



Columbia Population Research Center
Advancing Research in Population, Health, and Society

CPRC Working Paper No. 10-09

Wealth and Welfare States: What Is the Real Story?

Irwin Garfinkel
School of Social Work
Columbia University

Timothy Smeeding
School of Public Affairs
University of Wisconsin-Madison

October, 2010

Unpublished manuscript. Do not copy or cite without author permission.

“Wealth and Welfare States: What Is the Real Story?”

By Irwin (Irv) Garfinkel and Timothy Smeeding
October 6, 2010

Abstract: Many believe that the welfare state undermines productivity, economic growth and development; that the United States has an unusually small welfare state; and finally that the United States is and always has been a welfare state laggard. This paper shows that all three propositions are false when one includes education along with cash benefits and health care support as part of the welfare state. We argue that the social programs that constitute the welfare state complement capitalism and enrich nations. The American welfare state is not unusually small, but, it is peculiar in its reliance upon the combination of employer-provided benefits and weak cash benefit programs for the poor. Finally, the United States rather than always being a laggard in welfare state development was a leader in the provision of public education for most of its history, but now lags behind other rich nations.

Irwin (Irv) Garfinkel is Mitchell I. Ginsberg Professor of Contemporary Urban Problems at the Columbia University School of Social Work and co-director of the Columbia Population Research Center.

Timothy Smeeding is director of the Institute for Research on Poverty and Arts and Sciences Distinguished Professor of Public Affairs at the La Follette School of Public Affairs and Economics at the University of Wisconsin–Madison, and founder and director emeritus of the Luxembourg Income Study

“Wealth and Welfare States: What Is the Real Story?”

Many believe the following three statements to be true. The welfare state undermines productivity and economic growth. The United States has an unusually small welfare state. And, the United States is and always has been a welfare state laggard. This paper is based largely on our book entitled *Wealth and Welfare States: Is America A Laggard or Leader?* (Garfinkel Rainwater and Smeeding 2010) with some updated for recent events. The paper shows that all three propositions are false. All rich nations, including the United States, have large welfare states because the socialized programs that constitute the welfare state—public education and health and social insurance—enhance the productivity of capitalism and spur economic development. In public education, the most productive part of the welfare state, for most of the nineteenth and twentieth centuries, the United States was the world leader, but is no longer.

Though few would argue that public education is not part of the welfare state, most previous cross-national analyses of welfare states have omitted education. Including education as part of the welfare state has profound consequences, undergirding the case for the productivity of welfare state programs and the explanation for why all rich nations have large welfare states, as well as identifying US welfare state leadership.

In the first section of the paper, we discuss the definition and boundaries of the welfare state and the sources for our data. The second and third sections show that welfare states enrich rather than impoverish nations. The fourth shows that the contemporary American welfare state is not unusually small and that while the United States lagged in the provision of public relief and social insurance throughout most of its history, the United States was a leader in the provision of mass public education. The fifth concludes with a brief summary of our analysis of

the future of the American welfare state. We say less about public health and health care in order to focus on education here. Of course, almost everyone knows that the United States spends twice as high a share of GDP on health care than the average of the other nations here, with no firm evidence of better outcomes.

The idea that the United States has always been a laggard in welfare state development is not only widespread and misleading, it is pernicious. Those who mistakenly believe that the United States has always been slow to develop social welfare programs are prone to dismiss the current lag in early education and child care with the argument that lagging may be a good thing. After all, if despite always being behind, the United States is the richest nation on earth, why worry about it? But if one of the main reasons why the United States is the world's richest nation is that it has been a world leader in developing mass public education—and if it has now relinquished that lead—this is surely a cause for worry.

I. Definitions

All wealthy nations, including the United States, are welfare states—that is, they are primarily capitalist states with large, selective doses of socialism. What have been socialized are institutions that reduce economic insecurity. By its nature, capitalism produces too much economic insecurity. A hallmark objective of welfare state institutions is, therefore, to reduce economic insecurity. Education, health, insurance, and cash benefits (social insurance and public assistance) all reduce economic insecurity. Education and health increase human capital, making citizens more capable of dealing with the economic insecurity produced by nature and by the market. Social and health insurance and public assistance also make citizens more secure by reducing the economic costs of insecurity directly.

Unlike the transfer of resources in the typical capitalist market economy—an explicit trade: “I’ll pay you this for that”—social welfare transfers in the form of education, health, social insurance, and cash and in-kind public assistance flow to citizens as a matter of law or entitlement and are paid for by other members of the community by law or requirement. Social welfare transfers are publicly provided or subsidized goods that provide predominantly private benefits. For example, though the public at large benefits from the education of all children, the children who get the schooling and their families reap the largest benefits. Our work builds on a vast scientific literature in economics, sociology, political science, history, and social work, but departs in a few fundamental respects from that of the large majority of welfare state scholars. Most important, our measures encompass a broader set of social welfare transfers, including education, employer-provided benefits, and all in-kind benefits.

Education as part and parcel of the welfare state Including public education as a welfare state program is—or should be—the least controversial departure from conventional practice, but is by far the most consequential. There are two reasons why including education should not be controversial. First, even though most scholars doing cross-national comparative welfare state analyses omit education empirically, the conceptual definitions of welfare states put forth by the leading scholars in the field include education. For example, in perhaps the most influential book on the welfare state in the sociology and political science literatures, *The Three Worlds of Welfare Capitalism* (1990), Gosta Esping-Anderson first defines the welfare state as: “... state responsibility for securing some basic modicum of welfare for its citizens.” He goes on to say, “What then constitutes salient dimensions of welfare state stratification? ... The education system is an obvious and much studied instance.... At this point, we confine our attention to the welfare state’s traditional and still dominant activity, income maintenance.” In *Poverty in*

Europe and the United States: A World of Difference (2004), Alberto Alesina and Edward Glaeser, two of the most influential welfare state scholars in economics, define welfare state programs as “the redistributive side of government policies” but include only cash transfers and health transfers in their analysis.

Second, although education is generally missing from most empirical analyses of the welfare state, an increasingly large minority of welfare state scholars do include education in their inquiries. British scholars of the welfare state have a long tradition of including education in their analyses (Richard Titmus 1958; John Glennister 1992; John Hills 2004). The authoritative collection of classic readings on the welfare state designed for graduate students in economics, *Economic Theory and the Welfare State* (2001), edited by Nicholas Barr and overseen by the leading economists in the world, has a large section on education, consistent with its operational definition of the welfare state: “For the purposes of these volumes the term ‘welfare state’ is used for the state’s activities in three broad areas: income transfers, health and health care, and education.” Finally, welfare state scholars who include education have already taught us a great deal.

For instance, Professor Robert Lampman, first director of the Institute for Research on Poverty at the University of Wisconsin, constructed in *Social Welfare Spending: Accounting for Changes from 1950 to 1978* (1984) the definition of social welfare transfers that underlies our own definition. He also conducted the first benefit-cost analysis of welfare state transfers of which we are aware and found that: 1) benefits are at least as great as costs, and 2) most of the measured benefits come from education. Arnold Heidenheimer and John Layson (1982) present convincing evidence that the historical development of the US and German welfare states differed in that Germany led the way in Old Age Pensions and the United States led the way in

the development of mass secondary education. Peter Lindert, an economist and historian extends the work on the benefits and costs of welfare state institutions in his recent book on welfare state development in rich nations, *Growing Public* (2004), showing that these change over time, and enrich (and in some cases create) the comparative histories of public assistance, education, and social insurance in rich nations, documenting that welfare state leadership has changed over time.

Finally, including education in the analyses has huge consequences. It sets the stage for and undergirds the case that the welfare state as a whole is productive. It also refutes the widespread belief that the United States has been a welfare state laggard. This statement is only true if we consider cash transfers and public assistance (Garfinkel, Rainwater, and Smeeding 2010).

Other social welfare state benefits

Besides education, our analysis of welfare state spending departs from most previous analyses by including employer-provided health insurance and pension benefits and tax expenditures. We also include social welfare spending by all levels of government. Tax expenditures (savings in income tax payments) and tax-subsidized employer-provided expenditures are alternative, less progressive, means of achieving some of the social goals of direct government spending—among them, providing health insurance, housing, and income security in old age. As such, including them gives a more accurate description of the size of welfare states.

Most economists treat tax expenditures as economically equivalent to explicit budget expenditures and would therefore agree that, at a minimum, the tax-subsidized portion of

employer-provided health insurance (between one-fifth and one-quarter of the total) should be included as welfare state expenditures (Adema and Ladaique 2005). Although a case can be made for counting only the tax-subsidized portion on the grounds that state funding differs from funding stimulated and regulated by the state, some economists and political scientists—whose practice and rationale we follow—argue for including the entire amount of employer expenditures on the grounds that these benefits are publicly subsidized and regulated; that employer-provided health insurance involves socialization of the risk of ill health and redistribution from the healthy to the sick, at the firm rather than the national level; and, that failing to include these benefits underestimates the share of the population with insurance and mischaracterizes the US welfare state by obscuring and minimizing how much it spends on subsidized health insurance. Moreover, in the *Divided Welfare State* (2002), Jacob Hacker shows the development of employer-provided health insurance was a substitute for and forestalled the development of a national health insurance system. Finally, the decentralization of insurance payers that results from employer-provided benefits as opposed to a single national insurer is the most important factor in accounting for the extraordinarily high cost of the US health care system and for its recent reform (Garfinkel, Rainwater, and Smeeding 2010).

By the same logic, at a minimum, the tax-subsidized portion of employer-provided pensions should also be included as a welfare state transfer. The case for including all of employers' spending for pensions, however, is weaker than the case for including all of their spending for health insurance. Health insurance, by its nature, redistributes from the healthy to the sick. Employer-provided pensions may involve no interpersonal redistribution (other than the tax subsidy) if, for example, the pension is a defined-contribution plan that involves private accounts and no spousal or survivor benefits. Unfortunately, we cannot distinguish between

pensions that do and do not involve interpersonal transfers. For simplicity, we calculate the size of welfare states in two ways—by counting both all and no employer-provided benefits as social welfare transfers.

Social welfare transfers, as noted above, are publicly provided or subsidized goods that provide predominantly private benefits. Because academic analysts of the welfare state have focused on education, health, housing, social insurance, and public assistance, government agencies in both the United States and other countries publish data on social welfare expenditures in these domains, and international governmental agencies such as the Organization for Economic Co-operation and Development (OECD) publish cross-national data that use these categories. We follow this tradition.

Some vital parts of modern welfare states, however, do not involve transfers that so clearly provide predominantly private benefits. The most important of these is public health. Public health involves both vast public expenditures on clean water and sanitation that are not counted as part of the welfare state and a vast body of regulations that protect from disease. Sanitation, clean water, inoculations, and other aspects of public health clearly provide large private as well as large public benefits. But whether private benefits are bigger than public benefits is not clear to us and, to our knowledge, has not been seriously studied. What is clear is that expenditures on sanitation and clean water are not counted as social welfare expenditures, while public health doctors and facilities, inoculations, and other aspects of the public health system are counted. We do not attempt to estimate the full costs of all public health programs, but discuss the importance of public health to productivity and economic growth in section 2. Here, we note that if all public health expenditures were counted as part of welfare state program expenditures, welfare states in rich nations would very likely look even more alike than depicted

in section 3. We also suggest that estimating the costs and benefits of public health sanitation investments would be a useful contribution to the welfare state literature.

Other government regulations, such as minimum wages, rent controls, and child support enforcement are also important ingredients of modern welfare states that deserve more analysis. For many achieving full employment through the use of Keynesian macroeconomic policies is also an essential welfare state objective. But, regulation and macroeconomic policy are beyond the scope of this paper.¹

II. Welfare states enrich, not impoverish, nations

Three sets of facts suggest welfare state programs enrich rather than impoverish nations. First, all modern rich nations have large welfare states. Second, economic growth rates of currently rich nations are larger than they were in the pre-welfare state past. A remarkable number of people seem unaware of this second fact due to historical myopia. Third, there is very strong evidence that public education and public health have led to enormous gains in productivity and economic well-being. The evidence on the effects of social insurance and other cash benefits on growth in GDP is weaker, but suggests small positive effects in the early development of social insurance and at worst small negative effects currently. Two huge positives combined even with a small negative add up to a very big positive.

All rich nations have large welfare states

Figure 1 displays the relationship between a country's income and the size of its welfare state.² The most common measure of the size of a welfare state is a country's total social welfare transfers as a share of its total annual income, or its gross domestic product (GDP). The size of welfare states is displayed from the bottom to top of the diagram; income per person is displayed

from left to right. Both variables are logged. Each of the 162 dots in the figure represents a country and describes both the size of its welfare state and its average income per person. The poorest countries cluster in the bottom left hand corner of the diagram, while the richest countries cluster in the top right hand corner. Clearly, the richer the country, the greater the share of their income that citizens devote to welfare state transfers. The same pattern holds within the United States and within Europe. The higher the income of states or countries, the greater the share of income that they devote to welfare state transfers.³

The black dots represent the fourteen rich countries analyzed in *Wealth and Welfare States*. All of these rich nations have large welfare states.⁴ If the welfare state is a drag on nations, as the critics would have us believe, how could it be that all these rich nations have large welfare states? One alternative explanation to the productivity of the welfare state is that welfare state programs are a luxury good that we buy more of as we get wealthier—a special case of Wagner’s law of social spending. Causation surely does run from wealth to welfare state. But, if the conservative opponents of the welfare state are correct, large welfare state programs will eventually bring rich nations down. So the currently rich nations should not remain rich for long. Indeed, the currently rich nations have only had large welfare states for the last 30 years, which is a relatively short period of time.

Growth rates in rich nations are higher now than in the pre-welfare state past

A longer historical perspective reinforces our conclusion that the effects of the welfare state on economic growth have been positive. Table 1 presents growth rates in per capita GDP for the fourteen rich nations examined in *Wealth and Welfare States* for two recent time periods—1960 to 1975 and 1975 to 2006, and for one long period before the growth of the welfare state—1870 to 1913. Except for Ireland and the United Kingdom, growth rates are

higher in all countries, and much higher in most, from 1960 to 1975 than they are from 1975 to 2006. The Swedish growth rates drops from 3.11 to 1.67, or, by nearly a half! This sharp drop in growth rates fueled the belief that the welfare state was strangling capitalism.⁵ That Norway, whose social welfare spending is only a bit lower than Sweden's, had higher growth rates from 1975 to 2006 than the United States provides some evidence to the contrary. That Sweden's growth rate from 1994 to 2006 (not shown in table) was back up to 2.5 percent provides further evidence to the contrary.

The longer historical perspective provided by the data in column three provide evidence that the growth rates in the 1960 to 1975 period were unusually high. This earlier period comes after the American Civil War and the Franco-Prussian War and before World War I. Although not shown in the table, economic growth before this period and afterwards—during World War I, Great Depression, and World War II—was dramatically lower. A country-by-country comparison of columns one, two, and three indicates that economic growth rates in the 1960 to 1975 period were unusually high. While growth was substantially higher in most countries between 1960 and 1975, as compared to post-1975 period, in all countries except the United States, growth rates were dramatically higher in the 1960 to 1975 period than they were in 1870 to 1913.

Even more important, most of the currently rich nations have higher growth rates in the large welfare state 1975 to 2006 era than they did in the pre-large welfare state 1870 to 1913 era. Look first at the United Kingdom, the first nation to industrialize. It is useful to begin with the industrial leader because countries that industrialize later are able to grow faster as they catch up by copying the successful technologies of the leader(s). The annual growth rate of the United Kingdom during the Victorian era was 0.65 percent, compared to a robust 2 percent per year in

the large welfare state era. In Germany, the second leading European nation, growth is also higher in the large welfare state era, though the difference is not nearly as great. In only three countries—Canada, the United States, and Sweden—are annual growth rates higher in the earlier than the later period. The largest difference is for the United States—nearly one-half percentage point. But, the initial US figure is unusually high for two reasons: catching up from incorporating foreign technology and recovering from the Civil War. If we divide the period into two sub-periods, growth is 2.95 percent from 1870 to 1890, and only 2.25 percent from 1890 to 1913, or only slightly higher than the 2.04 percent growth rate from 1975 to 2006.⁶ Thus results are sensitive to the particular years chosen for comparison. But the big picture is clear. Incomes in most of the currently rich nations are now growing faster, not slower, than they have in the past. Of course, many other things besides social welfare spending have changed during the past 150 years. But, as we have seen, welfare state spending is now very large relative to the total production of goods and services in all advanced industrialized nations. If such spending had large adverse effects, it is doubtful that growth rates would have been so large in the last 30 years. The crude historical relationship suggests, at a minimum, no great ill effects and, more likely, a positive effect.

The burden of proof clearly lies on the side of those who claim that welfare state programs are strangling productivity and growth. If they are right, they need to explain why all rich nations have large welfare states and why growth rates have grown in most rich nations as their welfare states have grown larger.

Education and public health are very productive

Education. Markets produce too little education, health care, and insurance because the benefits of education, health, and economic security spill over beyond the individual child and

the child's family to other members of society. Economists refer to this spillover as an externality. Consider education. Each of us has an interest not only in our own children's education, but also in the education of other children as well. Poorly educated children are more likely to be unhealthy, dependent on public assistance, and criminal when they become adults. Education reduces these social costs of ignorance. More-educated children are also more likely as adults to be more informed citizens and more generally capable of a higher level of social and economic interaction. Finally, particularly important for nations like the United States, whose population includes such a diversity of nationalities, religions, and races, public education transmits a common set of social values to children—helping to make them American children. Sociologists call this “increasing social cohesion.” In making decisions about how much to invest in their own child's education, parents acting individually do not take account of these public benefits. Thus reliance on the market leads to underinvestment in education. Collective action is required to reach the optimum level of education. Of course, government financing or provision of education, or both, does not guarantee the optimal level of education. Governments are no more perfect than markets are. With respect to education, however, we know that the private market fails to invest enough.

The empirical evidence is overwhelming that public education promotes productivity and growth. Economists agree that improvements in education account for a good deal of economic growth (Denison 1962; Mankiw et al. 1992; Barro 2001; Lucas 1988). Today the controversy in economics is over whether we are spending enough on education, particularly tertiary education (Goldin and Katz 2008). Our answer is we are not spending enough on education as the most beneficial public investment .

Public health and health insurance. The theoretical case for public health measures such as sanitation, inoculation, even isolation, and most generally, the prevention of infectious disease is identical in principle to the externality, or spillover, argument for education. As with education, the benefits of public health programs are not limited to the individual but extend society-wide. And as with ignorance, the disadvantages of poor sanitation extend far beyond the individual. Our neighbors' failure to be sanitary imposes costs not just on them but on us. If each of us were to pay only for our own sanitation, we would have too little. If each of us were to weigh the individual benefits and costs of purchasing an inoculation, we would get too few inoculations and too much disease.

Scientific evidence also indicates that the public health measures described above have large social benefits and, like public education, promote productivity and growth. The huge gains in life expectancy between 1890 and 1930—e.g., 14 years in the United Kingdom and 16 years in the United States—are due primarily to public health investments in the late nineteenth and early twentieth centuries (Samuel Preston 1975, 1980, 1996; Robert W. Fogel 2004; and Cutler, Deaton, and Lleras-Muney 2006). The gains in health and life expectancy attributable to public health have led in turn to large gains in productivity and economic growth, though unlike the case for education, economists have not estimated economic rates of return for massive public health investments.

Since 1950 the greatest gains in life expectancy have been at older ages in most rich countries. In the United States, life expectancy at age 65 grew by 5.0 years, largely due to gains in cardiovascular disease treatment and health insurance spending on the aged to guarantee their access to these benefits (Cutler 2004). But these investments have come at a high price in both

absolute dollars and in terms of opportunity costs. Other countries have done as well in terms of life expectancy, but at a lower total outlay (Anderson et al. 2003).

Social insurance and income maintenance

The majority of social insurance spending in most welfare states is for the aged unemployed and disabled (whom we concentrate on here). But before discussing the evidence for whether social insurance promotes or retards economic growth, it is worth noting that social insurance enriches us even if it has no effect on economic productivity and growth. Unfortunately, quantitative research on the economic worth of reducing insecurity is in its infancy.⁷ Still, economists across the political spectrum agree that social insurance reduces economic uncertainty, thereby improving individual utility and economic well-being. Most American economists now agree that there is a role for government in assuring that the aged have sufficient income in retirement and that government can achieve this end more efficiently than private markets and the family alone (Becker and Murphy 1988; Buchanan 1968; Aaron, 1982; Musgrave and Musgrave, 1984; Blinder, 1988; Steuerle and Bakija, 1994; Feldstein 1987 and 2005). Only a few ideologues reject any government role. Conservatives who want the government to require people to save for their own retirement favor welfare state programs that don't redistribute income. Standard economic analysis suggests three reasons why welfare state programs might reduce the productivity of capitalism. The first and most important source of inefficiency is the taxation required to finance welfare state services. Taxes distort and blunt incentives. Benefits may also distort and blunt incentives. Because public assistance benefits are sharply reduced as earnings increase, they reduce the incentive to work. Government-guaranteed retirement pensions may decrease private saving for retirement. Finally, collecting taxes and distributing benefits entail administrative costs.

On the other hand, pensions for the aged, the disabled, and survivors promote social and political stability. In the late nineteenth century, the Conservative German Chancellor Otto von Bismarck pioneered social insurance to undercut the rapidly increasing appeal of the German Socialist Party—a revolutionary party at the time—and thereby promote social stability. Social and political stability promote productivity and growth.⁸ Furthermore, by reducing economic insecurity, social insurance and safety nets make people more willing to take economic risks. While unemployment insurance prolongs unemployment at the individual level (Feldstein 1976), it may be that an unemployed worker who can take the risk of remaining jobless a little longer will in the end find a job that is a better match for his or her skills, thus increasing productivity. Thus economic theory does not offer a firm prediction of the effects on productivity and growth of increasing or decreasing social insurance or, more generally, of the size of the welfare state.

What is the evidence? Anthony Atkinson (1999) concludes “The results of econometric studies of the relationship between social transfer spending and growth rates are mixed: some find that high spending on social transfers leads to lower growth, others find the reverse. The largest of the estimated effects—in either direction—do not, however, seem believable.” In the most recent study, Lindert examines three periods of growth in the OECD welfare states—1880 to 1930, 1962 to 1981, and 1978 to 1995—and finds a statistically significant positive effect of cash transfers on economic growth during the first two periods but none during the third. These findings suggest that early expansions in social insurance increased growth and that the most recent expansions have not harmed it.

III. The American welfare state is not unusually small

As noted above, the most common measure of the size of a welfare state is a country’s total social welfare transfers as a share of total income. Most measures of social welfare

transfers, including those presented in Figure 1 in the previous section, exclude employer-provided benefits. In the international context of all nations, the size of the US welfare state does not stick out. All rich nations have large welfare states. If the comparison is limited to rich nations, the US welfare state appears unusually small only if employer-provided benefits are not counted. When employer-provided benefits are counted, the United States does not appear unusually small. We show this in Figure 2, which depicts the overall size of welfare states as measured by social welfare transfers as a share of GDP in fourteen rich nations. The fourteen nations are grouped into five predominantly English-speaking nations (Australia, Canada, Ireland, the United Kingdom, and the United States), six continental European nations (Belgium, France, Germany, the Netherlands, Italy, and Spain), and three Scandinavian or Nordic nations (Finland, Norway, and Sweden) (Esping-Anderson 1990; Kamerman and Kahn 1978; and Wilensky and Lebeaux 1965).

The first bars, which do not include employer-provided benefits, indicate that each of the countries spends a substantial fraction of its GDP on social welfare—from 17 percent to 38 percent. As a share of total government spending, social benefits are at the very least 55 percent of government outlays (in the United States) and at the most 90 percent (in Sweden) (Osberg, Smeeding, and Schwabish 2004). Not counting employer-provided benefits, the English-speaking nations spend the least—Ireland and the United States, the very least. The European nations spend substantially more, and the Scandinavian nations spend the most. These patterns are consistent with findings of other comparative studies (Kamerman and Kahn 1978; Smeeding, O’Higgins, and Rainwater 1990; Esping-Andersen 1990; Smeeding 2004).

The second bar, which includes employer-provided benefits, indicates that within the English-speaking group, the United States spends nearly as much as the United Kingdom does

and more than Canada and Australia do. Including employer-provided health insurance and pensions and tax expenditures increases the estimated size of the US welfare state by nearly 50 percent! More generally, including employer-provided benefits and tax expenditures substantially narrows cross-national differences in the size of welfare states because the English-speaking nations rely more on them than do most of the continental West European and Scandinavian countries.

Moreover, when the size of a welfare state is measured by the total amount of social welfare transfers per person, the US welfare state is not—as it is often described—unusually small but, in reality, quite large. Although welfare state spending relative to GDP is a good indicator of the degree to which countries differ in the share of their incomes devoted to the welfare state, such differences are not a good indication of the absolute amounts of social welfare transfers per person in each country. The United States is the richest large nation. Sweden's GDP per capita, for example, is only 79 percent of that of the United States, though Sweden devotes more than 41 percent of GDP to welfare state expenditures, compared with the US share of 32 percent GDP per capita. Consequently, in absolute terms, the United States spends a lot more than $32/41$ of what Sweden spends on a per capita basis. Figure 3 presents our estimates of per capita social welfare transfers in the same fourteen rich nations with and without including employer-provided benefits. For those who believe that the absolute size of the US welfare state is small, the data in Figure 3 are shocking and constitute a wake-up call. Real per capita social welfare spending in the United States is larger than that in almost all other countries! Even if employer-provided benefits and tax expenditures are excluded, the United States is still the third biggest spender on a per capita basis.

IV. Laggard in public relief and social insurance, but a leader in the provision of mass public education

Cash relief is the first, public education the second, and social insurance the last welfare state program to develop historically. In this part of the paper we go back to 1800 and show that though the United States lagged in providing cash relief and social insurance, it led in providing mass education.

Relief for the poor

The oldest welfare state program is poor relief. As feudalism gave way to capitalism in Western Europe, the state supplanted the feudal lord and the church in bearing responsibility for aiding the poor. Capitalism and public poor relief developed together, first in Great Britain and the Netherlands. Providing public aid to the poor was a big, hotly contested step, and even though the principle of public responsibility became increasingly less controversial, the nature of the aid to be provided continues to this day to be a subject of great debate.⁹ Because the United States came into being as colonies of Great Britain, it has provided public relief for the poor throughout its history.

Figure 4 depicts the share of national income (percentage of GDP) spent on public relief (what is known colloquially in the United States as *welfare*) by ten currently rich nations—Ireland, the United Kingdom, and the United States; Belgium, France, Germany, and Netherlands; and Denmark, Norway, and Sweden—from 1800 to the present. Despite some huge gaps in the data, this picture clearly depicts several important facts. In all countries, the share of national income spent on public relief (measured from bottom to top in the figure) has grown over time. The biggest increases in spending occurred during the last 40 years of the twentieth century. But still the United States is the laggard in terms of cash and near cash benefits—

including food stamps and the Earned Income Tax Credit (Rainwater and Smeeding 2004). All countries have also experienced big fluctuations in spending over time, some of which are driven primarily by unemployment. When unemployment goes up, so does public spending on relief. But GDP goes down. The combination of an increase in spending and a decrease in GDP leads to spikes in the percentage of GDP devoted to public relief, as exemplified by the Swedish spike in the early 1990s.

Finally, note that the United Kingdom stands out as being the early leader in providing public relief for the poor and is above average in spending until at least 1970. Clearly, the United States did not inherit its special aversion to cash relief benefits from the mother country. Indeed, Smeeding and Waldfogel (2010) show that Britain's 10-year war on child poverty has largely been a success, with well-targeted cash and in-kind subsidies cutting British poverty in half from 1999 to 2009.

Public education

Public education began in some Prussian counties, in the northern United States, and in Canada in the first half of the nineteenth century. By the end of the century it had become near universal at the elementary level in leading countries. Figure 5 uses data compiled by Lindert to display the growth in public school enrollment rates in our fourteen nations for three different years during the course of the nineteenth century—1830, 1870, and 1900. Enrollment rates are measured by the number of children enrolled in public elementary schools as a percentage of the population aged 5–14.¹⁰ For each country and each year, enrollment rates are displayed by bars. The longer is the bar, the greater is the enrollment rate.

Although data for some years are missing, several clear patterns emerge from Figure 5. First, over time, enrollment rates went up in all countries. Although well under half of all

students were enrolled in elementary school in most countries in 1830, by the end of the century, well over half were in school in most countries, and in the leading countries the share was close to 90 percent.

Second, leadership changed over time. In 1830, though US enrollment rates were among the highest, Germany's rates were even higher. But enrollment in Germany grew very little. By 1870, the United States and Canada were the leaders and they maintained that leadership throughout the rest of the century.

Third, in education, there is no hint of Esping-Anderson's three worlds of welfare capitalism. The commitment to public education varied enormously within the English-speaking countries, with the United Kingdom and Ireland being education laggards and the United States, Canada, and Australia being leaders. On the continent, Germany stood out as a clear leader. By the end of the nineteenth century, Norway and Sweden were in the middle of the pack and Finland was at the bottom.

At the beginning of the twentieth century, most American children attended primary schools, but few attended secondary or high schools and only a minuscule share attended college. This pattern changed dramatically during the first half of the twentieth century as the US leadership in mass education widened. Figure 6 depicts the growth in enrollment rates in secondary education between 1900 and 1930. The enrollment rate—the ratio of the number of secondary students to the number of children aged 5–14 in each country—is not ideal for our purposes, but it still accurately reflects underlying differences.¹¹ What is striking is that the US rate is nearly double that of the next closest country, Germany, and three to six times higher than most of the other countries. Similarly, the proportion of children graduating from colleges and universities was much higher in the United States than other nations during this period.

The wide American lead in secondary and college education persisted past mid-century, at least until 1970, but by century's end was much reduced. The length of the bars in Figure 7 depicts the share of adults aged 25–34 in each country who have attained the equivalent of US high school and college degrees (in panels A and B) for 2 years—1970 and 2000.¹² As shown in panel A, in 1970 the United States, at 83 percent, had a clear lead in the share of adults who had completed high school. Only Germany, at 76 percent, was close. In most countries, less than half of adults had the equivalent of a high school degree. By 2000, the picture had changed dramatically. Except for the United States and Germany, which already had high rates, the share in all other countries increased substantially. The three Scandinavian countries and Canada had caught up to or surpassed the United States. The other countries were not far behind.

Panel B, which depicts the share of each country's population that has attained at least the equivalent of a US college degree (upper tertiary education), tells much the same story. In 1970, the United States together with Canada had a clear lead. By 2000, most of the other countries had caught up or nearly so, and Canada and Ireland were notably ahead. In short, since the 1970s, the United States has been losing its big lead in educational attainment and particularly at the tertiary level. (see also Figure 9 below)

Figure 8 depicts how the United States fell increasingly behind in early childhood education between 1975 and 2002. The data are not perfectly comparable across the 2 years—ages 3 to 5 for 1975 versus age 4 for 2002—but the picture tells a clear story. In 1975, the United States is in the middle of the pack. By 2002, early childhood education is quite common and the United States is clearly behind other rich nations in this respect.

Finally Figure 9 convincingly shows the trend in postsecondary education completion across a number of cohorts and a series set of nations, most of which are part of this study. In all

but two countries, Germany and the US, the pattern is shows higher higher educational attainment as new cohorts reach the age of completion of postsecondary school. The trends are very clear. In the oldest cohort (aged 55–64 in 2008) the United States was the clear leader. And for the generation before the oldest, the GI bill put the United States far in the lead. But the United States is leader no more. The United States is now experiencing a flat period of growth in attainment of postsecondary degrees while all other nations save Germany (likely due to the 1989 annexation of the Eastern Lander) are rapidly advancing.. Countries not shown such as Japan and Korea are also ahead of the US. Even nations that are not yet at the US level of tertiary school achievement are rapidly advancing while the United States has no meaningful trend. Hence the race between technology and education is being lost by education in the United States (Autor 2010; Goldin and Katz 2008).

In sum, the United States went from being one of the world leaders in mass education at the beginning of the twentieth century to being, by mid-century, far and away, the world leader. During the last quarter of the twentieth century, however, the other rich nations substantially closed or eliminated the gap in high school. At the same time, other rich nations surged ahead in college enrollment and attainment as well as in early childhood education.

Social insurance

Social insurance came into being in the late nineteenth century in Germany and gradually spread through the rest of the rich world throughout the twentieth century. The United States lagged the European nations both in terms of when it enacted these programs and in how much it spends on them. Work injury compensation is the oldest program; national health insurance and paid family leave are the newest. Health insurance came into being for the most part after World War II. Child or family allowances are also of relatively recent origin—for the most part a near

mid-twentieth century phenomenon. Leadership differs depending on the program in question. Germany led in work injury compensation, Denmark in old age insurance, France in unemployment insurance, Belgium in family allowances, Spain and Netherlands in health insurance, and Spain and Sweden in paid family leave. The United States stands out as a laggard here. It was the last nation to adopt worker's compensation, which is, even now, a state rather than a national program in the United States. Not until 1935 did the United States enact old age and unemployment insurance. The United States still lacks universal health insurance, work sickness insurance, family allowances, and paid family leave programs.¹³

Income maintenance programs are sometimes universal (as in child allowances) and other times targeted at the poor. Their biggest effect is to limit downward mobility and reduce poverty in all rich nations (Kenworthy 2011). The Great Recession that we are now experiencing has pushed many people into poverty in the United States, especially the young and unemployed, and elsewhere, but in the larger and more generous cash welfare states the increase has been more muted, and incomes have dropped less, so poverty has climbed less (Glatzer 2010).

V. Summary and conclusion

Myths about welfare states and their effects on economic development abound. In this paper, we rebut three central and related myths. The “socialist” programs that constitute the welfare state do not undermine productivity and economic growth. Rather, they complement capitalism and enrich nations. The American welfare state is not unusually small. But, it is peculiar in its reliance upon the combination of employer-provided benefits and programs for the poor—as opposed to universal programs, which in health care has led to the largest, most expensive health insurance system in the world. Finally, the United States rather than always

being a laggard in welfare state development was a leader for most of its history in the provision of mass public education.

Myths may influence policy. The United States now lags other rich nations in the provision of early childhood education and other cash benefits that enhance child security and development. And we are losing the education race at the tertiary level. Should Americans worry about this? Should other nations, rich and poor, follow the United States? If it were true that welfare state programs reduced economic growth and the United States was always a welfare state laggard, Americans should not worry and other countries would be wise to imitate us. Alas, the evidence suggests Americans should worry, as other nations have wisely imitated and gone beyond us in education, at the very least.

Notes

¹ Aside from employer-provided health insurance, pensions, and other benefits, we also do not deal directly with the “third sector”—voluntary nonprofit institutions and charities. One common perception is that state provision of the social welfare transfers in the United States is less than in Europe because there is greater voluntary provision funded by a higher level of charitable giving. There is some truth to this because much of the third sector consists of employer-provided benefits and voluntary organizations such as hospitals that are funded by government or employer-provided benefits. (See Blackman, Wing, and Pollack 2008.) As we show in chapter 3 of our book, counting employer-provided health insurance and pensions does narrow the gap between the United States and other rich nations in welfare state transfers as a percentage of national income. But, employer-provided benefits hardly constitute “charitable giving.” Charitable contributions to churches and other nonprofit institutions such as the United Way appear to play a much larger role in the United States than in other rich nations, but the amounts transferred are quite small compared to the rest of the welfare state. While a comparative/historical study of the third sector would be useful, it is beyond the scope of this article.

² Social welfare expenditures are the sum of social security, health, and education spending. Expenditure data is taken from IMF Government Finance Statistics Yearbooks (1998–2006). The IMF provides social security, health, and education expenditures in local currency. Each expenditure is then divided by that country’s GDP for the year of expenditure and the quotients are summed. This is the total social welfare expenditures as a percentage of GDP for each country. GDP and per-capita GDP are taken from the World Bank World Development Indicators. All data are presented as natural logarithms.

³ Internationally, spending increases a little less than one percent for each one percent increase in income. Amongst the 50 American states, for every one percent increase in state income, welfare state spending increases by at least one percent, with some studies suggesting that state spending goes up by more than one percent. In general, public spending on health care seems to be more responsive to increases in income than other types of social welfare spending, particularly cash assistance (Chernick 1998).

⁴ The alert and questioning reader will note that there are three countries that are very rich but have decidedly smaller welfare states than all the other rich nations. The exceptional nations—Hong Kong, Singapore, and the United Arab Emirates—have not been included in previous research on welfare states in rich nations and we make no attempt to analyze or explain their exceptionalism. We trust that future scholars will deal with this.

⁵ See Lindbeck 1994, 1996, and 1997; Freeman et al. 1997. For alternative views see Korpi 1996; and Agell 1996. For the latest exchange, see Lindert 2005, and comment by Bergh 2006, and response by Lindert 2006.

⁶ In Canada, which industrialized more slowly than the United States and had no civil war, the growth in the second subperiod was higher than the first—2.4 compared to 1.75.

⁷ Amy Finkelstein and colleagues have done the pioneering research in this area. Finkelstein and McKnight (2005) find that the economic gains are quite large for health insurance for the aged, but Brown and Finkelstein (2007) find they are quite small for old age insurance.

⁸ In “Transfers, the Social Safety Net, and Economic Growth,” Xavier Sala-i-Martin (1997) develops a theoretical economic model in which transfers quell social and political discontent and thereby increase growth. He also reports that in most empirical studies of economic growth, transfers have a positive effect. Alesina, Ozler, Roubini, and Swagel (1996) find that political instability substantially retards economic growth. The empirical evidence on the effects of transfers on growth is discussed in the next subsection.

⁹ See Lindert (2004) for a discussion of the historical differences. More contemporary debates are also discussed in Lindert and in section 2.

¹⁰ In a few instances, enrollments were available for only the sum of public plus private enrollments. By the end of the century, private enrollments were a small portion of the total in all rich nations.

¹¹ It would be preferable to have the percentage of children of secondary school age—say aged 14–18—who were enrolled in secondary schools, but these data are not available. Unless there were drastic changes in cohort sizes, however, using the 5–14-year-old group will accurately reflect differences in secondary enrollments across countries over time.

¹² To measure educational outcomes, we use the share of the population that has completed secondary and tertiary education—roughly the equivalent of US high school and college degrees—and is enrolled in preschool education programs. We use OECD data that are designed to make completion rates comparable in terms of attainment across nations.

¹³ Of course, as we have noted repeatedly, saying the United States lacks a universal health insurance program does not mean that most Americans lack health insurance. As we have seen, the opposite is true. The overwhelming majority of Americans have health insurance. Similarly, the partially refundable income tax credit for children in the US tax code would be economically equivalent to a universal child allowance if it were made fully refundable. While some large employers and a few states provide some benefits, Americans are much further away from having universal sickness insurance and paid family leave.

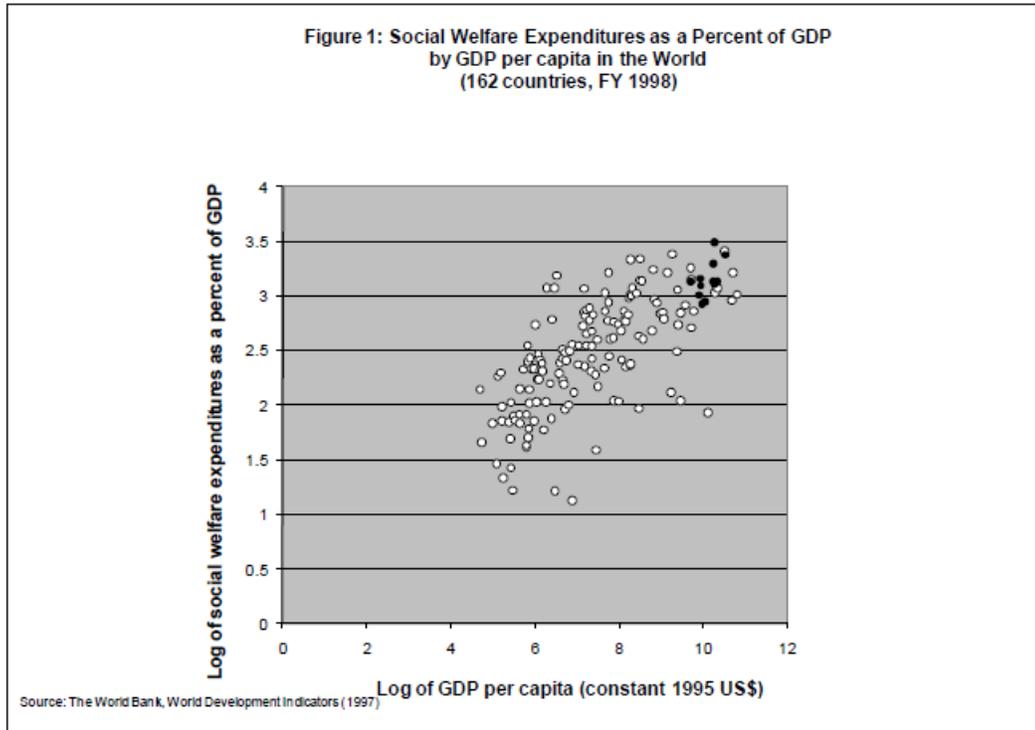
References

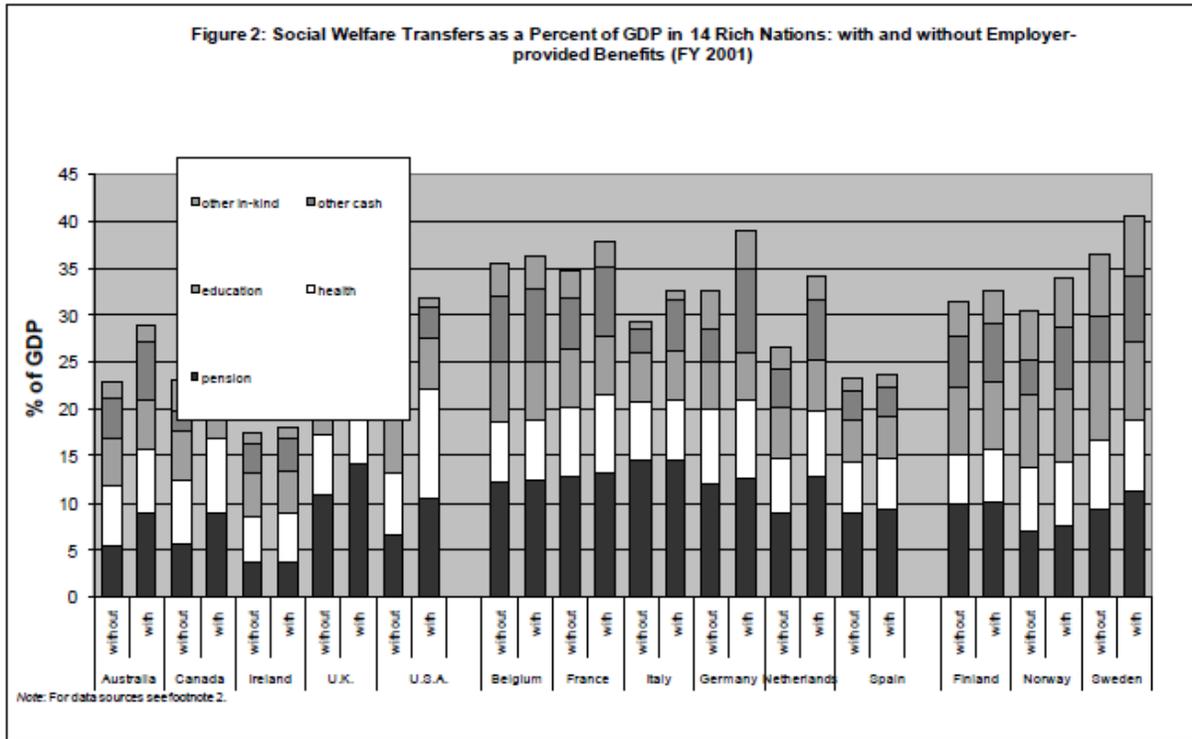
- Aaron, Henry. 1982. *Economic Effects of Social Security*. Washington, DC: The Brookings Institution.
- Adema, William and Maxime Ladaïque. 2005. "Net social expenditure, 2005 edition: More comprehensive measures of social support," OECD Social, Employment and Migration Working Papers 29. Paris: Organisation for Economic Co-operation and Development.
- Agell, Jonas. 1996. "Why Sweden's welfare state needs reform," *Economic Journal* 106:000-000
- Alesina, Alberto and Edward L. Glaeser. 2004. *Fighting Poverty in the US and Europe: A World of Difference*. Oxford: Oxford University Press.
- Alesina, Alberto, Sule Ozler, Nouriel Roubini, and Phillip Swagel. 1996. "Political instability and economic growth," *Journal of Economic Growth* 1(2): 189–211.
- Anderson, Gerald F., Uwe E. Reinhardt, Peter S. Hussey, and Varduhi Petrosyan. 2003. "It's the prices, stupid: Why the United States is so different from other countries," *Health Affairs* 22 (3): 89–105.
- Atkinson, A. B., and Universität München, Center for Economic Studies. 1999. *The Economic Consequences of Rolling Back the Welfare State, Munich Lectures in Economics*. Cambridge, MA: MIT Press.
- Barr, Nicholas, ed. 2001. *Economic Theory and the Welfare State*. The International Library of Critical Writings in Economics #132. Cheltenham, UK: Edward Elgar Publishing Limited.
- Barro, Robert J. 2001. "Human capital and growth," *The American Economic Review* 91(2): 12.
- Becker, Gary S., and Kevin M. Murphy. 1988. "The family and the state," *Journal of Law & Economics* 31(April): 1–18.
- Bergh, Andreas. 2006. "Is the Swedish welfare state a free lunch?" *Econ Journal Watch* 3(2): 210–35.
- Blackman, A., Wing, K. T., and Pollack, T. 2008. *The Non-Profit Sector in Brief*. National Center for Charitable Statistics, Urban Institute.
- Blinder, A. 1988. "Why is the government in the pension business?" in Susan Wachter (ed.), *Social Security and Private Pensions: Providing for Retirement in the Twenty-first Century*. Lexington, MA: D.C. Heath & Co., pp. 17–34.
- Brown, J. R., and A. Finkelstein. 2007. "Why is the market for long-term care insurance so small?" *Journal of Public Economics*, 91(10): 1967–91.
- Buchanan, James M. 1968. "Social insurance in a growing economy: A proposal for radical Reform," *National Tax Journal* 21(4): 386–95.
- Chernick, Howard. 1998. "Fiscal effects of block grants for the needy: An interpretation of the evidence," *International Tax and Public Finance* 5(2): 205–33.
- Cutler, David. 2004. "Are the benefits of medicine worth what we pay for it?" 15th Annual Herbert Lourie Memorial Lecture on Health Policy, Center for Policy Research Policy Briefs 27, Maxwell School, Syracuse University.
- Cutler, David, Angus Deaton, and Adriana Lleras-Muney. 2006. "The determinants of mortality," *NBER Working Paper* No. W11963. Cambridge, MA: National Bureau of Economic Research.
- Denison, Edward F. 1962. "Education, economic growth, and gaps in information," *The Journal of Political Economy* 70(5): 124–8.

- Esping-Andersen, Gøsta. 1990. *The Three Worlds of Welfare Capitalism*. Princeton, NJ: Princeton University Press.
- Feldstein, Martin S. 1976. "Temporary layoffs in the theory of unemployment," *The Journal of Political Economy* 84(5): 937–58.
- Feldstein, Martin S. 1987. "Should Social Security benefits be means tested?" *Journal of Political Economy* 95: 468–84.
- Feldstein, Martin S. 2005. "Structural reform of Social Security," *Journal of Economic Perspectives* 19(2): 33–55.
- Finkelstein, Amy and Robin McKnight. 2005. "What did Medicare do (and was it worth it)?" *NBER Working Paper* No. 11609. Cambridge, MA: National Bureau of Economic Research.
- Fogel, Robert William. 2004. "The escape from hunger and premature death, 1700–2100: Europe, America, and the Third World. Vol.8, *Cambridge Studies in Population, Economy, and Society in Past Time*. Cambridge, UK; New York: Cambridge University Press.
- Freeman, Richard B., Robert H. Topel, and Birgitta Swedenborg. 1997. *The Welfare State in Transition : Reforming the Swedish Model*. Chicago, IL: University of Chicago Press.
- Garfinkel, Irwin, Timothy Smeeding, , and Lee Rainwater. 2010. *Wealth and Welfare States: Is America aLaggard or Leader?* Oxford, UK: Oxford University Press.
- Glatzer, S. 2010. "Social welfare in Europe," *The CQ Global Researcher* 4(8): 185–210.
- Glennister, Howard. 1992. *Paying for Welfare: The 1990's*. London: Harvester/Wheatsheaf.
- Hacker, Jacob S. 2002. *The Divided Welfare State: The Battle over Public and Private Social Benefits in the United States*. Cambridge/New York: Cambridge University Press.
- Heidenheimer, Arnold J. and John Layson. 1982. "Social policy development in Europe and America: A longer view on selectivity and income testing," in Irwin Garfinkel (ed.), *Income Tested Transfer Programs: The Case For and Against*. New York: Academic Press, pp. 141-166
- Hills, John. 2004. *Inequality and the State*. Oxford, UK: Oxford University Press.
- International Monetary Fund. 1998–2006. *Government Finance Statistics Yearbook*. Washington, DC: International Monetary Fund.
- Kamerman, Sheila B. and Alfred J. Kahn. 1978. *Family Policy: Government and Families in Fourteen Countries*. New York: Columbia University Press.
- Kenworthy, Lane. 2011 (forthcoming). *Economic Growth, Social Policy, and Poverty*. Oxford, UK: Oxford University Press.
- Korpi, Walter. 1996. "Eurosclerosis and the sclerosis of objectivity: On the role of values among Economic Policy Experts," *Economic Journal* 106: 1727–46.
- Lampman, Robert J. 1984. *Social Welfare Spending: Accounting for Changes from 1950 to 1978*. Orlando: Academic Press.
- Lindbeck, Assar. 1994. "The welfare state and the employment problem," *American Economic Review*, 84(2) (May): 71–5. American Economic Association.
- Lindbeck, Assar. 1996. "Incentives in the welfare-state: Lessons for would-be welfare-states," *Papers* 604, *International Economic Studies*. Stockholm.
- Lindbeck, Assar. 1997. "The Swedish experiment," *Journal of Economic Literature* 35 (September): 1273–1319.
- Lindert, Peter H. 2004. *Growing Public: Social Spending and Economic Growth since the Eighteenth Century*. New York: Cambridge University Press.

- Lindert, Peter H. 2006. "The welfare state is the wrong target: A reply to Bergh," *Econ Journal Watch* 3(2): 236–50.
- Lucas, Robert E. 1988. "On the mechanics of economic development," *Journal of Monetary Economics* 22(1): 3–42.
- Mankiw, Gregory N., David Romer, and David N. Weil. 1992. "A contribution to the empirics of Economic Growth," *Quarterly Journal of Economics* 107: 407–37.
- Musgrave, Richard Abel and Peggy B. Musgrave. 1984. *Public Finance in Theory and Practice*, 4th ed. New York: McGraw-Hill.
- OECD. 2008. *Education at a Glance*. OECD Paris
- Osberg, Lars, Timothy M. Smeeding, and Jonathan Schwabish. 2004. "Income distribution and public social expenditure: Theories, effects, and evidence," in K. Neckerman (ed.), *Social Inequality*. New York: Russell Sage Foundation, pp. 821-59.
- Preston, Samuel H. 1975. "The changing relation between mortality and level of economic Development," *Population Studies* 29(2): 231–48.
- Preston, Samuel H. 1980. "Causes and consequences of mortality declines in less developed countries during the 20th century," in Richard A. Easterlin (ed.), *Population and Economic Change in Developing Countries*. Chicago, IL: University of Chicago Press, pp. 289–360.
- Preston, Samuel H. 1996. "American longevity: Past, present, and future," New York: Syracuse University Policy Brief No 7.
- Rainwater, Lee and Timothy M. Smeeding. 2003. *Poor Kids in a Rich Country*. New York: Russell Sage Foundation. (Paperback edition, 2004.)
- Sala-I-Martin, Xavier. 1996. "Transfers, social safety nets and economic growth," IMF Working Papers 96/40. International Monetary Fund.
- Smeeding, Timothy M. 2004. "Twenty years of research on income inequality, poverty, and redistribution in the developed world," *Socio-Economic Review* 2(2): 149–63.
- Smeeding, Timothy M., Michael O'Higgins, and Lee Rainwater. 1990. *Poverty, Inequality, and Income Distribution in Comparative Perspective: The Luxembourg Income Study (LIS)*. Washington, DC: Urban Institute Press.
- Smeeding, Timothy M. and Jane Waldfogel. 2010. "Fighting poverty: Attentive policy can make a huge difference," *Journal of Policy Analysis and Management* Winter, 29(2): 401–07.
- Steuerle, C. E. and J. M. Bakija. 1994. *Retooling Social Security for the 21st Century: Right and Wrong Approaches to Reform*. Washington, DC: Urban Institute.
- Titmus, Richard M. 1958. *Essays on the Welfare State*. London: George Allen & Unwin.
- Wilensky, Harold L. and Charles N. Lebeaux. 1965. *Industrial Society and Social Welfare*, 1st ed. New York: Free Press.
- World Bank. 2007. *World Development Indicators* [electronic resource]. Washington, DC: World Bank Group.

Figures and Tables





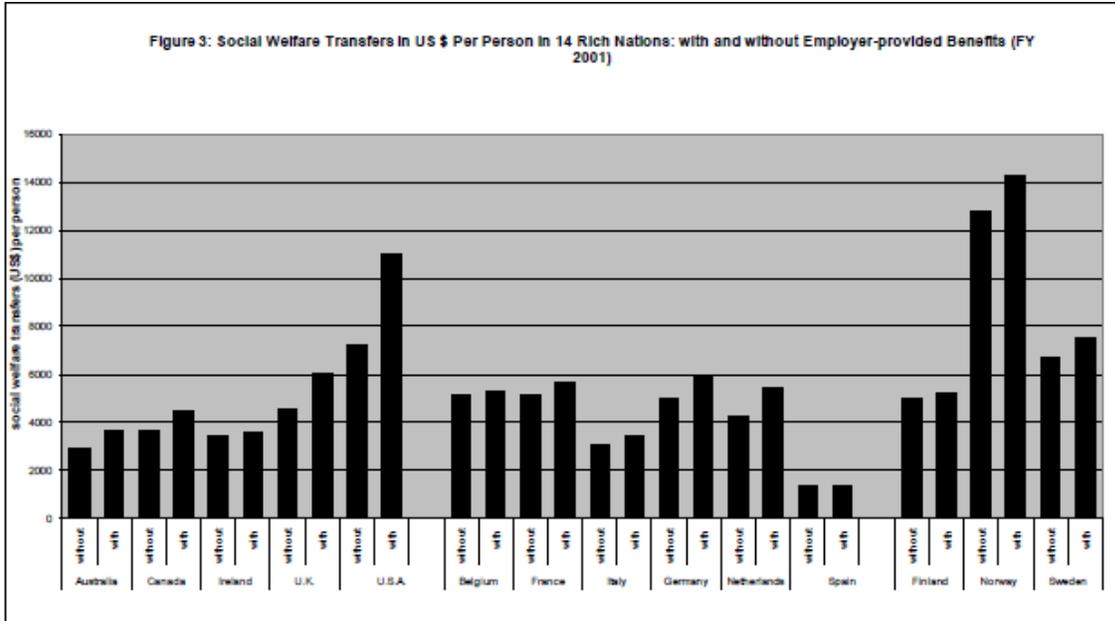
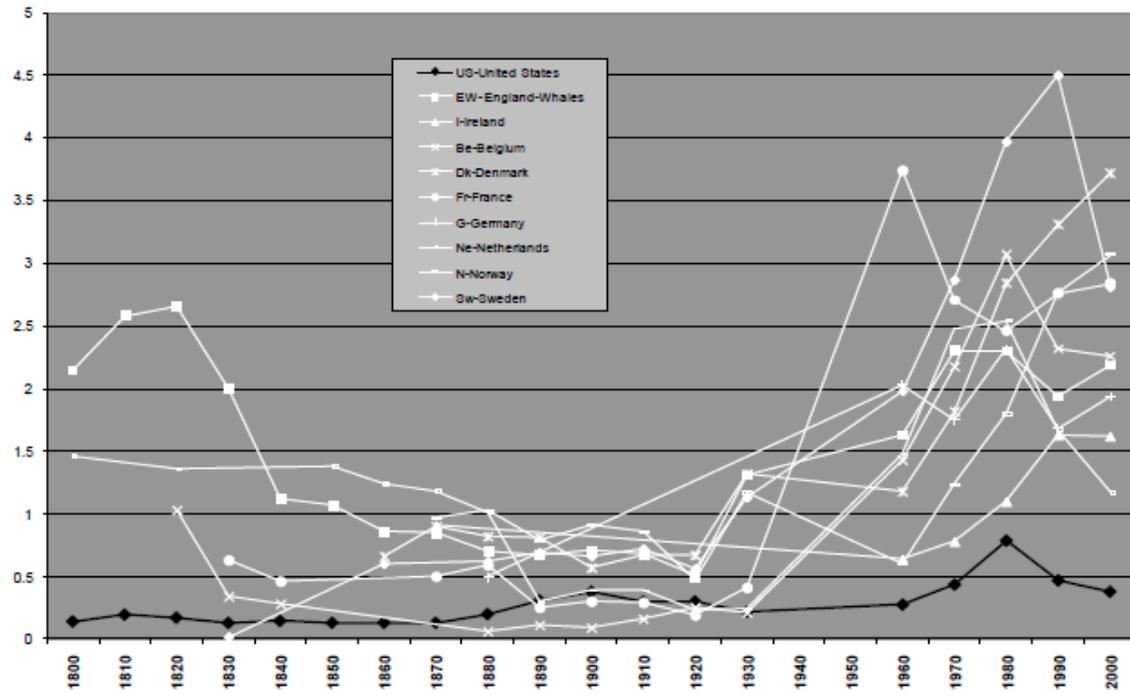


Figure 4: Percentage of GDP Spent on Welfare



Source: Lindert (1992, 1993, 1998, 2003, 2004, 2005)

Figure 5: Percentage of children age 5-14 enrolled in public primary schools in 1830, 1870 and 1900 (a)

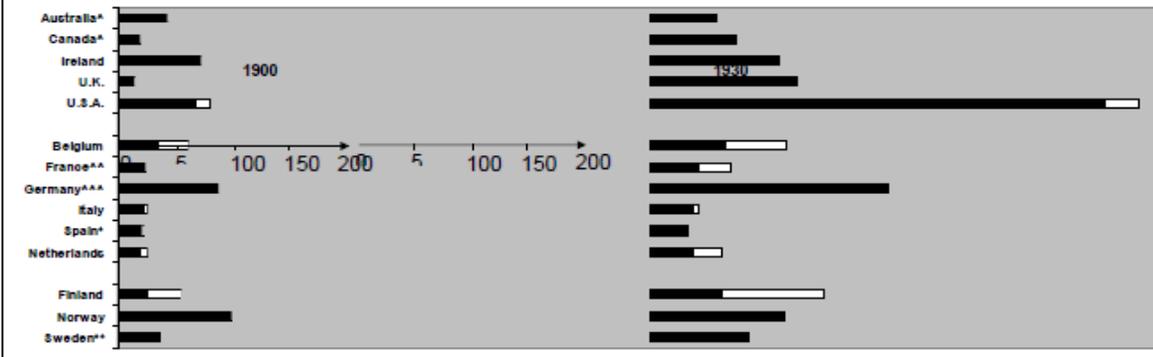


% of children age 5-14 enrolled in public primary schools

Note: 1830 data for the following are missing: Australia, Canada, Ireland, Belgium, France, Italy, Spain, Netherlands, Finland & Sweden. 1870 data for Finland is missing.

Source: Under, P. H. (2004). *Growing public: Volume 2, further evidence: Social spending and economic growth since the eighteenth century*. New York: Cambridge University Press.

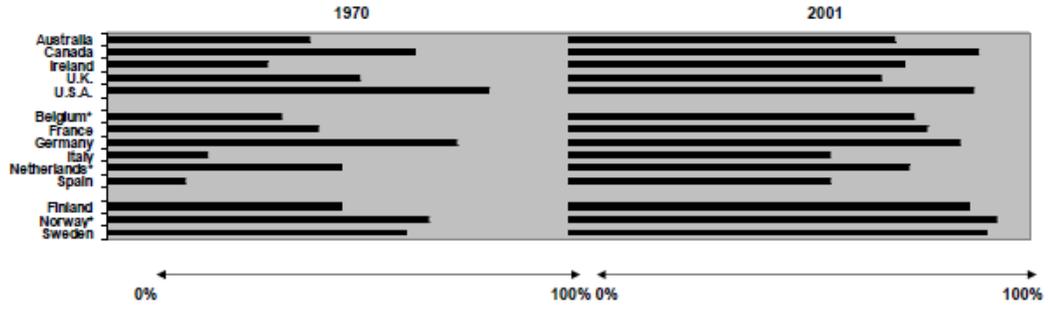
Figure 6: Secondary school (public & private) students per 1000 children in 1900 and 1930 (a)



Notes: When distinguishable, private school enrollment is shown in white.
^A Year 1900 data is extrapolated from years 1870 and 1910.
^{AA} Secondary source does not indicate whether expenditures include private institutions.
^A Public only.
^{AA} Year 1900 data is public only.
^{AAA} as Puzzle in 1900, public only in 1930

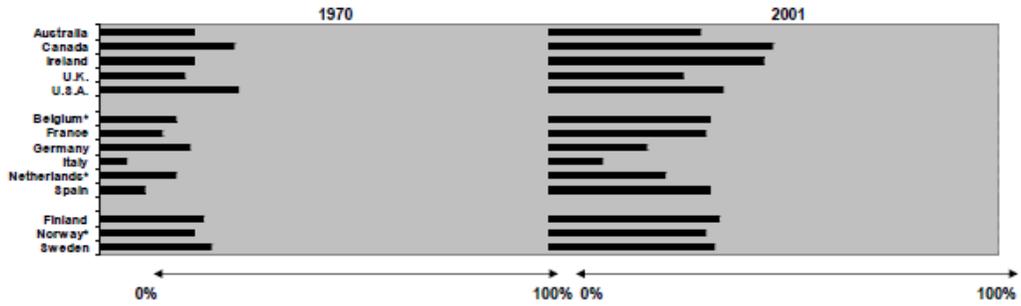
(a) Source: Lindert, P. H. (2004). *Growing public: Volume 2, further evidence: Social spending and economic growth since the eighteenth century*. New York: Cambridge University Press. Age of children are from 5 to 14 years old.

Figure 7a: Percentage of the population that has attained at least upper secondary education, by age group (FY 1970, 2001)



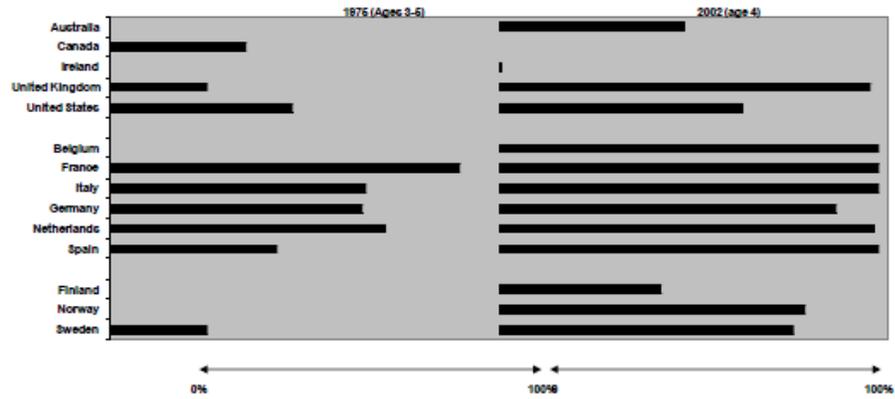
Note:
 Year 1970 data is from 2001 in age group 55-64 (equivalent to 25-34 in 1970). Data in 2001 is from 25-34 age group.
 *Year of reference 2000
 Source: OECD Education at a Glance (2002), Table A1.2. Population that has attained at least upper secondary education

Figure 7b: Percentage of the population that has attained at least upper tertiary education, by age group (FY 1970, 2001)



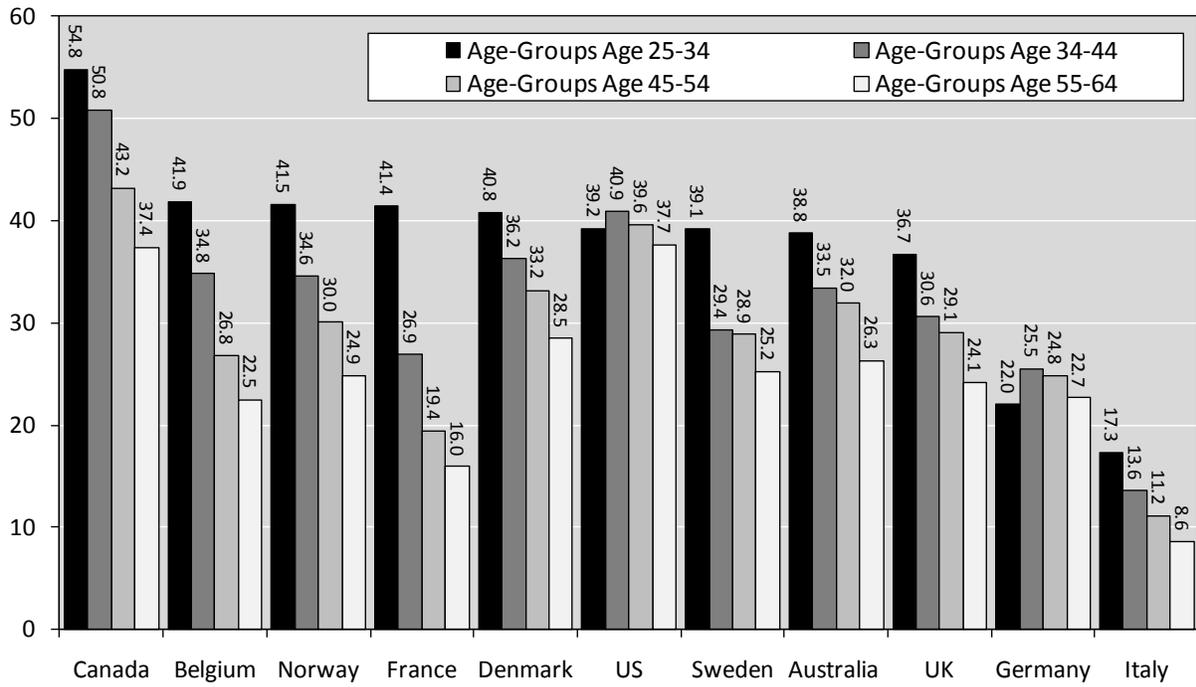
Note:
 Year 1970 data is from 2001 in age group 55-64 (equivalent to 25-34 in 1970). Data in 2001 is from 25-34 age group.
 *Year of reference 2000
 Source: OECD Education at a Glance (2002), Table A2.3. Population that has attained tertiary education

Figure 8. Share of children enrolled in pre-primary education, 1975 & 2002 (in percent)



Note:
 The data refer to pre-primary education, which is limited to organized center-based programs designed to foster learning and emotional and social development in children for 3 to compulsory school age. Day care, play groups and home-based structured and developmental activities may not be included in these data. For 1975 data, all rates are for 3-5 years, with the exceptions of Italy (3-6), Netherlands (4-6), and UK (3-4). 1975 data is missing for Australia, Ireland, Belgium, Finland, and Norway. Sweden data is 1976.
 Source: OECD Education Database (2005); OECD (1984); Kammerman (1976)

Figure 9: Percent of Adults with an Associate Degree or Higher by Age Group



Source: OECD, Education at a Glance, 2008.

	1960-1975	1975-2006	1870-1913
Australia	2.38	1.83	1.07
Canada	2.89	1.76	2.14
Ireland	3.41	4.09	no data
United Kingdom ^a	1.97	2.08	0.65
United States	2.15	2.04	2.63
Belgium	3.72	1.89	no data
France	3.77	1.74	1.32
Italy	3.90	1.91	0.88
Germany	no data	1.95	1.57
Netherlands ^b	3.25	1.80	no data
Spain ^c	5.25	2.03	no data
Finland	3.97	2.24	1.50
Norway	3.39	2.60	1.43
Sweden	3.11	1.67	1.97

Source: Data for 1870-1913 is from Mitchell, B.R. (1998). *International Historical Statistics: 1750-1993*. London: Macmillan Reference. Other periods are from World Bank World Development Indicators.

Notes: GDP per capita is in constant 2000 US dollars. Growth rate is calculated using a compounding interest formula.

^a Growth rate for the last period is for 1870-1912

^b No data prior to 1900

^c No data prior to 1901