Fundamental Causes of Health Disparities: Stratification, the Welfare State, and Health in the United States and Iceland*

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Research has established that those with higher social status have better health. Less is known about whether this relationship differs cross-nationally and whether it operates similarly across different institutional arrangements. To examine the relationship between stratification and health, two Western, industrialized societies at opposite ends of an equal/unequal continuum are compared: the United States and Iceland. Using data from the 1998 General Social Survey and the 1998 Health and Living Standards of Adult Icelanders survey, I draw from two theoretical perspectives. First, I explore the notion of fundamental causes of disease by examining whether stratification has similar effects on health. Second, I examine whether the organization of welfare states affects this relationship. The results show that education, employment, and relative poverty have similar effects on health in both nations, thus supporting the notion of a fundamental cause. However, in Iceland relative affluence has a weaker relationship with health. Further, being a parent, regardless of marital status, has a stronger positive relationship with good health in Iceland. Welfare state intervention may be most successful in equalizing health outcomes by supporting families and by removing advantages traditionally accumulated by the wealthy in capitalist societies.

A central theme in sociology is that institutional arrangements within a society affect individual lives. Along these lines, the social organization of health care should affect individual health. Yet across societies with and without universal health care, the association between higher social status and better health is one of the most consistent findings in medical sociology (Mirowsky, Ross, and Reynolds 2000; Rieker and Bird 2000; Robert and House 2000; Schnittker and McLeod 2005; Smaje 2000; Williams and Collins 1995). While policy makers once believed that health disparities could be eliminated by equal access to health care, research continues to show that such disparities are largely due to other social conditions. Specifically, equalizing health care does not work to improve health if individuals continue to live in dire social conditions (Davey Smith, Bartley, and Blane 1990; Townsend, Davidson, and Whitehead 1990). The primary interest of this article lies in understanding health disparities—that is, differences in health profiles across groups (Schnittker and McLeod 2005)—and in understanding how such dispar-

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ities reflect stratification, indicating the gradation of opportunity, prosperity, and position within societies (Mirowsky et al. 2000).

Using insights from the concept of fundamental causes of disease (Link and Phelan 1995, 2000), I argue that certain features of capitalist societies lead to health disparities. Capitalism, however, does not have the same meaning and consequences across societies, because national policy makers put different degrees of emphasis on intervening in stratification processes (Esping-Andersen 1990; Esping-Andersen et al. 2002; Huber and Stephens 2001). Thus, the welfare-state literature provides key insights into how policies interact with stratification created and sustained in the market. The definition of the welfare state used here focuses on the role of the state in organizing the economy. Specifically, I employ Esping-Andersen's (1990) categorization of nations into welfare regimes, which is based on how actively the state intervenes in stratification created by the market.

Comparing capitalist societies that differ in levels of stratification and welfare-state intervention may provide an understanding of how the relationship between inequality and health disparities is created and sustained. As two modern Western capitalist societies, the United States and Iceland are good candidates for such a comparison, because these two countries vary widely in levels of inequality and welfare-state intervention. They represent nearly ideal examples of nations existing at opposite ends of the stratification continuum among Western, industrialized democracies. The United States is classified as a liberal welfare state, characterized by minimal government intervention and high levels of inequality. Iceland, in contrast, is considered a social-democratic welfare state, where the government intervenes both in the market and in the family to create equal opportunities and outcomes for all citizens (Esping-Andersen 1990). Iceland has been described as one of the most equal societies in the Western world (Olafsson 1996, 1999).

A comparison of the United States and Iceland makes it possible to evaluate whether the relationship between stratification and health disparities holds across these contexts and to theorize about how levels of inequality and welfare-state arrangements shape health disparities. Using nationally representative samples of adults in the United States and Iceland (the 1998 General Social Survey and the 1998 Health and Living Standards of Adult Icelanders survey, respectively), I ask whether the effect of stratification on health disparities is the same or different in the two countries. More specifically, this article has two overarching research questions. First, are the effects of stratification on health the same in the United States and Iceland, supporting the notion of fundamental causes of disease? Second, are the effects of stratification different in the United States and Iceland, supporting the argument that the welfare state can successfully intervene in the relationship between health and stratification in capitalist societies?

THEORETICAL BACKGROUND

Stratification and Health Disparities in Comparative Perspective

Although issues of health and health care have received some attention from stratification and welfare-state researchers (e.g., Korpi 1989; Skocpol 1996), more attention has been focused on outcomes such as earnings, wealth, and power (Ross and Bird 1994). Comparative stratification research recognizes the welfare state as a key institution for fostering economic security and reducing economic inequalities in modern societies (Esping-Andersen 1990, 1999; Esping-Andersen et al. 2002; Huber and Stephens 2001). Traditionally, researchers have been interested in understanding the origins and policies of the welfare state (Hicks 1999; Huber, Ragin, and Stephens 1993; Skocpol and Amenta 1986), but scholars have increasingly attended to the consequences of the welfare state, such as its role in reducing income inequality (Hicks and Swank 1992; Korpi and Palme 1998). Health represents a source of stratification (Ross and Bird 1994), is an important outcome for citizens in modern welfare states (Esping-Andersen et al. 2002), and is increasingly valued by citizens in those nations (Inglehart 1997). While traditional measures of welfare-state consequences, such as income inequality, affect the mental and physical well-being of citizens, they do not capture the overall health of the citizenry (Conley and Springer 2001).

Single-society studies have clearly demonstrated the relationship between lower social status and poor health (Rieker and Bird 2000; Robert and House 2000; Smaje 2000). Simply put, those with lower status have worse health. When this relationship has been demonstrated cross-nationally, it has been at the country lev-

el, using aggregate indicators such as income inequality, infant mortality, and life expectancies. Some studies have shown that more equal societies have better aggregate health outcomes (Wilkinson 1996) and that increased investment in public health results in lower infant mortality, even among rich nations (Conley and Springer 2001). Other studies fail to support this hypothesis (Beckfield 2004).

In sum, existing research provides valuable insight into the relationship between social location and individual health within societies and between macro-level inequality and aggregate health across societies. The critical missing component is a *comparative* exploration of health disparities (Beckfield 2004). Does the relationship between stratification and health operate similarly or differently in societies with different stratification systems and social organizations of the welfare state? To answer this question, I use two theoretical perspectives to shed light on why stratification should or should not operate differently within societies: (1) the concept of the fundamental causes of disease and (2) theories of the welfare state.

Searching for the Fundamental Causes of Disease

Researchers interested in comparative health care systems noted in the 1970s that inequality in capitalist societies creates and sustains health disparities (McKeown 1979; Navarro 1976). Despite this focus on broader social conditions, most research conducted in the 1980s and 1990s focused on individual risk factors as proximate causes of disease (Dohrenwend et al. 1992; House, Landis, and Umberson 1988; Pappas et al. 1993; Potter 1992). This emphasis led Link and Phelan (1995, 2000) to urge a return to a conceptualization of social conditions as the fundamental cause of disease. They asserted that social conditions should be viewed as "fundamental" causes because their effect on health cannot be eliminated by changing the mechanisms that link them to health disparities. Their work specifically addresses socioeconomic status as a fundamental cause of disease, showing that those with higher socioeconomic position can use their position to benefit their health (Link and Phelan 1995). This association persists because access to resources (such as money, knowledge, power, and social networks) can be used to avoid health risks and to minimize consequences of illness if it occurs.

The Welfare State as a Safety Net for Its Citizens

Individual life chances are constrained by larger institutional arrangements (Esping-Andersen et al. 2002). Protecting vulnerable citizens is an important function of the welfare state, and there is great variation in how welfare states fulfill this function (Esping-Andersen 1990).

While people in different nations experience similar negative life events, such as job loss or divorce, the impact of such events depends on institutional context (DiPrete and McManus 2000). A comparison of the United States, Germany, and Sweden reveals that institutional arrangements in the United States do little to alleviate the consequences of negative life events, while the Swedish welfare state is actively involved in doing so (DiPrete 2002). Specifically, minimal state intervention in the United States increases the likelihood of entering poverty and makes poverty more difficult to escape (DiPrete 2002). While welfare-state researchers have focused on how different types of welfare states intervene in stratification based on income and earnings, feminist scholars have pointed to the importance of the welfare state as a source of gender stratification (Orloff 1996; O'Connor, Orloff, and Shaver 1999). Specifically, gender-friendly policies in the workplace, family benefits, and support for single-parent households (which are usually female-headed) are not always in place to the same degree (O'Connor et al. 1999; Sainsbury 1996). These criticisms of the welfare state make it crucial to consider gender as a source of stratification and to consider whether the relationship between gender and health disparities is similar or different across different welfare states.

Setting the Stage: The United States and Iceland

Esping-Andersen (1990) provides a widely used scheme to understand variation among welfare states. He classifies welfare states into "three worlds" of welfare capitalism: liberal, conservative, and social democratic. The greatest differences in the organization of welfare are between the liberal and social-democratic welfare states. The United States is classified as a liberal welfare state, favoring individualism and market-based solutions, with only a residual role for the state. This model encourages private welfare provision and limits pub-

lic responsibility for market failures. As a result, individuals in lower-income households risk being regarded as second-class citizens, and poverty is a prominent problem, growing rapidly among vulnerable households, including young families with children and households headed by single mothers (Esping-Andersen et al. 2002). The lack of universal benefits in a liberal welfare state results in stigma being attached to receiving assistance (O'Connor et al. 1999).

In contrast to the United States, Iceland is classified as a social-democratic welfare state, favoring universalism, egalitarianism, and comprehensive social citizenship (Esping-Andersen 1990; Esping-Andersen et al. 2002; Graubard 1986; Olafsson 1999). This model is unique in its emphasis on government responsibility for citizen welfare. The state minimizes the role of the traditional family in providing welfare, with the goal of strengthening families and fostering greater individual independence. Simultaneously, the government minimizes the role that the market plays in providing these services for citizens. While programs have effectively protected vulnerable parts of the population, such as the elderly and single parents, the welfare system is universal, making social assistance less stigmatized (Esping-Andersen et al. 2002).

When viewed from a global perspective, the United States and Iceland share many similarities. They are both Western, democratic, industrialized societies that provide significant welfare benefits for their citizens (Wilensky 2002). Yet important differences make the comparison of these two nations especially interesting. Table 1 provides an overview of relevant characteristics of the two countries.

Icelanders have more favorable health outcomes than Americans, indicated by higher life expectancies and lower infant mortality. In fact, Iceland has one of the most favorable health outcomes cross-nationally, whereas the United States is a relative laggard in health outcomes (Organisation for Economic Co-operation and Development 2002). However, a different picture emerges when health spending is considered. The United States has the highest levels of spending on health among advanced, industrialized nations, whereas Iceland ranks 12th. Further, the Icelandic health care system draws more heavily on public funding. Finally, all Icelanders have government-provided health insurance, compared to less than half of Americans (i.e., through Medicare and Medicaid). While a significant proportion of Americans have private insurance, approximately 15 percent of Americans are still left without any form of insurance (Institute of Medicine 2001).

The importance of social conditions for health outcomes makes it crucial to put the comparison into a broader stratification context. While access to education continues to be a pressing issue in the United States, the Icelandic government provides education for all citizens until the completion of a university degree (Hagstofa Íslands 2004). Furthermore, schools in Iceland are considered to have the same high quality throughout the country regardless of the affluence of the district (Organisation for Economic Co-operation and Development 2004). In fact, individual-level stratification has been shown to explain variation in educational outcomes better than school-level stratification. In the United States, school-level stratification explains more than twice the variance in educational outcomes that individual-level stratification explains (Organisation for Economic Co-operation and Development 2004). Table 1 also shows that labor force participation is higher in Iceland than in the United States, especially among women. The gender gap in pay is low in Iceland compared to other nations. In 1991, Icelandic women averaged almost 90 percent of men's pay, compared to only about 70 percent for their American counterparts (Reskin and Padavic 1994). Proportionally fewer Icelanders are unemployed, 2.7 percent of Icelanders compared to 4.5 percent of Americans.

Both the United States and Iceland stand out in a cross-national comparison for having relatively high rates of one-parent families (O'Connor et al. 1999; Olafsson 1999). Yet social provisions for parents, and in particular for single parents, is different in the two countries. Where the United States lacks a coherent family policy (Michel 1999; O'Connor et al. 1999) and has high female poverty, especially among single mothers (DiPrete 2002), Iceland provides extensive family benefits to its citizens (e.g., nine months of paid maternity/paternity leave, child benefits, and state-sponsored child care; see Alþingi 2000).

Finally, Table 1 describes the cultural climate of the two countries. Compared to Americans, Icelanders value equality more and consider their society to be fairly equal. They

TABLE 1. Health, Labor Market, and Cultural Climate in the United States and Iceland, 1998

	United States	Iceland
Health outcomes		
Female life expectancies	79.5	81.5
Male life expectancies	73.8	77.0
Infant mortality	7.2	2.6
Health spending and coverage		
% GDP spent on health	12.9	8.3
% public funding of total health spending	44.5	83.9
% of population with health insurance	45.0	100.0
Labor market		
Female labor force participation	70.7	80.9
Male labor force participation	84.2	87.9
Unemployment rates	4.5	2.7
Women's pay as a % of men's	70	90
Income inequality		
% living in poverty	17.9	6.8
Width of income inequality	6.4	4.0
Gini coefficient for samples	.4	.3
Cultural climate		
% valuing equality over freedom	29	55
% attributing poverty to laziness	38	22
% thinking that men should have priority for jobs	23	7
Happiness about living standards and life		
All citizens	7.75	8.02
Blue-collar workers	7.50	8.12
Women	7.78	8.15
Pensioners	7.93	8.20

Notes: GDP = gross domestic product. *Sources:* 2002 Organisation for Economic Co-operation and Development Health Data; Hagstofa Íslands 2004; 1998 General Social Survey; 1998 Health and Living Standards of Adult Icelanders survey; Olafsson 1996, 1999.

are less likely to attribute poverty to laziness and lack of willpower and less accepting of gender discrimination in job opportunities (Olafsson 1996). Further, Icelanders are, in general, happier with their living standards and situation in life than Americans are. In general, groups that are socioeconomically disadvantaged are more satisfied in Iceland than in more than a dozen advanced, industrialized nations (Olafsson 1999).

The differences between the two countries lead to two sets of expectations regarding differences at the individual level. The fundamental-cause hypothesis suggests that the effects of socioeconomic position (measured through education, family income, and employment status) will operate in both nations. The welfare-state hypothesis suggests that the welfare state is more likely to interfere in the stratification system in Iceland than in the United States, dampening the relationship between belonging to vulnerable groups and reporting worse health. Under this hypothesis, the relationship between vulnerable position and self-reported health should be weaker in Iceland than in the United States.

DATA AND METHODS

Data

I use national surveys of the United States and Iceland to examine the relationship between stratification and health disparities. The United States data come from the 1998 General Social Survey (GSS). The GSS, which is conducted by NORC, uses a full probability sampling design of noninstitutionalized adults, ages 18–89, in the United States. The response rate for the 1998 GSS was 76 percent. The GSS sample is similar to the U.S. population but tends to overrepresent women slightly when compared with Census data (Davis, Smith, and Marsden 2002). The Iceland data come from the 1998 Health and Living Standards of Adult Icelanders survey. It is also a full probability sampling design of noninstitutionalized adults ages 18–75. The response rate for the study was 69 percent, and the sample is demographically similar to the population, although, as in the GSS, women are slightly overrepresented (Vilhjalmsson 2005; Vilhjalmsson et al. 1999). The U.S. study was collected using face-to-face interviews, whereas the Icelandic survey employed a mail survey. While research has indicated that social desirability bias might be

higher in face-to-face studies (Krysan et al. 1994), the questions of interest here are not particularly likely to be subject to such bias. Mail surveys are the dominant collection mode in Iceland and have proven reliable and valid for collecting data there (Vilhjalmsson 2005).

Measures

Dependent variable: self-assessment of physical health. The dependent variable is self-assessment of health, measured on a four-point scale ranging from poor (coded 1) to very good (4). This variable measures general physical well-being rather than the absence of morbidity and has been shown to be both valid and reliable (Idler and Benyamini 1997; Idler, Hudson, and Leventhal 1999). Further, this variable has been recommended as suitable for comparative research by the World Health Organization (de Bruin, Picavet, and Nossikov 1996). Although the question is worded slightly differently in the two countries, I argue that the question captures essentially the same concept. Because the main purpose of this article is to understand the relationship between stratification and health disparities *within* the two countries, rather than examining whether Americans or Icelanders evaluate their health as better or worse, the slight variation is less problematic. Further, the fully interactive models include a dummy variable for Iceland that should adjust for any level differences that may result. Specifically, respondents in the United States are asked to evaluate their overall health, whereas Icelandic respondents are asked to evaluate their physical health. Arguably, people are inclined to think about their physical health when asked about health status. Furthermore, researchers using general health as a dependent variable have traditionally treated it as referring to physical health (e.g., Ross and Bird 1994). Most importantly, additional analysis using a variable that combined mental and physical health in Iceland did not yield significantly different results (available upon request). Finally, researchers have pointed out that the meaning of self-reported health can be culture-specific, regardless of the wording of questions. This insight highlights the importance of understanding whether comparative differences in health are real or are due to varying norms and expectations (Iburg et al. 2001; Murray et al. 2002).

Independent variables. Descriptive statistics for all independent variables are provided in the appendix. Education is measured in years. Employment status is measured with a dummy variable indicating whether the respondent is in the labor force (coded 1) or not (coded 0). In the United States, respondents were asked directly about their employment status. Respondents saying they work either full time or part time are coded as being in the labor force (coded as 1). In Iceland, respondents were asked how many hours they worked each week. Respondents who work 10 hours or more are coded as being in the labor force, while those working less are coded as out of the labor force.[1]

Family income is measured by three dichotomous variables: relative affluence (affluent = 1), relative poverty (poverty = 1), and average (reference in regression models). To capture those relatively worse and better off within each society, those in the bottom quartile are defined as living in relative poverty, while those in the top quartile are defined as living in relative affluence. While creating such cut-points is artificial, and other solutions are possible (e.g., defining relative poverty as having less than one half of the median within a society [Danzinger and Gottschalk 1993] or selecting the top and bottom quintiles), analyses using these strategies revealed the same results (available upon request). For respondents with missing values on income (11% of the U.S. sample and 15% of the Icelandic sample), values were imputed for family income based on estimates from a model including the respondent's gender, race, marital status, parental status, age, education, and work status. A dichotomous variable indicating imputation on missing cases is included in the regression models. Because this variable is not significant in any of the models, it is not displayed in the tables.[2]

Gender is measured with a dummy variable (0 = male, 1 = female). Family composition is measured with a series of dummy variables indicating single without children (reference category), single parent, married without children, and married with children. Age is measured in years. Country is coded as 0 for the United States and 1 for Iceland. The analyses take into account the more heterogeneous nature of American society and the fact that all Icelanders in the sample are white and provided with health insurance through the state. This is accomplished by comparing Icelanders to three different groups of Americans: all

Americans, white Americans, and white Americans with health insurance.

Statistical Analyses

The analysis uses the ordered logistic regression (OLR) model that assumes a nonequal ordering across discrete categories of the dependent variable (Long 1997).[3] The analysis proceeds in three steps. The first step is an OLR model for Icelanders and the three samples of Americans, measuring the effects of stratification on health for each of these. The second step uses interactive OLR models to assess whether the effects of the independent variables are significantly different for Americans and Icelanders. The final step calculates predicted probabilities from the OLR models for reporting very good health. First, I show the gap between disadvantaged and advantaged groups in both countries. Then, I illustrate the predicted probabilities for reporting very good health, using the mean for the country itself and then by imposing the means of the other country. This approach facilitates a substantive interpretation of what it means to be in a certain social location within and across these societies.

RESULTS

The Relationship between Stratification and Health Disparities

Table 2 shows the effects of the independent variables on self-assessed health for Icelanders and three different groups of Americans. The better educated and those who are active in the labor force are more likely to report better health in all groups. Conversely, those living in poverty report worse health in Iceland and among all groups of Americans. However, a clear difference emerges in the effects of affluence. While affluence is insignificant in Iceland, living in affluence has a strong positive relationship with better self-reported health among Americans and white Americans. That the effect of affluence in the United States diminishes by half in the sample of white Americans with insurance suggests that having

TABLE 2. Ordered Logit Regression of Self-Assessed Health on Demographics, Family Stratification, and Economic Stratification for Icelanders, Americans, White Americans, and White, Insured Americans

	Model 1 Icelanders	Model 2 All Americans	Model 3 White Americans	Model 4 Insured White Americans
Education	.072**	.112**	.120**	.114**
	(3.662)	(7.954)	(7.713)	(4.679)
In the labor force	.378**	.422**	.424**	.392*
	(3.060)	(4.608)	(4.079)	(2.432)
Relative poverty	–.463**	–.495**	–.514**	–.391*
	(3.738)	(4.997)	(4.429)	(2.046)
Relative affluence	.094	.454**	.450**	.272
	(.790)	(4.764)	(4.349)	(1.771)
Female	.059	.256**	.332**	.203
	(.611)	(3.417)	(3.944)	(1.574)
Single parent	.111	–.213*	–.114	–.375
	(.765)	(1.969)	(.898)	(1.851)
Married without children	–.225	.066	.064	–.190
	(.672)	(.380)	(.340)	(.687)
Married with children	.337*	–.029	–.051	–.291
	(2.255)	(.277)	(.433)	(1.553)
Age	–.033**	–.018**	–.018**	–.019**
	(8.239)	(6.947)	(6.157)	(4.415)
Cut 1	–3.656	–2.253	–2.205	–2.667
Cut 2	–1.689	–.409	–.326	–.827
Cut 3	.864	1.982	2.084	1.632
Log-likelihood	–1788.411	–3013.578	–2344.032	–1001.559
LR-test	188.801	467.352	380.277	150.809
Pseudo R^2	.117	.170	.175	.164
N	1,728	2,804	2,218	951

* $p < .05$; ** $p < .01$

Notes: Numbers in parentheses are z-tests of β. Shaded areas indicate that the coefficient for Americans is significantly different from the coefficient for Icelanders.

health insurance is partly responsible for the superior health of affluent white Americans.

American women report significantly better health than American men. Not surprisingly, younger respondents in all groups report better health than older respondents. Family composition operates differently across national context. Specifically, in the United States single parents report significantly worse health than single childless persons. Conversely, in Iceland married parents report significantly better health than single childless individuals.

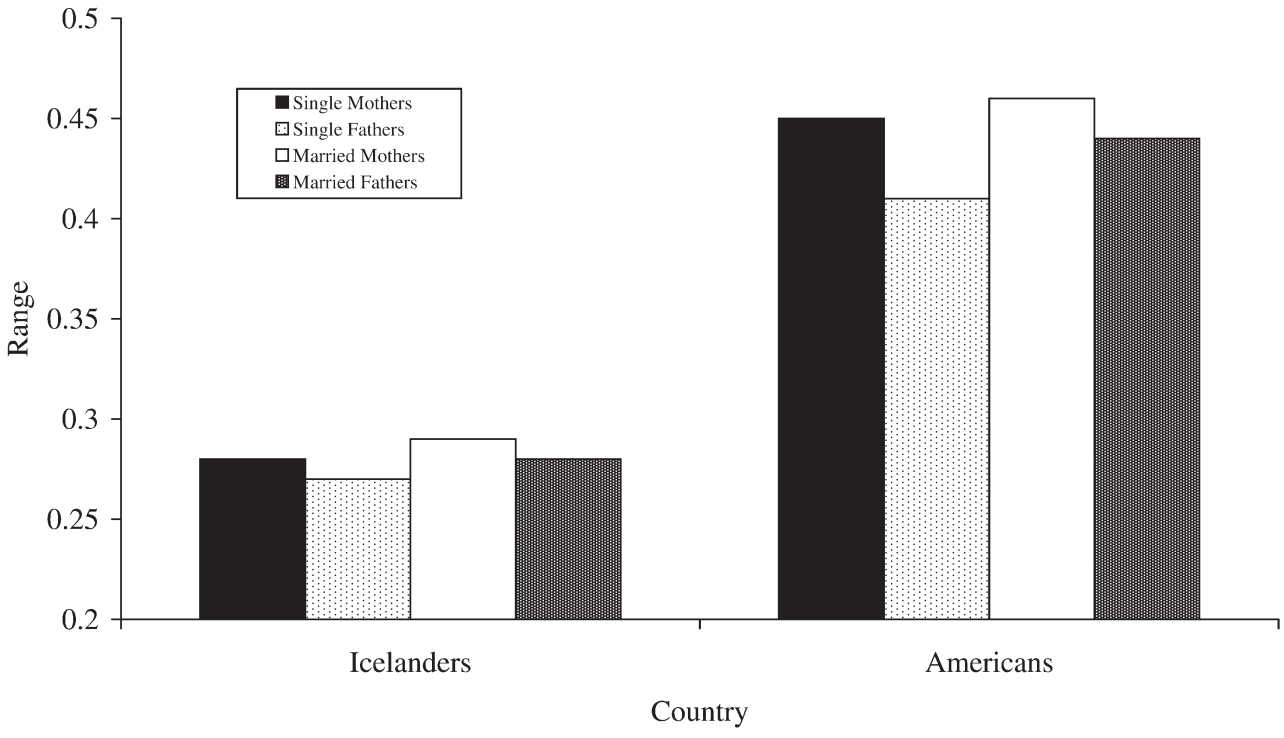
In addition, the shaded areas in the tables indicate that the coefficient for different groups of Americans is significantly different than for Icelanders. The results are obtained from fully interactive models (available upon request). Four significant differences are observed between at least two of the American groups and Icelanders. Living in relative affluence has significantly stronger effects on health in the United States than in Iceland. This indicates that the health benefits of living in relative affluence are greater in the United States than in Iceland. Family composition operates differently across national contexts. Icelandic parents, regardless of marital status, are significantly more likely to report better health than their American counterparts.[4] The effect of age is significantly stronger in Iceland than in the United States. The benefits of employment are significantly stronger for white Americans than for Icelanders. Finally, white women in the United States report significantly better health than Icelandic women.

How Do Stratification Effects Differ in the United States and Iceland?

Thus far, the results have indicated significant differences in the effects of affluence, age, and family composition on the health of Americans and Icelanders. Given the difficulty of interpreting logistic regression coefficients directly, the substantive meaning of these results is better assessed through consideration of predicted probabilities for reporting "very good health" in the two societies.

Figure 1 illustrates the differences in predicted probabilities of reporting very good health, between disadvantaged (10 years of education and living in relative poverty) and advantaged (20 years of education and living in relative affluence) respondents in the United States and Iceland. The health gap between disadvantaged and advantaged is much larger in the United States than in Iceland. Specifically, those who are more advantaged have about a 28 percent higher likelihood of reporting better health than those who are disadvantaged in Iceland, compared to a 45 percent higher likelihood in the United States.

FIGURE 1. The Gap between Those Disadvantaged and Advantaged for Reporting Very Good Health, by Gender and Family Status



Finally, to further demonstrate the relationship between stratification and health disparities in the two societies, Figures 2 through 4 display the predicted probabilities for reporting "very good health" among Americans and Icelanders (30 years old, 40 years old, and 50 years old) in their own stratification system and statistically imposing the stratification system of the other country. Figure 2 shows that 30-year-old Icelanders have a higher probability of reporting very good health than do 30-year-old Americans. Specifically, 30-year-olds have about a 38 percent likelihood of reporting very good health in Iceland, compared to a 34 percent likelihood in the United States. More importantly, imposing the United States stratification distribution on Icelanders decreases their probability for reporting very good health, whereas imposing the Icelandic stratification system on Americans increases their probability for reporting very good health.

Figure 3 shows that as Americans and Icelanders age, their likelihood of reporting very good health becomes more similar. Specifically, citizens of both countries have about a 30 percent likelihood of reporting very good health. However, the pattern seen in Figure 2 persists here: Imposing the U.S. stratification system on 40-year-old Icelanders decreases their likelihood of reporting very good health, while imposing the Icelandic stratification system on similar Americans increases their likelihood of reporting very good health.

Finally, Figure 4 indicates that by age 50, Americans have a higher likelihood than Icelanders of reporting very good health. This supports the finding that the age gradient in self-assessed health is steeper in Iceland than in the United States. However, the pattern for the effects of the stratification systems continues to hold.

In sum, younger Icelanders report better health than their American counterparts; the reported health of Icelanders and Americans is similar at age 40; and by age 50, Americans have surpassed Icelanders in the likelihood of reporting very good health. Most importantly, despite the effects of age on self-reported health, the same stratification pattern holds for all age groups. Imposing the U.S. stratification system on Icelanders consistently results in lower probabilities of reporting very good health. Conversely, imposing the Icelandic stratification system on Americans increases their probabilities of reporting very good health.

DISCUSSION

Through an analysis of national survey data for the United States and Iceland, I examined whether the relationship between stratification

FIGURE 2. Predicted Probabilities for Reporting Very Good Health for 30-Year-Old Icelanders and Americans, using the Country's Own Stratification System and the Stratification System of the Other Country

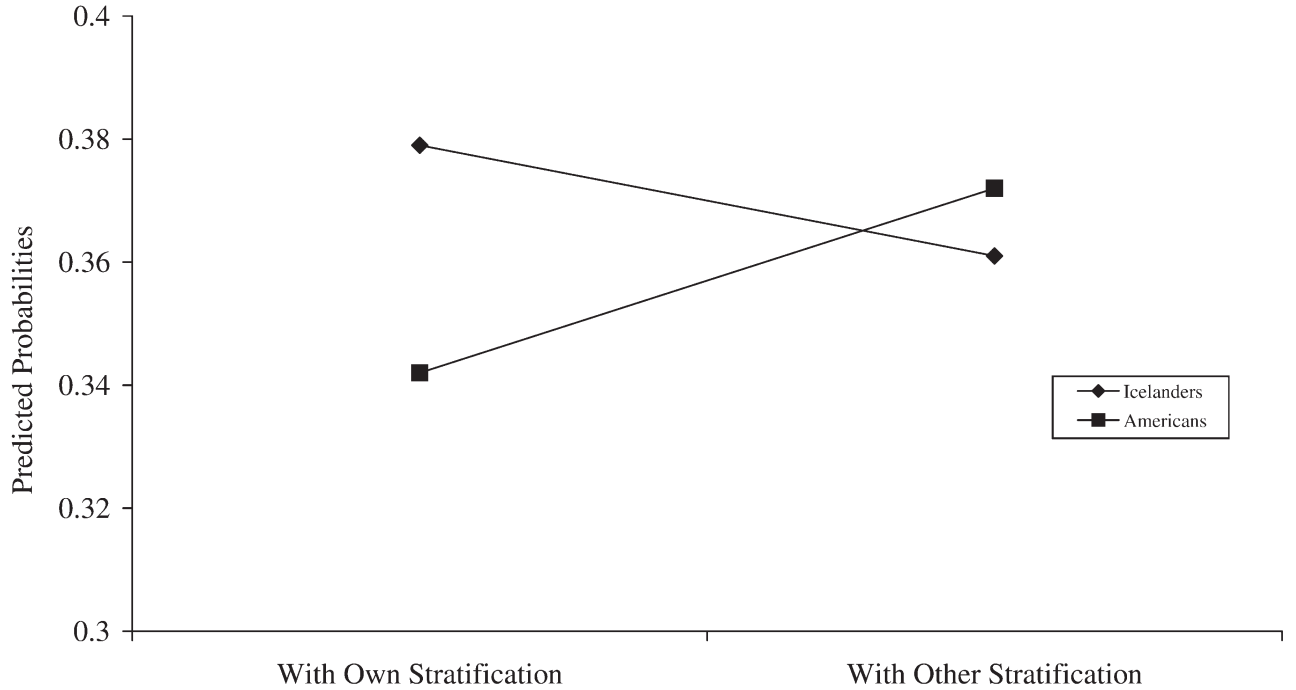


FIGURE 3. Predicted Probabilities for Reporting Very Good Health for 40-Year-Old Icelanders and Americans, using the Country's Own Stratification System and the Stratification System of the Other Country

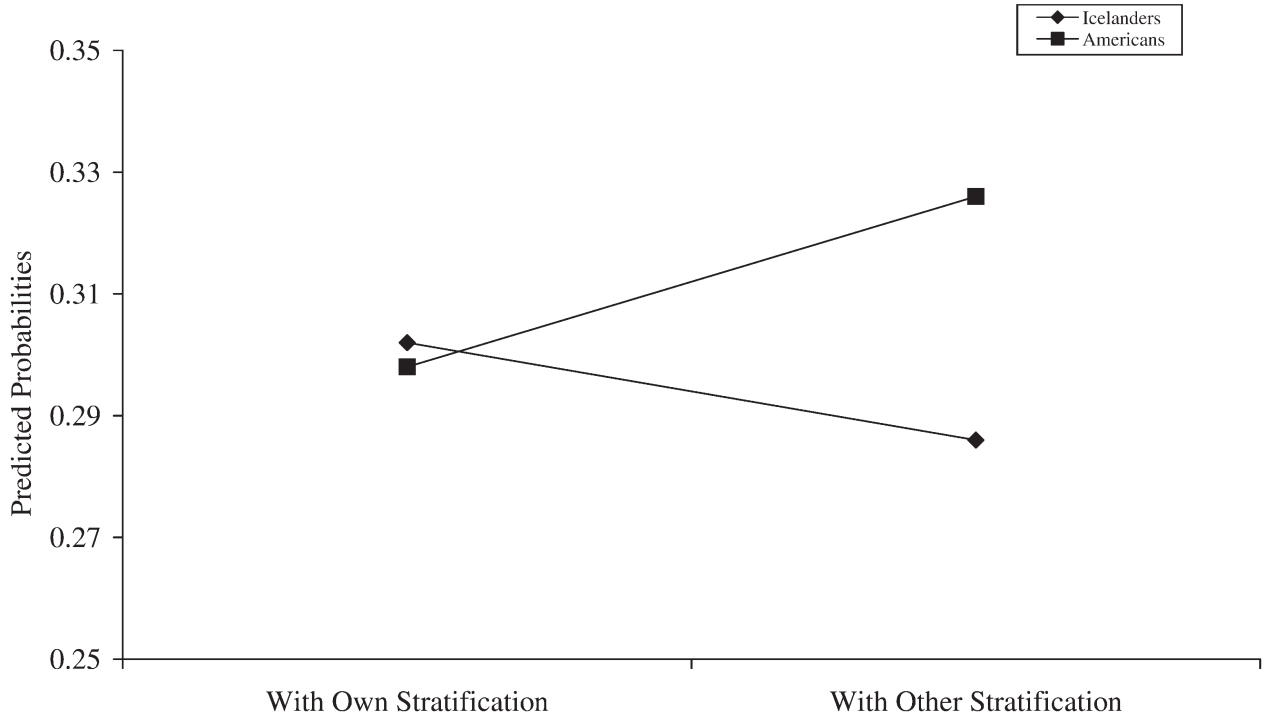
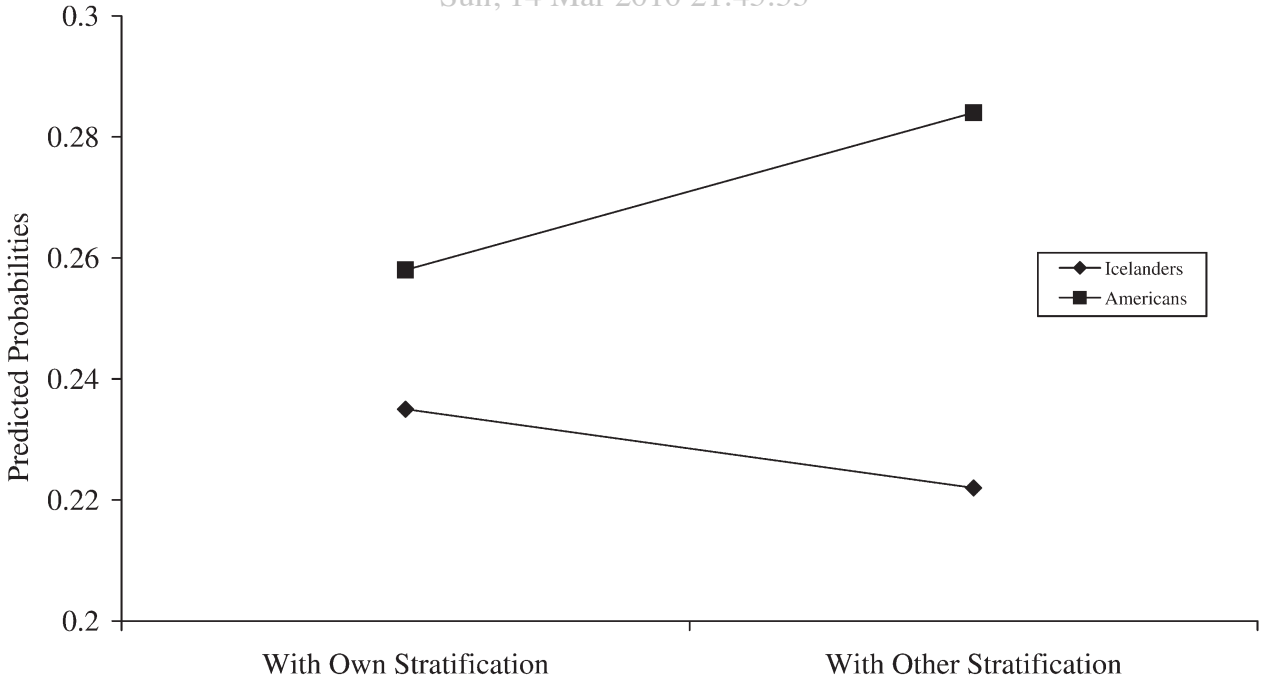


FIGURE 4. Predicted Probabilities for Reporting Very Good Health for 50-Year-Old Icelanders and Americans, using the Country's Own Stratification System and the Stratification System of the Other Country



and health disparities is similar or different in the two countries. Across both countries, the effects of education, labor-force participation, and poverty are similar. However, the effects of affluence are weaker in Iceland than in the United States, and having a more vulnerable family structure is less harmful to health in Iceland than in the United States. In light of the relevant theoretical frameworks, two theoretical implications emerge.

First, the results are consistent with the concept of social conditions as a fundamental cause of disease, indicating that lower individual-level socioeconomic status is harmful to individual health. Specifically, those who are better educated and those in the labor force re-

port better health. Conversely, those living in relative poverty report worse health. The effects of education are not surprising. Researchers have argued that education is an important key to understanding, avoiding, and treating health problems (Mirowsky and Ross 2003; Schnittker 2004). Some have argued that universal access to health care does not reduce health disparities because the well-educated use the system to their advantage and therefore benefit more from equal health benefits (Deaton 2002). My findings support the notion of fundamental causes by showing that those with more education appear capable of transferring their educational attainment into better health outcomes, even in a society with universal access to health care, a universal educational system, and significant state efforts to equalize outcomes. Being in the labor force is as important in Iceland as in the United States. This suggests that the health rewards of work are similar in the two nations and/or that the employed are generally healthier.

In a similar vein, living in relative poverty is harmful to health in both societies. Researchers have argued that poverty prevents access to important health resources (Preston and Taubman 1994). Therefore, a welfare state that provides a robust safety net for its citizens, such as free health care and other welfare benefits, should minimize the relationship between poverty and poor health. The results, which indicate that living in relative poverty is equally harmful to health in the United States and Iceland, are surprising. Importantly, while the safety net provided by the Icelandic welfare state may result in fewer individuals living in poverty, once individuals are poor the effects are similar across institutional contexts. In support of the fundamental-causes argument, education, employment status, and poverty affect health in both types of capitalist societies, regardless of differences in levels of inequality and attempts to eliminate unequal opportunities and outcomes.

Second, the findings also suggest that cross-national differences in the social organization of health care and in the welfare state more broadly may serve as mechanisms to ameliorate part of the relationship between stratification and health disparities. Living in relative affluence does not benefit the health of Icelanders, but it clearly benefits Americans. Perhaps affluent Icelanders have fewer opportunities to use material resources to advance their health. For example, in waitlists for medical procedures, the rich are not prioritized over the poor. In the United States, in contrast, affluent individuals can use their resources to gain access to health care services. Finally, the difference can also be related to class and race homogeneity within Icelandic society, resulting in more similarities between the affluent and the middle class. The results indicate that larger group differences within societies are likely to result in more unequal health outcomes. Overall, the findings suggest that the welfare state might be more successful in eliminating differences resulting from advantages than in eliminating differences resulting from disadvantages.

The generous, female-friendly family policies of the Icelandic welfare state appear to eliminate the negative link between parenthood, especially single parenthood, and poor health outcomes. This indicates that the welfare state may be successful in eliminating vulnerabilities related to gender and family as a negative impact on health. In fact, single and married parents report significantly better health in Iceland than in the United States. This indicates that the welfare state might serve as a safety net for families in Iceland, protecting the health of parents. The weak state support for single parents in the United States may be at least partly responsible for the negative health effects of having children in that country. However, despite the link between gender, family, and the welfare state, the results show that white American women actually report better health than Icelandic women. This finding is surprising and may suggest that the Icelandic welfare state has been more successful in diminishing the link between family status and health than it has been in diminishing the link between gender and health.

Although this comparison of health disparities in the United States and Iceland has generated novel findings with broad theoretical implications, it is important to acknowledge the limitations of this study. First, I use only one measure of health. While there is evidence that self-assessed health is a reliable measure appropriate for comparative research (de Bruin et al. 1996), cross-national differences using multiple indicators of health should also be examined. Additionally, the wording of the dependent variable is slightly different in the two countries, although the inclusion of the indicator variable for Iceland in the pooled analysis

should adjust for any level difference caused by the variation in wording.

Further, the data are cross-sectional. High-quality longitudinal data are scarce, but, ideally, future research should implement designs that are both cross-national and longitudinal. The life-course perspective argues for the importance of focusing on "the dynamic interplay of time, structural context and human agency" within individual biographies (O'Rand 1998:58). One of the challenges faced by researchers interested in health inequality is to understand how opportunity structures vary across individual life courses. For example, McDonough and Berglund (2003) argue that the dimension of time is crucial for understanding health inequalities. More research is needed that addresses time and institutional arrangements by including more countries and more historical variation. My research highlights the importance of comparative work across the "varieties of capitalism" (Hall and Soskice 2001) to fully understand the relationship between stratification and health disparities.

Finally, while I have offered some explanations for why the health differences between the United States and Iceland exist—for example, by highlighting the importance of the social organization of the welfare state—the analysis cannot account for all cultural, social, and economic differences that exist between the two nations. Although this article supports the idea that equality does matter for health, more research is needed to understand the mechanisms that affect the health of individuals within and across societies. For example, researchers have argued for the importance of social capital in health, suggesting that more favorable health outcomes in more egalitarian societies are consequences of greater interpersonal trust and social cohesion (Kawachi et al. 1997; Wilkinson 1996). Further, collective efficacy, referring to mutual trust and solidarity, has been found to be important for individual well-being within communities (Browning and Cagney 2002; Sampson, Raudenbush, and Earls 1997).

To conclude, by comparing two capitalist societies that differ in the extent of equality and in the strength of their welfare states, I have found that there is a fundamental relationship between socioeconomic status and health disparities. Yet a strong welfare state, characterized by universal health care, supportive family policies, and efforts to minimize the effects of negative life events, may be able to weaken the relationship between stratification and health disparities.

NOTES

1. Analyses using a different coding of education, a dummy variable for part-time employment, and a different cutoff point for part-time employment (1 hour or more and 20 hours or more) did not produce significantly different results from those presented in this article.
2. Results were substantively identical with listwise deletion of missing cases and with multiple imputations.
3. Results from multinominal logistic regression models did not produce significantly different results. For the sake of simplicity and ease of interpretation, the results from ordered logit are presented in this article, but results from multinominal logistic regression models are available upon request.
4. Additional analysis separating parents out according to the age of their children yields similar results. Specifically, parents with children under five years old are marginally more likely to report better health in Iceland than in the United States. Parents whose youngest child is between 6 and 18 are more likely to report better health in Iceland than in the United States, and the differences between parents with no children under 18 are not significant across national context. These results support findings indicating the importance of the welfare state, showing that national differences are more likely to exist between more vulnerable parents than between less vulnerable parents.

APPENDIX. Descriptive Statistics for the Four Samples: 1998 Health and Living Standards of Icelanders Survey (n = 1,728), 1998 General Social Survey (n = 2,804), White Americans (n = 2,218), White Americans with Health Insurance (n = 951)

	Metric	Icelanders	Americans	White Americans	Insured White Americans
Panel A: Dependent variable					
Self-assessed health	1 = poor, 4 = excellent	3.12	3.05*	3.09	3.09
Panel B: Independent variables					
Education	Years	13.23	13.26	13.43*	13.51*
Employed	1 = employed	.79	.66*	.66*	.66*
Relative poverty	1 = bottom quartile	.25	.26	.22	.19*
Relative affluence	1 = top quartile	.24	.28*	.31*	.37*
Female	1 = female	.56	.57	.55	.58
Single parent	1 = single parent	.25	.30*	.26	.26
Married without children	1 = married without children	.02	.06*	.06*	.07*
Married with children	1 = married with children	.49	.42*	.45*	.48
Age	Years	40.23	45.51*	46.80*	47.90*

* The mean is significantly different from the mean for Icelanders.

REFERENCES

Alþingi. 2000. "*Lög um Fæðingar-og Foreldra-orlof.*" [Law about Birth and Parental Leave.] Reykjavik, Iceland: Alþingi Íslands.

Beckfield, Jason. 2004. "Does Income Inequality Harm Health? New Cross-national Evidence." *Journal of Health and Social Behavior* 45: 231–48.

Browning, Christopher R. and Kathleen A. Cagney. 2002. "Neighborhood Structural Disadvantage, Collective Efficacy, and Self-Rated Physical Health in an Urban Setting." *Journal of Health and Social Behavior* 43:383–99.

Conley, Dalton and Kristen W. Springer. 2001. "Welfare State and Infant Mortality." *American Journal of Sociology* 107:768–807.

Danzinger, Sheldon and Peter Gottschalk. 1993. *Uneven Tides: Rising Inequality in America.* New York: Russell Sage Foundation.

Davey Smith, George, Mel Bartley, and David Blane. 1990. "The Black Report on Socio-Economic Inequalities in Health 10 Years On." *British Medical Journal* 301:373–77.

Davis, James A., Tom W. Smith, and Peter V. Marsden. 2002. "*General Social Survey 1998.*" Chicago, IL: NORC.

de Bruin, A., H. S. J. Picavet, and Anatoly Nossikov. 1996. *Health Interview Surveys: Towards International Harmonization of Methods and Instruments.* Copenhagen, Denmark: World Health Organization Regional Office for Europe.

Deaton, Angus. 2002. "Policy Implications of the Gradient of Health and Wealth: An Economist Asks, Would Redistributing Income Improve Population Health?" *Health Affairs* 21:13–30.

DiPrete, Thomas A. 2002. "Life Course Risks, Mobility Regimes, and Mobility Consequences: A Comparison of Sweden, Germany, and the United States." *American Journal of Sociology* 108:267–309.

DiPrete, Thomas A. and Patricia A. McManus. 2000. "Family Change, Employment Transitions, and the Welfare State: Household Income Dynamics in the United States and Germany." *American Sociological Review* 65:343–70.

Dohrenwend, Bruce P., Itzhak Levav, Patrick E. Shrout, Sharon Schwartz, Guedalia Naveh, Bruce G. Link, Andrew E. Skodol, and Ann Stueve. 1992. "Socioeconomic Status and Psychiatric Disorders: The Causation-Selection Issue." *Science* 255:946–52.

Esping-Andersen, Gøsta. 1990. *The Three Worlds of Welfare Capitalism.* Princeton, NJ: Princeton University Press.

———. 1999. *Social Foundations of Postindustrial Economies.* Oxford, UK: Oxford University Press.

Esping-Andersen, Gøsta, Duncan Gallie, Anton Hemerijck, and John Myles. 2002. *Why We Need a New Welfare State.* Oxford, England: Oxford University Press.

Graubard, Stephen Richards. 1986. *Norden: The Passion for Equality.* Oslo, Norway: Norwegian University Press.

Hagstofa Íslands. 2004. *Landshagir.* [Country Profile.] Reykjavik, Iceland: Hagstofa Íslands.

Hall, Peter A. and David Soskice, eds. 2001. *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage.* Oxford, England: Oxford University Press.

Hicks, Alexander M. 1999. *Social Democracy and Welfare Capitalism: A Century of Income Security Politics.* Ithaca, NY: Cornell University Press.

Hicks, Alexander M. and Duane H. Swank. 1992. "Politics, Institutions, and Welfare Spending in Industrialized Democracies, 1960–82." *American Political Science Review* 86:658–74.

House, James S., Karl R. Landis, and Debra Umberson. 1988. "Social Relationships and Health." *Science* 241:540–45.

Huber, Evelyne, Charles Ragin, and John D. Stephens. 1993. "Social Democracy, Christian

Democracy, Constitutional Structure, and the Welfare State." *American Journal of Sociology* 99:711–49.

Huber, Evelyne and John D. Stephens. 2001. *Development and Crisis of the Welfare State: Parties and Policies in Global Markets.* Chicago, IL: The University of Chicago Press.

Iburg, Kim M., Joshua A. Salomon, Ajay Tandon, and Christopher J. L. Murray. 2001. *Cross-Population Comparability of Self-Reported and Physician-Assessed Mobility Levels: Evidence from the Third National Health and Nutrition Examination Survey.* Geneva, Switzerland: World Health Organization.

Idler, Ellen L. and Yael Benyamini. 1997. "Self-Rated Health and Mortality: A Review of Twenty-Seven Community Studies." *Journal of Health and Social Behavior* 38:21–37.

Idler, Ellen L., Shawna V. Hudson, and Howard Leventhal. 1999. "The Meanings of Self-Ratings of Health: A Qualitative and Quanitative Approach." *Research on Aging* 21:458–76.

Inglehart, Ronald. 1997. *Modernization and Postmodernization: Cultural, Economic, and Political Change in 43 Societies.* Princeton, NJ: Princeton University Press.

Institute of Medicine, Committee on the Consequences of Uninsurance. 2001. *Coverage Matters: Insurance and Health Care.* Washington, DC: Institute of Medicine.

Kawachi, Ichiro, Bruce P. Kennedy, Kimberly Lochner, and Deborah Prothrow-Stith. 1997. "Social Capital, Income Inequality, and Mortality." *American Journal of Public Health* 87: 1491–98.

Korpi, Walter. 1989. "Power, Politics, and State Autonomy in the Development of Social Citizenship: Social Rights During Sickness in Eighteen OECD Countries Since 1930." *American Sociological Review* 54:309–28.

Korpi, Walter and Joakim Palme. 1998. "The Paradox of Redistribution and Strategies of Equality: Welfare State Institutions, Inequality, and Poverty in the Western Countries." *American Sociological Review* 63:661–87.

Krysan, Maria, Howard Schuman, Lesli Jo Scott, and Paul Beatty. 1994. "Response Rates and Response Content in Mail versus Face-To-Face Surveys." *Public Opinion Quarterly* 58:381–99.

Link, Bruce G. and Jo Phelan. 1995. "Social Conditions As Fundamental Causes of Disease." *Journal of Health and Social Behavior* 35:80–94.

———. 2000. "Evaluating the Fundamental Cause Explanation for Social Disparities in Health." Pp. 33–46 in *Handbook of Medical Sociology,* edited by Chloe E. Bird, Peter Conrad, and Allen M. Fremont. Upper Saddle River, NJ: Prentice Hall.

Long, J. Scott. 1997. *Regression Models for Categorical and Limited Dependent Variables.* Thousand Oaks, CA: Sage Publications.

McDonough, Peggy and Pat Berglund. 2003. "Histories of Poverty and Self-Rated Health Trajectories." *Journal of Health and Social Behavior* 44:198–214.

McKeown, Thomas. 1979. *The Role of Medicine: Dream, Mirage, or Nemesis?* Princeton, NJ: Princeton University Press.

Michel, Sonya. 1999. *Children's Interests/Mothers' Rights: The Shaping of America's Child Care Policy.* New Haven, CT: Yale University Press.

Mirowsky, John and Catherine E. Ross. 2003. *Education, Social Status, and Health.* New York: Aldine de Gruyter.

Mirowsky, John, Catherine E. Ross, and John Reynolds. 2000. "Links between Social Status and Health." Pp. 47–67 in *Handbook of Medical Sociology,* edited by Chloe E. Bird, Peter Conrad, and Allen M. Fremont. Upper Saddle River, NJ: Prentice Hall.

Murray, Christopher J. L., Joshua A. Salomon, Colin D. Mathers, and Alan D. Lopez, eds. 2002. *Summary Measures of Population Health: Concepts, Ethics, Measurements and Applications.* Geneva, Switzerland: World Health Organization.

Navarro, Vicente. 1976. *Medicine under Capitalism.* New York: Prodist.

O'Connor, Julia S., Ann Shola Orloff, and Sheila Shaver. 1999. *States, Markets, Families: Gender, Liberalism, and Social Policy in Australia, Canada, Great Britain, and the United States.* Cambridge, England: Cambridge University Press.

O'Rand, Angela M. 1998. "The Craft of Life Course Studies." Pp. 52–74 in *Methods of Life Course Research: Qualitative and Quantitative Approaches,* edited by Janet Z. Giele and Glen H. Elder. Thousand Oaks, CA: Sage Publications.

Organisation for Economic Co-operation and Development. 2002. *OECD Health Data CD-ROM.* Paris, France: Organisation for Economic Co-operation and Development.

———. 2004. *Learning for Tomorrow's World: First Results from PISA 2003.* Paris, France: Organisation for Economic Co-operation and Development.

Olafsson, Stefan. 1996. *Hugarfar og Hagvöxtur: Menning, Þjóðfélag og Framfarir á Vesturlöndum.* [Way of Thinking and Economic Growth: Culture, Society, and Progress among Western Nations.] Reykjavík, Iceland: Félagsvísindastofnun Háskóla Íslands.

———. 1999. *Íslenska Leiðin: Almannatryggingar og Velferð í Fjölþjóðlegum Samanburði.* [The Icelandic Way: Public Insurance and Welfare in Cross-National Comparison.] Reykjavík, Iceland: Tryggingastofnun Ríkisins and Háskólaútgáfan.

Orloff, Ann Shola. 1996. "Gender in the Welfare State." *Annual Review of Sociology* 22:51–78.

Pappas, G., S. Queen, W. Hadden, and G. Fisher.

1993. "The Increasing Disparity in Mortality between Socioeconomic Groups in the United States." *New England Journal of Medicine* 329:103–109.

Potter, John D. 1992. "Reconciling the Epidemiology, Physiology, and Molecular Biology of Colon Cancer." *Journal of the American Medical Association* 268:1573–77.

Preston, Samuel H. and Paul Taubman. 1994. "Socioeconomic Differences in Adult Mortality and Health Status: An Enduring Sociological Problem." Pp. 279–318 in *Demography of Aging,* edited by Linda G. Martin and Samuel H. Preston. Washington, DC: National Academy Press.

Reskin, Barbara F. and Irene Padavic. 1994. *Women and Men at Work.* Thousand Oaks, CA: Pine Forge Press.

Rieker, Patricia P. and Chloe E. Bird. 2000. "Sociological Explanations of Gender Differences in Mental and Physical Health." Pp. 98–113 in *Handbook of Medical Sociology,* edited by Chloe E. Bird, Peter Conrad, and Allen M. Fremont. Upper Saddle River, NJ: Prentice Hall.

Robert, Stephanie and James House. 2000. "Socioeconomic Inequalities in Health: An Enduring Sociological Problem." Pp. 79–97 in *Handbook of Medical Sociology,* edited by Chloe E. Bird, Peter Conrad, and Allen M. Fremont. Upper Saddle River, NJ: Prentice Hall.

Ross, Catherine E. and Chloe E. Bird. 1994. "Sex Stratification and Health Lifestyle: Consequences for Men's and Women's Perceived Health." *Journal of Health and Social Behavior* 35:161–78.

Sainsbury, Diane. 1996. *Gender, Equality and Welfare States.* Cambridge, England: Cambridge University Press.

Sampson, Robert J., Stephen J. Raudenbush, and Felton Earls. 1997. "Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy." *Science* 277:918–24.

Schnittker, Jason. 2004. "Education and the Changing Shape of the Income Gradient in Health." *Journal of Health and Social Behavior* 45: 286–305.

Schnittker, Jason and Jane D. McLeod. 2005. "The Social Psychology of Health Disparities." *Annual Review of Sociology* 31:75–103.

Skocpol, Theda. 1996. *Boomerang: Clinton's Health Security Effort and the Turn against Government in U.S. Politics.* New York: Norton.

Skocpol, Theda and Edwin Amenta. 1986. "States and Social Policies." *Annual Review of Sociology* 12:131–57.

Smaje, Chris. 2000. "Race, Ethnicity, and Health." Pp. 114–28 in *Handbook of Medical Sociology,* edited by Chloe E. Bird, Peter Conrad, and Allen M. Fremont. Upper Saddle River, NJ: Prentice Hall.

Townsend, Peter, Nick Davidson, and Margaret Whitehead. 1990. *Inequalities in Health: The Black Report and the Health Divide.* London, England: Penguin.

Vilhjálmsson, Rúnar. 2005. "Failure to Seek Needed Medical Care: Results from a National Health Survey of Icelanders." *Social Science and Medicine* 61:1320–30.

Vilhjálmsson, Rúnar, Ólafur Ólafsson, Jóhann Á. Sigurðsson, and Tryggvi Þ. Herbertsson. 1999. *Aðgangur að Heilbrigðisþjónustu á Íslandi.* [Access to Health Care in Iceland.] Reykjavík, Iceland: Landlæknisembættið.

Wilensky, Harold L. 2002. *Rich Democracies: Political Economy, Public Policy, and Performance.* Berkeley, CA: University of California Press.

Wilkinson, Richard G. 1996. *Unhealthy Societies: The Afflictions of Inequality.* London, England: Routledge.

Williams, David R. and Chiquita Collins. 1995. "U.S. Socioeconomic and Racial Differences in Health: Patterns and Explanations." *Annual Review of Sociology* 21:349–86.

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