending beyond Europe that contains indicators for health as well as the relevant economic and social variables. We restrict the analysis to developed democracies in order to avoid the ancillary issues that arise when developing countries are also considered. When missing values are excluded, the sample ranges in size from 10,825 to 8,253 respondents.

Since our objective is to illuminate the social sources of the gradient, we are interested in how the features characteristic of specific class positions feed into people's health. Therefore, we conduct an individual-level analysis in which health is the dependent variable and assess the impact on it of variables reflecting that person's position with the structure of social and economic relations. The dependent variable in

⁷ These are all the OECD nations in this wave with responses to the relevant questions we were able to code.

these estimations is self-rated health dichotomized to reduce measurement error, as is conventional, based on responses of ‘poor’ or ‘fair’ and responses of ‘good’ or ‘very good’ to the question ‘All in all, how would you describe your health these days?’ (Manor *et al.* 2000). Studies have shown self-rated health to be a good predictor of actual health (Benyamini *et al.* 1999; Goldman *et al.* 2004). The explanatory variables are as follows.

To indicate the economic resources available to the respondent, we use household income standardized into US dollars on a purchasing power parity basis.⁸ Since most accounts suggest that the relationship between income and health is curvilinear, we take the log of this variable; and, because the slope of the bivariate relationship between income and health varies substantially across national cases, we employ an interaction term to secure country-specific estimates for the impact of income (Mackenbach *et al.* 2005). In order to capture the impact of the hierarchies characteristic of economic relations, we include an indicator for the degree of autonomy the respondent reports having at work.

As indicators for the social resources available to a person by virtue of social connectedness, we deploy measures of the extent to which an individual regards family as

⁸ An alternative specification would use income deciles. However, we translate the income decile respondents reported into US dollars on purchasing power parity terms to reflect our contention that income confers a set of material resources. Using deciles gives the indicator a stronger ordinal character that tends to build differences of status into a measure of income.

important and feels connected socially to other people, as well as the number of secondary associations to which he belongs.⁹

We have argued that social status can also be a social resource, which may be distributed differently across countries. Since the World Values Survey includes no measure for social status, we construct a proxy for it using responses to a question on the 1999 ISSP Equality Survey that asked people to place themselves on a scale reflecting their social status. We then assigned respondents to the WVS a score for social status corresponding to the average score reported by people in that country at the same income decile. Although crude, this measure should pick up variations in the shape of the national status hierarchy. In countries where the hierarchy is steep, those at lower income deciles report lower levels of social status than their counterparts in countries where status is more evenly distributed across the population.

As standard controls, the estimations include gender, age and years of education.¹⁰ We have suggested that a person's capabilities turn, not only on his access to economic and social resources, but also on attributes of personality. Therefore, to complete the specification, we include a measure of the respondent's self-mastery, one of the attributes of personality closely associated with a wide range of competencies (Pudrovska *et al.* 2005; Daniel *et al.* 2006; Elliott *et al.* 1986).

⁹ For the questions on which these indicators are based and the scales used for each, see the appendix.

¹⁰ An indicator for unemployment was included in the initial estimations but dropped because it was statistically insignificant across all specifications.

The models all include country fixed-effects to capture country-specific factors that may influence the level of health reported in each nation. We thus estimate a model of the following form:

$$(1) \quad Y_i = c_j + \beta_j (\log I_i) + \Sigma(\beta x_i) + \Sigma(\beta v_i) + \Sigma(\beta w_i) + \varepsilon_i$$

where Y_i is the likelihood the respondent reports poor health, c_j is the intercept specific to country j , I_i is the income of the respondent, x_i is the vector of explanatory variables of interest, v_i is a vector of control variables, and ε_i is an error term. Because the dependent variable is dichotomous, a logit analysis was employed for estimations conducted in Stata and quantities of interest estimated using Clarify (Tomz *et al.* 2003; King *et al.* 2000).

The Relative Impact of Economic and Social Resources

The capabilities approach to the gradient suggests that access to social resources may be as important to a person's health as access to economic resources. Therefore, we are especially interested in the relative impact of social, as compared, to economic resources. Model 1 in Table One displays some initial results on this point. Social connectedness has a clear impact on health. Although the impact of associational membership is not statistically significant when other measures of social connectedness are included in the specification, our indicators for a person's connections to family and other people are significantly related to health. There is clear evidence here congruent with findings in many country-level studies that social resources matter to a person's health (Berkman and Kawachi 2000; Siegrist and Marmot 2006).

By contrast, the impact of income on health does not reach statistical significance (at the .05 level) in these estimations or in equivalent ones conducted on the individual country samples, except for the cases of Norway, Germany and the United States.¹¹ When we drop the assumption that the slope of the relationship varies by country and estimate a single coefficient for the whole sample, however, income appears to have an effect on health (Model 4 in Table One). We find similar results when respondents are divided into three income groups. Compared to the most affluent group, middle-income respondents are 1.29 times more likely to report poor health and poor respondents 2.06 times more likely. These are ambiguous results. Comparison of the confidence intervals on the pooled and country-specific estimates suggests we cannot reject the hypothesis that increases in income reduce the likelihood of poor health. On balance, therefore, we conclude it does. However, these results suggest that inequalities in income may not always be as crucial a determinant of inequalities in health as some expect.¹² Since the corresponding relationships between social connectedness and health are strong and robust to alternative specifications, we conclude, on the main issue, that social resources are as important as economic resources to health.

Turning to the impact of a person's position in social and economic hierarchies on his health, we find a strong association between autonomy in the workplace and health. People in positions that give them more control over their work are significantly less

¹¹ The results of the country level estimations are not reported here but available from the authors.

¹² For parallel findings, see Schnittker (2004).

likely to suffer from poor health, as other studies confirm (Marmot *et al.* 1997; Siegrist and Theorell 2006). What about the impact of more general social hierarchies? Model 2 in Table One displays the results of including in the estimations our variable measuring social status.¹³ Although the effect is in the expected direction – lower status is associated with poorer health – the coefficient does not reach statistical significance. Because this measure is a crude proxy for the respondent’s actual level of social status, however, it is difficult to know whether this result is a reflection of measurement error or of limited impact of general social status on health. Given the substantial evidence that status conditions health, we think this is an issue that deserves further cross-national investigation (Operario *et al.* 2003; Marmot 2004; Dunn *et al.* 2005; Veenstra 2005).

Table Two reports first differences that show the effects on health of shifts in various dimensions of social or economic position when the other variables are held at a baseline reflecting the position of the median individual in the sample.¹⁴ They indicate that position within the structure of social relations affects a person’s health at least as much as position within the structure of economic relations. Across these developed democracies, people who are lonely are 11 percent more likely to suffer from poor health than those who are socially connected; and people for whom family ties are important are 6 percent less likely to be in poor health than those for whom they are not. Shifting from

¹³ Because status measures are available only for some countries, introducing it drops Belgium, Denmark, Finland, Ireland and Italy from the sample.

¹⁴ The first differences are derived from model 3 in Table One. The baseline values reflect a male respondent with mean age, education and income, median job autonomy and self-mastery, who has family ties, is socially connected, and feels national belonging.

a low level of workplace autonomy to a high level renders a person 3 percent less likely to report poor health. By contrast, movement from the 25th to the 75th percentile of the income distribution in the United States, where income is more closely related to health than in other nations, increases the likelihood a person has poor health by at most 5 percent.¹⁵

Self-mastery is consistently associated with better health and the control variables operate as expected: women are more likely than men to report poor health, and health status declines with age.

Capabilities versus Collective Lifestyles

As noted, one of the most promising theoretical alternatives to the capabilities approach for specifying the linkages between social class and health is a collective lifestyles approach that attributes importance to the dispositions associated with social position. We view the two approaches as complements, rather than rivals, to one another. However, we have suggested that, because it focuses on the wear and tear arising from daily experiences, the capabilities approach is likely to explain more of the variance in health found across social classes.

To test this proposition fully would require better data on dispositions than the WVS provides. However, our estimations provide at least one suggestive assessment. Level of education should be closely associated with the types of attitudes the collective

¹⁵ Moreover, the effect is small enough that it does not rise to statistical significance.

lifestyles approach emphasizes. The differences in worldview at the heart of a collective lifestyles account flow, of course, from informal features of the social setting as often as they do from formal education. But higher levels of education are widely associated with shifts in the types of attitudes pertinent to collective lifestyles and can be taken as a proxy for them (Phelan *et al.* 1995; Osler *et al.* 2000). Therefore, if collective lifestyles form the crucial link between class and health, higher levels of education should be associated with better health.

In our results, however, it is not: the coefficient on education is relatively small. It has the expected sign but does not reach statistical significance in any of our specifications. Across our sample, the impact of education on health pales in comparison to that of social connectedness or income. Since education is sometimes taken as an indicator for class background, its failure to reach significance is even more striking. This element of our results suggests that the capabilities approach has more power for explaining disparities in health than a collective lifestyles approach.

The Impact of the Collective Imaginary

We have argued that the dimensions of social relations relevant to capabilities and to population health extend well beyond the formal or informal organization of society to include the systems of meaning and cultural repertoires that animate them. We have suggested that various dimensions of the collective imaginary, in particular, can enhance or erode the capabilities people bring to life challenges.

Needless to say, it is impossible to assess the overall impact of the collective imaginary through statistical analysis, and we make no pretense to doing so. However, we are interested in establishing that, alongside the network relations and material factors considered here, the collective imaginary also has an impact on health. Cultural variables are rarely included in the multivariate estimations sometimes thought to provide the most stringent assessments of which factors condition population health. Therefore, we make a special effort to do so here. For such variables to emerge as significant should be a good test of the relevance of cultural frameworks to the social resources on which people draw for their capabilities.

As we have noted, the collective imaginary is a social resource in part because it offers people an ‘imagined community’ that undercuts social isolation and provides a sense of belonging even to those who are not members of extensive social networks. These feelings of belonging can fortify individuals against adversity, contributing to their sense of purpose, self-esteem and generalized capabilities (Lyons *et al.* 1998).

If this argument is correct, people for whom the nation’s collective imaginary inspires a sense of belonging should enjoy better health. We test this proposition by including in the estimations a measure of the respondent’s feeling of national belonging, assessed by the level of pride he or she expresses in being a member of the nation. In these fourteen nations, we can assess this effect against a range of different collective imaginaries that vary with respect to how much they encourage such feelings of belonging. While the collective imaginaries of Ireland and the United States manifestly

do so, for instance, that of Germany does not, in the wake of suspicions about nationalism aroused by the national socialist experience.

Model 3 in Table One reports results of estimations that include a measure for the extent to which respondents feel a sense of national belonging. The coefficient on this variable is statistically significant, in the expected direction, and robust to a variety of specifications. Table Two indicates that, *ceteris paribus*, a strong sense of national belonging increases the likelihood of good health by about 3 percent— a shift in magnitude equivalent to that secured by moving from a job that offers little autonomy to one that offers a great deal.

We take this as confirmation of the view that the collective imaginary can supply resources analogous to public goods available to large numbers of people in many sorts of social positions, thereby flattening the gradient by offsetting the unequal distribution of other types of economic and social resources. Of course, other dimensions of the collective imaginary not assessed here may intensify health inequalities by defining some groups as marginal to the community or assigning status on the basis of how many other social and economic resources an individual acquires.

The Distribution of Social and Economic Resources

The results of these estimations suggest that people's capabilities are enhanced by social resources embodied in the structure of social relations as well as the economic resources on which they draw. These observations explain the gradient, however, only if these structures of social and economic relations distribute such resources unevenly across

social classes. Fundamental to our perspective is the expectation that capitalist economic relations and the structure of social relations in these affluent democracies provide people in lower class positions with fewer resources than those who are in higher class positions. We expect these to be distributed more equally in some countries than others – a phenomenon that could explain some of the cross-national variation in the shape of the gradient – but we think unequal distributions across class categories will be the norm and move to an examination of that.

Table Three reports the distribution of the factors we associate with economic or social resources across social classes for the entire pool of respondents in eleven countries.¹⁶ Our class categories are based on a standard system of classification and interviewer-coded.¹⁷ The results conform closely to expectations. Unskilled manual workers are almost twice as likely as those in the professional-managerial class to suffer from poor health. On average, people in successively higher social classes enjoy more social and economic resources *of every type* than those in the class below, with the exception of those offered by the collective imaginary – the lower classes draw more heavily on feelings of national belonging than do the upper classes.

Table Four extends this analysis to individual countries on the basis of odds ratios derived from Model 1 in Table One. These ratios reflect the relative advantage, with

¹⁶ The figures in Table Three omit responses from Denmark, Finland and Norway because the surveys conducted there did not include measures of social class.

¹⁷ For reviews of relevant measurement issues see Liberatos *et al.* 1988; Wright 1997; and Galobardes *et al.* 2007.

respect to any one resource, enjoyed by those in the highest social class relative to those in the lowest class. The cell for ‘workplace autonomy’ in France, for instance, indicates that, holding other things equal, a person with the average level of job autonomy enjoyed by someone from the lowest social class (DE) in France is 28 percent more likely to suffer from poor health than someone whose job autonomy is equivalent to the average found among the top class (AB) in France.

Since these odds ratios are based on coefficients derived from an estimation on the pooled sample, the magnitude of each ratio reflects how unequal the distribution of that resource is across social classes in each country.¹⁸ The overall distribution of social and economic resources is clearly more unequal in some countries than others. Social resources are distributed more evenly across social classes in Austria and Ireland, for instance, than in France or Germany. That may help to explain why the gradient linking health to social class is relatively flat in Austria and Ireland but steeper in France and Germany. The core point is reflected, however, in the fact that, with the exception of national belonging, for virtually all of these variables, the odds ratios exceed unity. Within every country, people in the upper social classes have consistently more social and economic resources than those in lower class positions.

¹⁸ The exception are the figures for income, which are calculated on coefficients that vary by country. However, the odds ratios for income must be treated with caution because most are based on coefficients that do not reach statistical significance with correspondingly wide confidence intervals. We include them here so that their general magnitudes can be compared to those for other variables within and across countries.

In order to secure the capabilities to cope with challenges that contribute to health, how important is it for a person to have access to *both* social and economic resources? There is a possibility that social resources might be of less value to those with substantial economic resources, and some argue that the poor can use social networks to make up for the economic resources they lack. If this is the case, the distribution of capabilities may be more equal than the distribution of resources would suggest.

To assess these possibilities, we introduced into the estimations an interaction term for income and each of the principal indicators of social connectedness.¹⁹ We found that the social resources associated with social connectedness to other people, close ties to family, membership in associations, and feelings of national belonging seem to have roughly the same impact on the health of the rich as the poor. At both the 25th and 75th income percentiles, for instance, those with social connections are about 11 percent more likely to report good health than those without such connections. Income does not seem to be such a complete substitute for social connectedness that the rich can do without those connections; and the poor do not appear to derive any more capabilities from their social connections than the wealthy. Income also has about the same effect on health among those with and without extensive social connections. The social and economic resources identified here seem to have a similar value for people in all social and economic positions.

¹⁹ These estimations are available on request from the authors.

In sum, in the developed democracies, the structures of social and economic relations distribute social and economic resources unequally in terms that consistently privilege those in higher class positions and deprive those in lower class positions. The weight of the evidence suggests that the health gradient rests, in substantial measure, on variations in capabilities conditioned by the structures of social and economic relations.

Conclusion

These results are broadly supportive of the theoretical framework we have adduced to explain the relationship between social class and health. Our approach emphasizes the toll taken on health by variations in the wear and tear of daily life arising from imbalances between life challenges and people's capabilities for coping with them. We have argued that those capabilities are conditioned by the economic and social resources available to an individual by virtue of his position within the structure of economic and social relations. This capabilities approach outlines a set of causal pathways from class relations to population health with the potential to explain a substantial portion of the health gradient.

Our analysis suggests that population health depends as much on the social structures of the developed democracies as on the economic structure of capitalist economies. Our evidence indicates that people's capabilities for meeting life challenges turn on the social resources available to them as well as on economic resources. We have devoted less attention to life challenges, which also vary systematically with economic and social context, although we note that they also condition the gradient.

In contrast to views of social relations that conceptualize them in relatively thin terms, based on the density of social networks or the prevalence of exchange relations and generalized trust, we see cultural frameworks as constitutive elements of the structure of social relations with important implications for people's health; and we offer some evidence for these standpoint. Although statistical analyses will never capture all the ways in which available cultural repertoires condition population health, they should not be ignored in such analyses. We see a case for developing richer data sets and more concerted efforts to assess the contributions of cultural frameworks to population health.

Because our focus is on developing and substantiating a general account for the social sources of the gradient, we have concentrated on similarities across the developed democracies. However, this study also lays the groundwork for better explanations of cross-national differences. Although always upward sloping, the shape of the gradient linking social class to health varies across countries. In some nations, disparities in health between the lower, middle and upper-middle classes are much larger than they are in other countries. We need better explanations for these differences.

Some of that variation is likely attributable to variation in the national policy regimes that regulate social protection, health care, and employment (Schoeni *et al.* 2008; Eikemo *et al.* 2007; Chung and Muntaner 2006; Zambon *et al.* 2006; Dunn *et al.* 2005a; Lahelma and Arber 1994).²⁰ However, our account indicates that variations in the shape of the gradient may also turn on cross-national variation in the structure of social and

²⁰ On interaction effects between public policy and social structure see also Hall and Taylor (forthcoming).

economic relations. The fact that the health gradient in France is steeper than in Austria may be linked, for instance, to the fact that social connectedness is distributed much less evenly in France than in Austria. Systematic differences in economic relations may have similar effects (Hall and Soskice 2001; Amable 2003). At the moment, these are simply conjectures, but they point to the value of further cross-national research into the shape of the health gradient and the importance of considering how national variations in social and economic structures feed into it.

The formulations presented in this paper draw on a wealth of previous research in social epidemiology and the sociology of health and illness. In many cases, our results are consistent with previous findings. Our objective has been to build them into a more general account of how the structures defining class relations give rise to systematic health inequalities and to subject that account to cross-national scrutiny. We are encouraged by the empirical support this cross-national analysis yields and think there are research agendas of importance in this capabilities-oriented approach to population health.

Appendix: Indicators from the 1990 World Values Survey Employed for the Explanatory Variables

Family Ties:

Q: Please say, for each of the following, how important it is in your life: Family.

A: Very important, quite important, not very important, not at all important. D.K. (dichotomized)

Social Connectedness:

Q: We are interested in the way people are feeling these days. During the past few weeks, did you ever feel very lonely or remote from other people?

A: yes/no.

Associational Membership:

Q: Please look carefully at the following list of voluntary organizations and activities and say which, if any, you belong to.

A: Respondent given a list of fifteen kinds of associations as well as the categories 'other groups' and 'none'.

Workplace Autonomy:

Q: How free are you to make decisions in your job? Please use this card to indicate how much decision-making freedom you have.

A: None at all 1 2 3 4 5 6 7 8 9 10 A great deal. DK

National Belonging:

Q: How proud are you to be British (or nationality of country)?

A: Very proud, quite proud, not very proud, not at all proud. DK (dichotomized)

Self-Mastery:

Q: Some people feel they have completely free choice and control over their lives, and other people feel that what they do has no real effect on what happens to them. Please use the scale to indicate how much freedom of choice and control you feel you have over the way your life turns out.

A: None at all 1 2 3 4 5 6 7 8 9 10 A great deal. DK

Education:

Q: At what age did you or will you complete your full time education, either at school or at an institution of higher education? Please exclude apprenticeships.

A: Age coded beginning with age 13 and ending with age 21 or over.

Income:

Q: Here is a scale of incomes and we would like to know in what group your household is, counting all wages, salaries, pensions and other incomes that come in. Just give the letter of the group your household falls into, before taxes and other deductions.

A: Respondent was given a card showing ten categories defined by the relevant deciles for household income for that country. (Transformed into USD at purchasing parity).

Social Class:

Interviewer asked to code the socioeconomic status of respondent in the following categories:

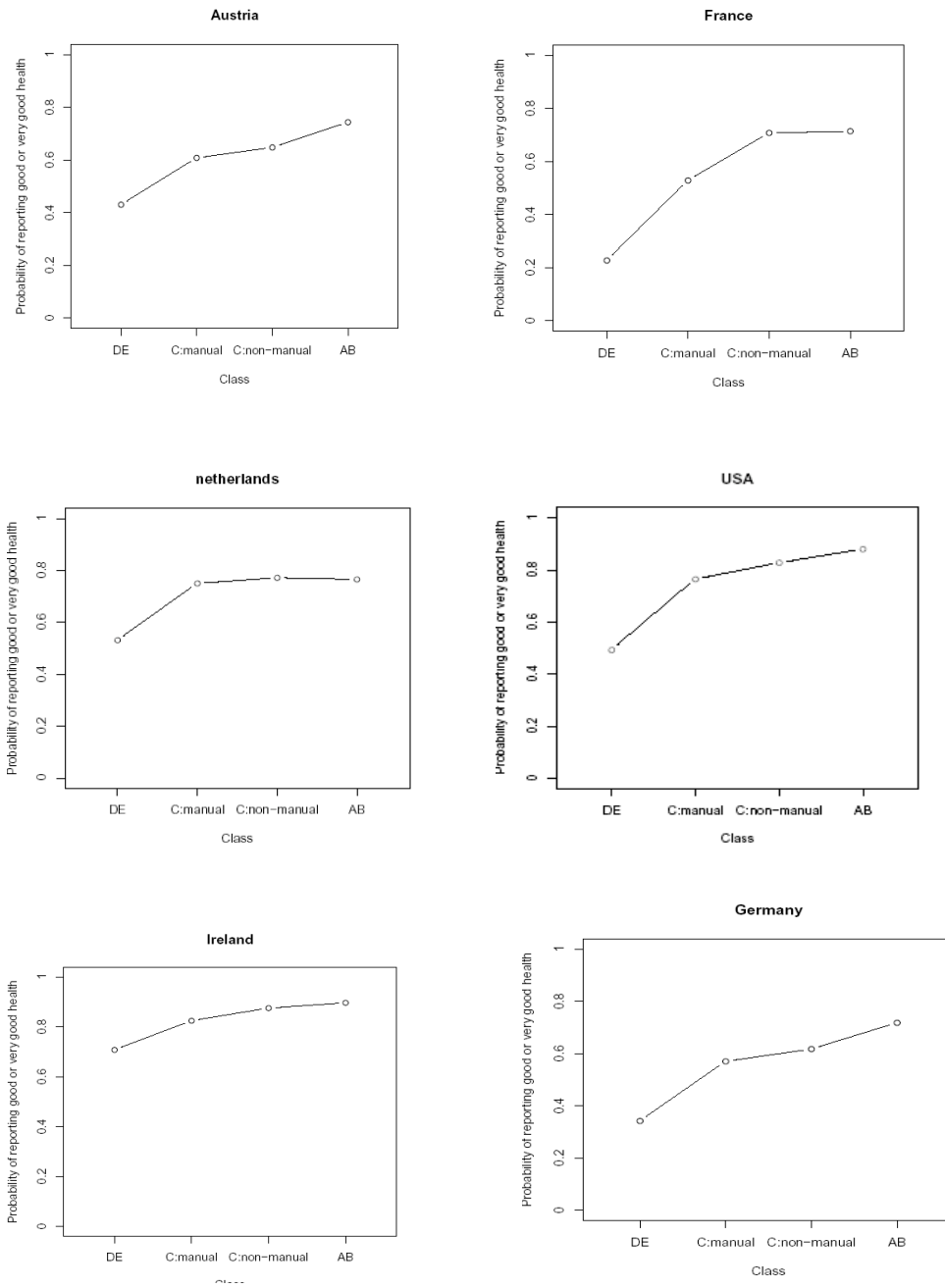
AB Upper, upper-middle class

C1 Middle, non-manual workers

C2 Manual workers – skilled, semi-skilled

DE Manual workers – unskilled, unemployed

Figure One: The Shape of the Health Gradient in Various OECD Countries



Source: World Values Survey 1990.

Table One: The Impact of Social and Economic Resources on the Likelihood of Reporting Poor Health (Logistic Regressions)

	Model 1	Model 2	Model 3	Model 4
Gender	0.15 (0.06)	0.13 (0.05)	0.14 (0.05)	0.14 (0.06)
Unemployed	0.12 (0.15)	0.11 (0.17)	0.07 (0.16)	
Age	0.04 (0.00)	0.04 (0.00)	0.04 (0.00)	0.04 (0.00)
Education	-0.01 (0.01)	0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Self-Mastery	-0.12 (0.01)		-0.12 (0.01)	-0.12 (0.01)
Social Connectedness	-0.69 (0.06)	-0.71 (0.07)	-0.66 (0.07)	-0.66 (0.07)
Ties to Family	-0.39 (0.08)	-0.38 (0.09)	-0.38 (0.08)	-0.38 (0.09)
Associational Membership				-0.02 (0.02)
Social Status		-0.06 (0.12)		
Feeling of National Belonging			-0.19 (0.07)	-0.19 (0.08)
Workplace autonomy	-0.06 (0.01)	-0.07 (0.01)	-0.06 (0.01)	-0.06 (0.01)
Log income				-0.37 (0.08)
Log income Austria (baseline)	-0.37 (0.24)	-0.30 (0.29)	-0.42 (0.25)	
Log Income Belgium	-0.01 (0.52)		0.01 (0.33)	
Log Income Canada	0.18 (0.39)	0.01 (0.25)	0.03 (0.36)	
Log Income Denmark	0.01 (0.46)		0.02 (0.39)	
Log Income Finland	-0.01 (0.29)		-0.01 (0.16)	
Log Income France	0.08 (1.72)	0.08 (1.43)	0.10 (1.66)	
Log Income Ireland	0.01 (0.66)		0.02 (0.53)	
Log Income Italy	-0.03 (0.57)		-0.03 (0.43)	

Log Income Netherlands	-0.03 <i>(0.63)</i>	-0.02 <i>(0.28)</i>	
Log Income Norway	-0.07 <i>(1.48)</i>	-0.07 <i>(1.31)</i>	-0.06 <i>(.96)</i>
Log Income Spain	0.05 <i>(1.13)</i>	0.07 <i>(1.37)</i>	0.06 <i>(0.94)</i>
Log Income Britain	0.07 <i>(1.68)</i>	0.07 <i>(1.37)</i>	0.08 <i>(1.25)</i>
Log Income United States	-0.04 <i>(1.41)</i>	-0.06 <i>(1.58)</i>	-0.03 <i>(0.84)</i>
Log Income Germany	-0.02 <i>(0.37)</i>	-0.03 <i>(.42)</i>	-0.02 <i>(0.26)</i>
Constant	1.92 <i>(2.30)</i>	0.48 <i>(2.42)</i>	2.85 <i>(2.39)</i>

Note: Coefficients significant at the .05 level or higher in bold. The country specific effects of income reported here are the average effect of the interaction between log income and country, and the average standard error, since the interaction effect itself takes different values for each observation (Ai, Wang and Norton 2004)

Table Two: The Effect of Changes in Social or Economic Position on the Likelihood of Reporting Poor Health (First differences associated with the specified change)

	Effect of Change	Lower bound of 95% Confidence Interval	Upper bound of 95% Confidence Interval
Income: (from 25th pctile to 75th pctile) in:			
Austria	-0.04	-0.10	0.01
Belgium	-0.03	-0.08	0.00
Canada	-0.02	-0.07	0.01
Denmark	-0.02	-0.08	0.02
Finland	-0.05	-0.16	0.02
France	0.02	-0.01	0.07
Ireland	-0.02	-0.05	0.00
Italy	-0.06	-0.15	0.03
Netherlands	-0.06	-0.12	0.00
Norway	-0.09	-0.17	-0.03
Spain	0.00	-0.06	0.05
Britain	0.01	-0.01	0.03
US	-0.05	-0.10	-0.02
Germany	-0.06	-0.10	-0.02
Gender (from male to female)	0.02	0.00	0.04
Age: (from age 40 to 50)	0.06	0.05	0.08
Education: (left school at 21 vs 18)	0.00	-0.01	0.00
Social Connections (from yes to no)	0.11	0.08	0.14
Family ties (from yes to no)	0.06	0.03	0.10
Job Control: (25th pctile to 75th pctile)	-0.03	-0.05	-0.02
Self-Mastery: (25th pctile to 75th pctile)	-0.03	-0.05	-0.02
Feeling National Belonging: (yes to no)	0.03	0.01	0.06

Note: Effects statistically significant at the .05 level are in bold.

Table Three: Distribution of Economic and Social Resources across Social Class in the Full Sample

<i>Social Class</i>	Poor Health %	Yrs of Edctn	Self-Mastery Mean Score	PPP Income Mean USD	Job Control Mean Score	Ties to Family % Yes	Socially Connected % Yes	Assoc Mmber Mean Number	National Belonging % High Level
Unskilled Manual (DE)	28	15.6	59	9470	6.1	85	78	0.96	86
Skilled Manual (C man)	26	16.6	62	11898	6.5	88	79	1.25	84
Lower-level White Collar (C non-man)	22	18.7	66	14295	7.0	91	85	1.59	84
Managerial-Professional (AB)	15	21.6	73	21829	7.2	92	88	2.07	87

Table Four: Ratios for the Likelihood of Reporting Poor Health from Lower Class Positions Relative to Higher Class Positions, by Country

	<i>All</i>	Aus	Bel	Cda	Fra	Ger	Ire	Italy	Nth	Spn	UK	US
<i>Combined Effect of All Variables</i>	1.73	1.35	1.24	1.22	3.52	1.66	1.86	2.10	1.51	1.58	1.99	1.41
Income	1.35	1.32	1.20	1.31	1.47	1.43	1.46	1.20	1.24	1.26	1.38	1.29
Education	1.07	1.02	1.02	1.01	1.04	1.06	1.03	1.08	1.06	1.06	1.03	1.03
Family Ties	1.03	1.03	1.02	1.02	1.16	1.07	1.00	1.03	0.99	1.02	1.04	1.04
Social												
Connectedness	1.07	1.07	1.05	1.07	1.83	1.11	1.01	1.09	1.15	1.07	1.08	1.09
Workplace												
Autonomy	1.01	1.03	1.13	1.09	1.28	1.17	1.05	1.15	1.12	1.08	1.11	1.10
Self-Mastery	1.07	1.01	0.99	0.99	1.10	1.09	1.00	1.21	1.08	1.05	1.07	0.99
National												
Belonging	1.03	0.98	0.98	0.99	0.98	1.01	1.00	1.00	0.97	1.00	1.00	0.99
Associational												
Membership	1.08	1.02	1.01	1.03	0.99	1.02	1.08	1.01	1.05	1.02	1.03	1.04

Note: The cells report the odds of someone with the value on each variable typical in social class DE (manual workers) reporting poor health relative to someone with the value of the variable typical in social class AB (managerial-professional). Although odds ratios are reported for all variables to convey a sense of the magnitude of the potential effects, note that in our estimations the effects of associational membership and education are not statistically significant and income reaches significance only in Germany and the U.S.

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