Social Science & Medicine 171 (2016) 30–38

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Shorter lives in stingier states: Social policy shortcomings help explain the US mortality disadvantage

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ARTICLE INFO

Article history:
Received 6 October 2015
Received in revised form
16 October 2016
Accepted 17 October 2016
Available online 18 October 2016

Keywords:
Welfare state
Social policy
Population health
Life expectancy
Trends

ABSTRACT

The United States has a mortality disadvantage relative to its political and economic peer group of other *rich democracies*. Recently it has been suggested that there could be a role for social policy in explaining this disadvantage. In this paper, we test this "social policy hypothesis" by presenting a time-series cross-section analysis from 1970 to 2010 of the association between welfare state generosity (for unemployment insurance, sickness benefits, and pensions) and life expectancy, for the US and 17 other high-income countries. Fixed-effects estimation with autocorrelation-corrected standard errors (robust to unmeasured between-country differences and serial autocorrelation of repeated measures) found strong associations between welfare generosity and life expectancy. A unit increase in overall welfare generosity yields a 0.17 year increase in life expectancy at birth ($p < 0.001$), and a 0.07 year increase in life expectancy at age 65 ($p < 0.001$). The strongest effects of the welfare state are in the domain of pension benefits ($b = 0.439$ for life expectancy at birth, $p < 0.001$; $b = 0.199$ for life expectancy at age 65, $p < 0.001$). Models that lag the measures of social policy by ten years produce similar results, suggesting that the results are not driven by endogeneity bias. There is evidence that the US mortality disadvantage is, in part, a welfare-state disadvantage. We estimate that life expectancy in the US would be approximately 3.77 years longer, if it had just the average social policy generosity of the other 17 OECD nations.

1. Introduction

Recent reports highlight growing concern about the "US mortality disadvantage" – the growing gap in life expectancy between the US and other rich democracies (Crimmins et al., 2010; Woolf and Aron, 2013). Previous research into the underperformance of the US in terms of health and mortality – relative to its peer group of "rich democracies" (Wilensky, 2002) – tends to focus on individual-level lifestyle factors and healthcare systems (Crimmins et al., 2010; Woolf and Aron 2013). Much less work has investigated macro-level welfare state institutional arrangements, which might also help to account for the US mortality disadvantage. This paper addresses this issue by (1) investigating long-term trends in life expectancy and social policy in the 18 richest democracies of the Organization for Economic Cooperation and Development (OECD), and (2) quantifying the contribution of social policy shortcomings in the US to the US mortality disadvantage.

1.1. US mortality disadvantage

The US mortality disadvantage is a pressing priority for policy and research (Woolf and Aron, 2013). In 1960, Scandinavian nations topped the life expectancy (at birth) charts, with Norway's life expectancy of 73.8 years (OECD, 2012). The US ranked fifteenth, at 69.8 years: a gap of four years. The average life expectancy at birth for the 18 OECD countries in 1960 was 70.8 years. By 2010, the US had dropped to the bottom of the relative rankings, with a life expectancy of 78.7 years compared to 83.0 years in table-topping Japan (OECD, 2012). There is a similar pattern for infant mortality rates: in 1960, the US ranked eleventh with an infant mortality rate of 26.0, double Iceland's rate of 13.0; by 2010, this relative difference grew as the US dropped to the bottom of the list with an infant mortality rate of 6.1 - nearly triple table-topping Iceland's rate of 2.2 (OECD, 2012).

The relatively poor health performance of the US emerged in the 1980s (Woolf and Aron, 2013). In the 1940s for example, the US had one of the healthiest populations in the world. But the recent National Academy of Sciences panel report on the US health

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http://dx.doi.org/10.1016/j.socscimed.2016.10.017

disadvantage found that residents of the US fared worse, across at least nine domains of health, than residents of other rich democracies – and the disadvantage was consistent across all socioeconomic positions. This cross-cutting difference in the distribution of population health supports the notion that macro-level institutional factors like social policy differences - not just lifestyle or health care factors - may help to explain the US disadvantage (Woolf and Aron, 2013).

1.2. Lifestyle and health care explanations

The US now has one of the lowest smoking rates of high-income countries; of comparable countries, only Sweden has lower rates. However, historically it was the highest tobacco consumer and there is evidence that around 20% of the US health disadvantage in terms of life expectancy and mortality of the over 50s is attributable to these historical differences in smoking rates (Preston et al., 2010). There are also significant differences in diet between the US and other countries. For example, average calorie intake per US adult is 3770 per day, and obesity also thus contributes to mortality differences among adults aged 50 and over (Preston and Stokes, 2011). The results of studies that examine cross-national differences in physical activity rates vary – with some suggesting that the US population has about average rates of activity, while others suggest it is lower (Woolf and Aron, 2013). Turning to alcohol consumption, there is tentative evidence that heavy drinking and binge drinking might be higher amongst young Americans, yet the overall prevalence of alcohol consumption amongst Americans is lower than for Europe (Woolf and Aron, 2013).

The US spends the most on health care – in absolute terms, per head of population and as a proportion of national income – around 18% of US gross domestic product is spent on health care compared to around 6% in the UK (Woolf and Aron, 2013). Unlike other high-income countries that operate a social insurance system (whereby the government, employers and employees co-fund health care via regular set contributions e.g. France and Germany) or a national health system (where health care is funded by the government based on general taxation e.g. the UK, Sweden or New Zealand), the US system is effectively a private market. Individuals buy insurance policies themselves to cover their health risk, or receive coverage from their employers. There are some government-funded schemes for the very poor (Medicaid) and for the elderly (Medicare) but these are not as generous as schemes in other countries. The 'Obamacare' Patient Protection and Affordable Care Act reforms of 2010 did increase coverage rates, but today around 10% of Americans remain without health insurance of any kind and therefore only have access to emergency care – not prevention or primary or secondary care. Millions of others remain "under-insured" whereby their health care policies do not cover the full range of health services or their health needs. US patients also face considerable out-of-pocket payments and co-payments for services (Woolf and Aron, 2013). This all means that healthcare access in the US is the most "commodified" (market dependent) of high-income nations, and the healthiest people have the best access to healthcare, in line with the 'inverse care law' (Tudor-Hart, 1971).

1.3. Institutional explanations

At the level of theory, we argue that institutional arrangements like the welfare state are important for at least three reasons. First, welfare states stratify (Esping-Andersen, 1990). The welfare states that people are born into organize social relations, sorting and ranking people into social hierarchies. Welfare states also affect income inequality (Alderson and Nielsen, 2002). Poverty is also largely a function of institutional arrangements (Brady, 2008). Indeed, previous research has indicated the important role that different antipoverty policy strategies can have on health outcomes, resulting in significant cross-national patterns. For example, Lundberg et al. (2008) have shown how universal pensions and family policies that support dual-earners can lead to reductions in old age mortality and infant mortality respectively. Esser and Palme (2010) found similar results for pensions - particularly the value of the basic state pension for older women's health. Nelson and Fritzell (2014) found that the generosity of minimum income benefits available to those with no entitlement to contributory benefits (the poorest groups in high-income countries) was strongly associated with population level mortality rates and life expectancy: countries that provided higher minimum income benefits had better population health.

Second, again at the level of theory, welfare states not only influence the extent and kind of social stratification in society, but they also condition the operation of the social determinants of health (Beckfield et al., 2015). For example, the welfare state – itself a complex of citizenship rights (Marshall, 1950) – provides resources to citizens that may make other kinds of market resources less necessary for preventing illness and ensuring good health. An example of a fairly direct effect of the welfare state on health would be healthcare services (Bambra, 2005). A less direct way in which institutions impact health is by providing stingier or more generous cash benefits in times of unemployment or sickness (Esping-Andersen, 1990). In countries with more generous social programs, the health of the poorest should be better thus enhancing overall population health. For example, research by Mackenbach et al. (2011a, b) found that inequality related losses to health amount to more than 700,000 deaths per year and 33 million prevalent cases of ill health in the European Union.

Third, it is possible that social policy itself is affected by population-health improvements, such that part of any association between social policy and population health might result from the endogeneity of social policy generosity to the health of the population, and especially the health of older cohorts, which can be expected to be larger in healthier societies, *ceteris paribus* (Mackenbach et al., 2011a, b; Vogt and Kluge, 2015; Gunasekara et al., 2014). Indeed, the effect of population aging on social policy is well established in the comparative political economy literature (Wilensky, 2002). For this reason, we emphasize our models of life expectancy at birth, which are shown in tables. We also estimate models that use ten-year lags for the social policy measures, to guard against reverse causation. Of course, without experimental data or a strong instrumental variable, we acknowledge it is impossible to rule out endogeneity bias.

In the growing field of research on the role of the welfare state in producing population health, studies have fairly consistently shown that infant mortality rates (IMR) vary significantly by welfare state, with rates lowest in the more generous Social Democratic countries of Scandinavia and highest in the less generous Liberal (e.g. US and UK) and Southern (e.g. Spain or Italy) welfare states (Chung and Muntaner, 2006, 2007; Coburn, 2004; Eikemo et al., 2008; Abdul et al., 2010; Navarro et al., 2003, 2006).

There are, however, several limitations to such regime-based comparative analysis of population health. While such studies are useful for explaining cross-sectional variation in population health profiles, they aggregate information across policy domains, they overlook within-regime policy heterogeneity, and they elide cross-national within-regime differences in trends (Beckfield and Krieger, 2009). Other studies have therefore compared more specific welfare state policies such as pension provision (universal versus contributory), family policies (traditional family versus dual earner support), total expenditure on specific benefits such as on sickness