

Eighth Draft  
October 19, 2004

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## **Welfare State Expenditures and the Redistribution of Well-being: Children, Elders, and Others in Comparative Perspective**

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Prepared for the APPAM Conference  
Atlanta, GA  
October 29, 2004

The authors would like to thank Gene Steuerle, Lars Osberg, Nancy Folbre, Christopher Jencks, Henry Brady, William Gale, Sara McLanahan, Miles Corak and participants at Princeton University's Conference on Support for Children (January 2004); the Certossa Symposium on the Welfare State, Siena Italy (September 2004); and the Levy Conference (October 2004), for their comments and suggestions. Mike Eriksen, Joe Marchand, Marcia Meyers, Janet Gornick, Marilyn Sinkewicz, and especially Mary Santy, Martha Bonney, Kim Desmond, and Kati Foley provided excellent assistance with manuscript and data preparation. Partial support was provided by the Ford Foundation, the MacArthur Foundation Network on the Family and the Economy, the LIS member countries, the Center for Advanced Study in the Behavioral Sciences, the Hewlitt Foundation, and the Russell Sage Foundation. All remaining errors of commission and omission are the fault of the authors.

## Abstract

This paper estimates the redistributive effects of welfare state expenditures on social and economic disparities in the economic well-being of citizens in ten nations. Data from the Organization for Economic Cooperation and Development (OECD) and other sources for cash and non-cash social welfare benefits (health and education benefits from third parties) are used to describe differences in the size and nature of welfare states and their distributional effects. The OECD data are combined with micro data on household incomes from the Luxembourg Income Study (LIS) both to estimate the redistributive effects of the expenditures and taxes and to construct measures of the differences in the relative standard of living among the population at various points in the income distributions of their countries. Estimates are provided for country populations as a whole and for three mutually exclusive groups: all persons; non-aged persons living with children; non-aged without children at home; and the elderly. These measures may be thought of as capturing the degree to which welfare states at the end of the 20<sup>th</sup> and dawn of the 21<sup>st</sup> century provide for the developmental needs and capabilities of their populations in terms of cash, access to health care and educational opportunity.

The results indicate a wide range of differences in levels of economic resources and support, within as well as between, nations and groups. The degree to which children have fair and equal opportunity chances; the degree to which the population has access to quality health care ; and the population groups who are most called upon( most taxed) to provide these benefits are all investigated here. Non-cash benefits are particularly important for low-income Americans: especially elders and children and their families and should not be taken for granted by analysts of the welfare state. Counting in kind benefits at government cost substantially reduces cross national differences in market and cash disposable incomes, but does not eliminate them. The results are very sensitive to how in-kind benefits are measured and valued.

## I. Introduction

The purpose of this paper is to describe the size, nature, and redistributive effects of welfare state expenditures in ten advanced industrialized nations and to relate these to differences across nations to disparities in the economic well-being of three populations groups: children (and their families); elders; and childless adult households. Efforts are made to provide a decent standard living and access to health care for the elderly in every modern rich nation. Equality of opportunity for children and a fair chance at life's opportunities are something that all nations aspire to provide to each and every child. These policies affect human development and human needs, social exclusion or inclusion, and the way that we judge societies more generally. For instance, elders are major beneficiaries of social retirement and health care benefits and the cost and benefits of policies for aging populations are fiscally important in every rich nation (especially in the ones studied here; see Forster, et. al., 2004; Binstock, et. al. 2002). And President Bush in America has recently vowed to "leave no child behind," while Prime Minister Blair in the United Kingdom has vowed to halve child poverty in ten years and eliminate it in twenty (Bradshaw 2003). The belief that every person should be provided with a decent education, basic health care, and a satisfactory standard of living permeate the United Nations Human Development Reports and their Millennium Development Goals. These goals echo Amartya Sen's notion that every person should be provided with capabilities to succeed in life be they old, young or in between (Sen 1992).

The nations we choose to investigate here include the four largest predominately English speaking nations, Australia, Canada, the United States, and the United Kingdom. To place the English speaking nations in broader (European and Nordic/Scandinavian) context, we also

include Belgium, France, Finland, Germany, the Netherlands, and Sweden. We doubt that inclusion of additional rich OECD nations would change the patterns we find here.

For each country, we begin with market income and rank the population of all households by equivalent household market income. We then add cash transfers and non-cash benefits for health care and education, including early childhood education (all valued at government cost) and subtract the taxes paid to finance these social transfers for the entire population. Total transfers just equal taxes for the whole population. The LIS data give us good estimates of the distribution of cash expenditures and income and consumption data allow us to do relatively accurate simulations of the tax burdens across income classes. We assume fairly equal distributions of publicly financed health and education expenditures in all nations. Only employer provided health care in the United States differs in this regard.

Post direct-tax, post cash transfer incomes, which we call cash disposable income, is the usual measure of well being offered in comparative terms (Atkinson, Rainwater and Smeeding 1995). But we go far beyond that measure here. Post- all tax, post -all transfer income, which we call “full income,” is a more comprehensive measure than disposable income. In the past, the difference between market income and disposable income has been used as a crude accounting measure of the redistributive effect of cash welfare state expenditures. The difference between market income and full income is a better measure than the difference between market income and disposable cash income for assessing the efforts of welfare states to redistribute opportunities and access to critical goods for human development and well-being. Differences between market and full income across the income distribution are also a more comprehensive measure of the relative costs (in terms of taxes paid) and value of benefits in different countries than are differences between market and disposable income.

To the extent that the transfers we add induce changes in work, savings, or marriage behavior, both measures are biased. Moreover the measure reflects transfers over the life course as well as transfers across lifetime or permanent income groups (see Paglin 1975; Falkingham and Hills 1995). But, they are useful first approximations of the net redistributive effects of the welfare state (see also Lindert 2004). Other perspectives—inter temporal or inter generational—may offer a different view. For instance, if there is a great deal of mobility over time or across generations within any nation, these points in time views will be biased. But they are a good starting point.

Linking the welfare state “inputs” of cash, education, and health transfers to “outputs” such as health status, quality of life, educational attainment, and economic and social well-being, is the ultimate test of the success or failure of these efforts (For instance, see Phipps 2004). Our aim in this paper is less ambitious—to measure the degree to which social welfare expenditures close the gap in economic resources afforded to poor versus middle-income and poor and middle income versus rich adults, children and elders in rich countries.

## II. Data and Methods

We use several data sources compiled by the Organization for Economic Cooperation and Development (OECD) and others (Gornick and Meyers 2003) to construct our measures of welfare state expenditures. Most of the aggregate public expenditure data is derived from the *OECD 1980-1998: 20 Years of Social Expenditure – the OECD Database* (2002c), with the exception of education data, which is derived from *OECD Education at a Glance* (2002b) and early childhood education (ECE), which come from Gornick and Meyers (2003). The *OECD Social Expenditure Database* includes the following categories of social benefits: old-age cash

benefits; disability cash benefits; occupational injury and disease; sickness benefits; services for the elderly and disabled; survivors; family cash benefits; family services; active labor market policies; unemployment compensation; housing benefits; public health expenditure; and other contingencies (e.g., cash benefits to those with low income). Such benefits may be cash transfers or the direct in-kind provision of goods and services. A detailed rationale for, and accounting of, these benefits is provided in *The OECD Social Expenditure Database 1980-1997* (2002c).

Employer provided benefits and aggregate tax expenditures are also derived from data compiled by the OECD and the Employee Benefit Research Institute (EBRI 2004; Adema 2001).

The OECD categories are re-arranged as follows: pensions include old age, disability, survivors insurance and employer provided pension benefits; health includes public health expenditures (Medicare and Medicaid in the United States) and employer provided health benefits; education includes public expenditures on formal day care, primary, secondary and post-secondary education as well as Head Start in the United States. Other cash transfers include occupational injury and disease, sickness, unemployment compensation, family allowance, parental leave, other contingencies, child welfare, family cash benefits and tax breaks for social purposes that are similar to cash<sup>1</sup>, other in-kind benefits include services for the elderly and disabled, family services (food stamps, low income home energy assistance, women and children nutrition programs) and active labor market programs; and housing includes cash housing subsidies for countries other than the United States and public housing and housing vouchers in the United States.

While data on public benefits encompasses expenditures paid and controlled by all levels of government (federal, state and local), the quality of the data varies across countries, particularly with respect to lower tiers of government (OECD 2002c). The country data is also

limited with respect to housing and tax expenditures. The OECD housing data includes only cash expenditures; in-kind and tax expenditures for housing are omitted. Therefore we do not include housing tax expenditures for the United States. Tax expenditures in general are not included in the micro data presented here, except as they are already reflected in the lower taxes which LIS households pay. Similarly, we are not able to easily identify students in higher education and are therefore unable to accurately distribute post-secondary education benefits. On the other hand we include the full range of available ECE benefits, not only Head Start and larger national programs.

The micro data that we use for this analysis are from the Luxembourg Income Study (LIS) database, which now contains over 135 household income data files for 29 nations covering the period 1967 to 2002 ([www.lisproject.org](http://www.lisproject.org)). For this paper, as noted above, we limit the analysis to ten nations, and their most recent datasets. Within each country, we begin with the LIS measure of household market income (earnings plus private pensions and income from assets) and add employer payroll taxes (and in the United States, employer provided health insurance) to earnings in order to get a pre-tax, pre-transfer estimate of market income.<sup>2</sup>

For cross-national comparisons of inequality, the household is the single best unit for income aggregation. It is the only comparable income-sharing unit available for most nations, including all those used in this paper. While the household is the unit used for aggregating income, the person is the unit of analysis. Household income is assumed to be equally shared among all individuals within a household. A variety of equivalence scales have been used in cross-national comparisons, in order to make comparisons of well-being between households with differing compositions. We adjust household incomes to reflect differences in household size by dividing income by the square root of household size as this measure does not unduly

bias measures towards large units (with children) or smaller units (with elders) (Atkinson, Rainwater, and Smeeding 1995).

### **Imputations**

We then add cash transfers and non-cash benefits for health care and education, including early childhood education (all valued at government cost) and subtract the taxes paid to finance these social transfers. This measure of full income is then divided by the square root of household size to obtain equivalent full income per person. Within each country, the taxes subtracted from income equal the social transfers received for the population as a whole. (Though taxes and benefits are equal for the entire population within each nation, our sub-group analysis focuses on households with elders or children or only adults, where taxes paid may be less or more than transfers received). The LIS data give us good estimates of the distribution of cash expenditures and the income and earnings data, along with consumption data for several countries, allow us to do relatively accurate simulations of the tax burdens across income classes. Payroll taxes are assumed to be proportional to individual earnings up to maximums, which vary across countries. Property taxes are assumed to be proportional to housing consumption for both owners and renters. Sales and value added taxes are assumed to be proportional to total consumption. Decile specific consumption to income ratios are taken from micro data surveys for four nations (Canada, France, the United Kingdom, and the United States) and an average of the four is applied to other nations.

With the exception of health in the United States, we assume an equal distribution of health and education expenditures across the income distribution within all nations. We use OECD estimates of health care spending per capita and elementary education and secondary education spending per enrolled person taken from their *Health Data* (OECD 2002a) and



*Education at a Glance* (OECD 2002b) databases for each nation. Based on recent cross-national research on the cost of health care by age groups in OECD countries (Smeeding and Freund 2002), we assume health care spending for children 18 years old or less is equal to .75 of the average government cost of subsidized health care per capita (or government plus employer subsidized health care in the United States) and 1.0; 1.25; 1.75; 3.0; and 4.0 times the average, respectively, for adults aged 19-34; 35-54; 55-64; 65-74; and 75+ in each nation. This measure is often called the “insurance value” of benefits, because it measures the amount of money per person of each age type that would have to be paid in to just cover benefits received by that group (Smeeding, 1982). Each person of a given age receives this benefit regardless of actual health care usage.

Because the United States, alone among the nations examined, does not have a universal national health insurance or health service, the imputations were more complicated. Using data from EBRI and the Center for Medicare and Medicaid Services (CMMS) on overall average expenditures per covered recipient, and the percent of individuals in each quintile of household income who are recipients of charity benefits as uninsured, or who are insured by their employer, or by Medicare or by other public programs (principally Medicaid), the average expenditure per person in that quintile is imputed ( and then adjusted for the age of the individual as specified above to get to the insurance value). For uninsured persons, we imputed a lower amount consistent with the amount of unpaid care received by the uninsured in the 1998 Medical Care Expenditure Survey (MEPS) as provided by Barbara Wolfe (2002). Expenditures for care provided to the uninsured are, on average, about half the amount provided to an insured person. Employer benefits were derived from EBRI estimates. Medicaid and Medicare figures were taken from the *Green Book* (U.S. Congress 2004) and from the CMMS webpage.

Education spending is set equal to the spending per elementary and secondary school child in every country as estimated by OECD (2002b). Finally, we utilize OECD data and data from Gornick and Meyers (2003) and Meyers (2003) to add the value of early childhood education expenditures (for children between the ages of three and school starting age, normally 5 in most nations).

For the LIS simulations we ignore tertiary education benefits and all other non-cash benefits for youth including child care subsidies for children under age three.<sup>3</sup> Omitting tertiary education is a serious limitation, but the LIS provides insufficient data to allow us to impute its value to families. Elementary and secondary education and health care cover the vast majority of children's non-cash benefits in every nation studied. Similarly, hospital and physician and pharmaceutical services provided to the elderly make up the bulk of their health care subsidies. We also implicitly include the insurance value of publicly provided nursing home services for the non-institutionalized population from the Medicaid program in the United States and for publicly provided chronic care in other nations as well. See appendix for more detail on these imputations and sources.

### **Measure of Redistributive Effects**

For each country as a whole, the benefits and taxes are equal across the entire population. In this paper, we present results for all households, for those with children (under 18), for the elderly (over 65), and for households without children headed by a non-elderly person<sup>4</sup>.

The difference between market income and post-tax, post transfer incomes by decile is a crude accounting measure of the redistributive effect of welfare state expenditures. To the extent that the transfers induce changes in work, savings, or marriage behavior, this measure is biased. But it is a useful first approximation. The difference between market income and post-tax, post

transfer income, which we call full income, is a better measure than the difference between market income and post-tax, post transfer disposable cash income for assessing the efforts of welfare states to redistribute capabilities, access to services and opportunities. All taxes are included in full income, especially indirect ones such as the value added tax (VAT) as well as the largest and most visible non cash benefits in the form of health care and education. Differences in full income across the income distribution are therefore a better measure of fiscal effects of governments on the relative well-being in different countries than are differences in cash incomes. (Because benefits may be worth less to low income families than government cost, at the end of the analysis, we examine the sensitivity of our results to alternative valuations.)

We use these data to compute the full income of a low-income, the median-income, and a high-income person in each nation. The low-income person is measured at the 10<sup>th</sup> percentile (median of the bottom quintile) while the high-income person is measured at the 90<sup>th</sup> percentile (median of the top quintile) of full income. We further refer to the difference between persons living in families with high- and low- full incomes as “economic distance” in making the comparisons which follow. We like to think of the measure of economic distance as a measure of equality of provision (for adults and elders) or equality of opportunity (for children) within each nation. Nations with smaller economic distances (or smaller decile ratios) have more “equality of provision” or “equality of opportunity” across the population. We also like to focus on the distance between the middle-income person and the low-income person as a measure of “provision for the poor” for adults and elders, or “fair chance” for children. All of this is designed to show which nations provide critically important social goods, like health care, for elders and adults. For children, they show which nations might leave their children behind, which ones give them a good start, and by how much.

### **III. Differences in Welfare State Expenditures among Ten Advanced Industrial Nations**

Figure 1 displays aggregate social welfare benefits as a proportion of the Gross Domestic Product (GDP) for each of the ten nations we examine. Aggregate or gross social welfare benefits are defined to include tax expenditures and employer provided health insurance and retirement benefits.<sup>5</sup> Although other nations also have employer provided retirement pensions, the United States private system is larger and none, save the United States, has employer provided health insurance<sup>6</sup> In addition, we show the value of net benefits after adjustments for the taxing back of cash benefits and for sales and value added taxes that reduce the real purchasing power of cash benefits.

First, all of the countries spend a substantial fraction—at least one fourth—of their GDP's on social welfare. There is also evidence that in terms of where the dollars go, most of what governments in fact do is to tax one set of persons and transfer benefits to another. When social welfare benefits are added to exhaustive government outlays (as in the Systems of National Accounts) as a measure of total government spending, social benefits are at the very least 68 percent of government outlays (Australia) and up to 91 percent (Sweden) of total outlays (Osberg, Smeeding and Schwabish, 2004).

Second, there is some variation within the English speaking countries, with the United States spending nearly as much as the United Kingdom, but less than Canada and Australia owing mainly to employer spending for health and pensions. Indeed, if employer provided health insurance and pensions are subtracted from the United States, total social welfare expenditures would amount to only 20 percent. Third, and most important, in the broader context of the

continental West European and Scandinavian nations, the differences among the English speaking nations are relatively small compared to the differences between the English speaking nations and the continental European and Scandinavian nations. The English speaking nations spend the least, the European nations 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).

Most of the differences are attributable to history, culture, and political choices. The Scandinavian countries have strong labor movements and social democratic parties that are committed to reducing class and gender inequalities. The continental European countries have strong Catholic parties that after World War II, when faced with the threat of Communism, became committed to providing security for the population through a corporatist social structure (Lindert 2004). The English speaking countries have a strong 19<sup>th</sup> century liberal belief in limited government (Kamerman and Kahn 1978; Esping-Andersen 1990; Hollingsworth, Schmitter, and Streeck 1994; Gornick and Meyers 2003; Huber and Stephens 1999).

If the gross value of cash transfers is adjusted to take account of income taxes on the transfers and the level of indirect (sales and value added) taxes, the differences across countries in social welfare expenditures shrinks considerably as seen in the second bar for each country in Figure 1. It is apparent that the Scandinavian and continental European countries are more likely to tax cash transfers and to finance social welfare expenditures through indirect taxes than the English speaking countries, and hence it is important to capture their effects as well as those of direct (payroll and income) taxes.

And, among the English speaking countries, the United States relies least on indirect taxes and is also least in taxing cash transfers under its income tax. Sweden still spends the most and the English speaking countries the least for either gross or net benefits, but when the more appropriate net expenditures measure is used instead of gross expenditures, the ratio of Swedish to United States expenditures declines substantially—from about 1.5 to about 1.2.

Figure 2 displays the two major domains of welfare state expenditures: cash and non cash (health and education) spending. When noncash spending, especially for health and education is compared to net cash spending, the enormous size of these benefits becomes apparent. Noncash spending is larger than net cash spending in several countries, including those diverse as the United States, Canada, Finland, and Sweden. It is about the same size as are net cash benefits in several others.

In most countries the biggest *single* source of welfare state expenditures is for cash social retirement benefits including employer provided pensions. The second biggest expenditure is on health care. Spending on education and cash transfers other than retirement pensions are the third and fourth largest components in all countries.<sup>7</sup> In view of the large size of health and education expenditures (and to a lesser extent, other in-kind benefits) studies that take account of only cash transfers are omitting very large components of what the welfare state does. In particular, the Anglo Saxon nations, and particularly the United States, spend relatively more on gross non cash benefits than do the other nations. Indeed in the United States, non cash spending for health and education outweigh both gross and net cash benefits in absolute terms.

The United States also spends far less than all of the other countries on cash transfers other than pensions, including all non elderly cash transfer programs such as disability, unemployment, family leave (Garfinkel, Rainwater and Smeeding 2004). The pattern is similar

for “other in-kind” benefits—rental housing benefits, family services, services for the elderly or disabled, child nutrition—with the United States being on the low side. Finally, social spending on housing is very small everywhere. At 2 percent, the United Kingdom is the biggest spender. France, which spends only half that amount, is the next most generous.

There are a few other aspects of the nature of the American and more generally the English speaking welfare state(s) that stand out and merit comment. The most striking feature of American social expenditures, compared with other industrialized countries, is how much more is spent on health care (Appendix Table A-1).<sup>8</sup> Indeed, more than a third of United States social expenditures are spent on health! The main reason the United States differs from others is that we pay much higher prices for health care than do other nations. Anderson et al. (2003) suggests that the United States is below the OECD median in terms of health service use, but with total health care spending per capita (\$4,631 in 2000 dollars) that is more than twice the OECD median (\$1,983). This suggests that Americans pay more but receive fewer health care services in return than do people in most OECD nations.

The United States, which was a pioneer in free public education in the first half of the 19<sup>th</sup> century and led the expansion of secondary and higher mass education throughout most of the 20<sup>th</sup> century in this area (Heidenheimer and Layson 1982; Lindert 2004), but is no longer in the lead. A primary reason for this is that the United States lags behind the Scandinavian countries, France, Belgium and the United Kingdom in expenditures on early childhood education programs. Appendix Table 1-B shows that the United States spends only \$303 per household with children on ECE, least of all nations, save Australia. Canada is the closest nation with \$389 per child.

Though we do not attempt to estimate the effects of other in-kind benefits, we make a first attempt at incorporating in-kind benefits into the comparative analysis of welfare states by taking account of health and education expenditures in our estimates of how the welfare state affects resources and opportunities. Another comparison point that we cannot take account of is user charges for social goods (see also endnote 7). The United States spends the most on health care overall, but also has the largest level of charges as a percent of person's income. When consumer expenditure surveys for the aged are compared, United States elder residents pay about 12 percent of their incomes for out of pocket health care charges (insurance premiums and co-pays); Canadian, British and French elders pay 5 percent of incomes or less (Smeeding, 2003). We have no evidence on out of pocket spending for schooling, though we suspect that the United States ranks high on this ground as well.

Although welfare state expenditures relative to GDP is a good indicator of the degree to which countries differ in the proportions of their incomes devoted to the welfare state, such differences are not a good indication of the absolute amounts of expenditures devoted to welfare state expenditures. For example, though Sweden devotes over 40 percent of GDP to welfare state expenditures, compared to the United States proportion of 25 percent, Sweden's GDP per capita is only 70 percent of the United States GDP per capita. Consequently, in absolute terms, the United States spends a lot more than  $25/40$  of what Sweden spends on a per capita basis. Therefore, to compare absolute levels of expenditures across countries, we multiply the proportions of GDP devoted to social welfare expenditures in every nation (Figure 1) by the ratio of its GDP to the United States GDP. The results, presented in Figure 3, indicate that real per capita social welfare expenditures in the United States are substantially larger than expenditures



in the other three English speaking nations. Indeed, except for Sweden, United States expenditures are larger than those in all other countries.

#### **IV. The Redistributive Effects of Expenditures and Taxes**

Having established that there are small but potentially significant differences in the size and nature of the English speaking welfare states, and even larger differences between the English speaking and continental West European and Scandinavian countries, we investigate next the degree to which these differences affect the distribution of resources within countries. As explained above, we examine only a subset of the social welfare benefits displayed in Figure 1. In particular, public housing and some other in-kind benefits, like higher education benefits, are omitted from the analyses below.

Table 1 panels A-D display the mean net benefits by full income quintile: health, education, and cash social welfare expenditures, minus taxes, as a percent of equivalent full income by household quintiles for all households with children. The term equivalent is designed to remind the reader that household income is divided by the square root of household size.

For the entire population, taxes levied equal total benefits, including benefits for the aged as well as children. Table 1, panel A displays the results for all persons and so net benefits are zero in the right hand column. The 80.4 percent figure in the first column of the first row, for example, indicates that in Australia, the average person in the 1<sup>st</sup> quintile of full income receives net benefits equal to over 4 times their family's market income, or that net transfer benefits are 80.4 percent of full income in that quintile. Similarly, the -30.5 percent figure in the next to last column of the first row indicates that in Australia, the average person in the fifth quintile loses nearly 30.5 percent of full income as a net result of welfare state transfers and taxes.

Several findings stand out from the top panel of the table. First, in all of the countries, welfare state benefits, net of taxes, substantially and systematically redistribute resources away from the top towards the bottom of the income distribution. The redistributive effects of net social welfare transfers have the same pro-poor pattern in all nations, differing only by degree, not direction. The middle quintile is always a net beneficiary, on average taxes paid are less than and benefits received by 11 percent here. The fourth quintile pays taxes which average a modest 6 percent of full incomes. The majority of the net costs of supporting the welfare state are paid by the top income persons in each nation, even after we account for indirect taxes.

Second, the increase in resources available to persons in the bottom full income quintile is very large. That, on average, 53 percent of full income is net transfers indicates that welfare states more than double market incomes in this quintile. The increases are large because the bottom quintile in all countries consists primarily of elderly and single mothers who have no or very low market earnings and high social welfare benefits.

Third, in all countries the taxes required to finance welfare state benefits take away a non-trivial proportion of resources from families in the top quintile—on average 23 percent of full income, and ranging from 16 percent to 31 percent. Finland, the United States, France and the Netherlands take away the least. Perhaps the most surprising finding in the table is that the Finland takes away least and Australia, Belgium and United Kingdom the most from the top quintile. The difference between France and Belgium or France and the Netherlands, is also surprising. Private pensions in the United States and Finland affect these ratios and also in Netherlands (see discussion following).

The figures for families with children, elderly, and non-elderly without children are contained in panels B, C, and D. The pattern of redistribution for children looks much like the

pattern for all persons—progressive redistribution up the income scale with the top quintile being net taxpayers in all nations—with net taxes of 19.2 percent of full income. The last column of the table is of the most interest and indicates that in most countries families with children receive in benefits about what they pay in taxes. Though the variations are not extremely large (compared for example to the transfers to the aged discussed below) the differences across countries are interesting. Families with children in Belgium and France are net taxpayers—that is taxes exceed full incomes by over 10 percent in each while such families in Finland, the United Kingdom and the United States are surprisingly net gainers. In fact, United States children are net gainers at least until the 80<sup>th</sup> percentile, the highest of any nation. This is because of relatively higher United States education benefits and health benefits. That French children are net taxpayers, despite the relative generosity of the French towards children (Bergman 1997), suggests that there must be a lot of social support for other groups in France.

Elders, as panel C indicates, are everywhere net beneficiaries of the welfare state and this is nowhere more truly so than in France. Here elders are net transfer recipients to the tune of over 80 percent of their net incomes! Across all nations, elders average 54.8 percent of their final full incomes in net transfers. Benefits are least in the nations with the strongest occupational (private) pension schemes: Finland, and the United States and The Netherlands. They are largest where public pensions are large—France Belgium, Sweden and Germany. In the other cases, strong welfare state benefits and private pensions lead to a middle case (Netherlands, Canada and the United Kingdom). These amazing results suggest that the welfare state, as currently operating in all the rich nations examined here, provides a very large net transfer to the aged. Changing demographics, rapidly escalating health care costs, and stubborn patterns of early retirement suggest serious fiscal problems for each of these nations over coming decades. Either benefits

must be curtailed (e.g., by increasing retirement ages), or the elderly must be more heavily taxed or charged for public services, especially health care, or taxes on the rest of the population must be increased.

Of course, someone must be paying the bill for these benefits and not just families with children. Still we suspect that net benefits to families with children are higher than one might expect because the social retirement system in the United States is somewhat offset by private pensions and employer provided health care. Were the parents of children in the United States subject to payroll taxes at French, Belgian or Swedish levels to cover a full-blown public health insurance or social retirement scheme, their net benefits would be much smaller in Table 1, panel B.

Indeed, panel D of Table 1 indicates that the childless are net taxpayers in all societies, averaging 21.9 percent in net taxes. The second quintile is the average tipping point, where benefits just equal taxes. Above this level the top three quintiles exhibit net taxes in every nation.

In sum, welfare states are large engines of redistribution. The bottom three quintiles and elders are net beneficiaries in all societies. The richest fifth of the population and the non-elderly childless pays for the bulk of net transfers.

## **V. Relative Well-Being within Countries**

To replicate prior research and to tie this analysis to earlier work on income distribution, we begin our analyses with cash disposable income, which adds to market income cash and near-cash (those denominated in dollars like Food Stamps in the US and cash housing allowances in Sweden) transfers and subtracts direct taxes. Figures 4, 5, 6, and 7 present data on the

distribution of cash disposable incomes, and then full incomes for all persons, households with children, the elderly and childless adults. The first column presents the ratio of incomes of the person (child, elder, childless adult) at the 10<sup>th</sup> percentile compared to the income of the person (child, elder, childless adult) at the median. For the sub-group analyses of children, elders, childless non elderly adults, each group is shown relative to the group's distribution in each nation.

At 39, the United States has the lowest ratio of low to middle incomes (P10/P50) in panel A of Figure 4. The ratios for the other English speaking nations range from 45 to 47. The continental European nations have ratios in the low to mid 50's and the two Scandinavian nations have ratios of 57. Similarly, the ratio of the 90<sup>th</sup> to the 50<sup>th</sup> percentile are generally highest in the English speaking countries and lowest in the Scandinavian countries, with the United States and United Kingdom having the greatest distance between the median and upper-income person. Finally, the economic distance between the person at the 10<sup>th</sup> percentile and the person at the 90<sup>th</sup> percentile—our measure of an equal opportunity for children and equality of provision for others—is greatest in the United States, with the person at the 90<sup>th</sup> percentile having 5.43 times the income of the person at the 10<sup>th</sup> percentile. The other English speaking nations have ratios of 3.99 or greater; the continental nations have ratios in the mid to low 3's; and the Scandinavian countries have ratios in the high 2's. These patterns conform to previous LIS research (Rainwater and Smeeding 2003; Smeeding 2004a).

Panel B of Figure 4 presents data on the distribution of after tax, after transfer full incomes in our ten nations. Taking account of non-cash transfers and the indirect as well as direct taxes required to finance those changes the results substantially. The 10/50 ratio rises in all countries and, except for Finland; the distance between the poor and the rich shrinks in all

countries (except Finland which was already very equal). Changes are largest among the English speaking nations. Here, though the United States still has the largest 90/10 ratio, it has fallen by large amount from 5.43 to 3.65. Large declines are also found in Australia and the United Kingdom and even in Canada. The largest changes are in the 10/50 ratios, especially for the United States. And while the English speaking nations still have the lowest 10/50 ratios, and the Scandinavian countries the highest, the differences between these groups have shrunk considerably. The differences in the 10/50 and 90/10 ratios between the least and most unequal countries—the United States and Sweden—shrink as well. In fact, the 10/50 ratios are now in a tight band, with P10's only varying from 52 to 58 percent of the median. The range and distances at the top (90/50) also drop, but difference between the United Kingdom and the United States compared to the others remain large.

Why do the results change so dramatically when we include the value of the in-kind education and health benefits and take account of the taxes required to finance these benefits? There are two reasons, both already discussed. First, as seen in Figure 1, compared to other advanced industrialized nations, the United States is short on cash and long on in-kind benefits. Second, as seen in Figure 3, the big spending welfare states rely more heavily on indirect taxes and taxation of cash benefits than the United States. Together, these two factors explain the big shift when we go from cash disposable income to full income. And similar patterns are found in other English speaking nations. Indeed, one can argue that health and education benefits are a substitute for cash in these nations, more so than in the European and Scandinavian nations which spend large amounts on both cash and non-cash benefits.

The point becomes even clearer by a quick perusal of Table 2, which provides data on mean welfare state benefits for families with children in our ten countries. These benefits are per

household—i.e., not equivalized or per person. Whereas the United States provides the lowest fraction of cash benefits to households of all countries, it provides far and away the highest values of education and health benefits of all countries and therefore, the highest total benefits. While we provide on average 29 percent of benefits in cash, we provide the rest—71 percent—in health and education (with health a full 46 percent all by itself). In other nations, average cash benefits are much higher as a percent of total benefits, while non-cash benefits, especially health benefits are much lower. For kids, education spending makes up between 40 and 48 percent of total benefits in every nation. For elders and childless, the contrast is just between health and cash, with both being very high. Health for the elderly exceeds cash only in Finland; it is closer (45 percent) in the United States and much lower elsewhere. Overall children in the United States and elders each receive gross benefits of about \$23,980. Non elders without kids get \$8413, about \$21,000 less. Once taxes are counted, it is clear that we redistribute to the old and the young, and owing to the low market incomes of elders, they are the largest net beneficiaries. The parents of children pay more in taxes than do the aged. Similar patterns across age groups are found in each nation, though none are so pronounced as in the United States. For those of us who are used to believing that the absolute size of the United States welfare system is small, total welfare state benefits per household—\$17,276 (or \$23,980 for kids and elders)—is staggering once one includes health and education spending.<sup>9</sup> We are pikers in cash, but big spenders in the later two categories. But we are also richer as the relative analyses below show

Figures 5-7 show the patterns of redistribution for the three subgroups. Children's P10 is low in the United States relative to other children—39—but rising to 58 once non cash benefits are counted. Still the United States is below average for kids (61) and is second to Canada which has only a 10/50 ratio of 54; but the United States is much closer to the others on a full income

basis than on a cash disposable income basis. Decile ratios for kids fall even more in the United States than did the overall decile ratios—from 5.24 in cash, to 3.14 after education and health care are counted. Both of these benefits appear crucial to child well being and equality of opportunity in every nation.

Similar equalization is found among the elders (though the United States' 90/10 ratio still remains far above all others) in Figure 6. On a full income basis and average the P10 for elders exceeds that for children in every nation except the United States where both are at 58. But here the US elders are still the lowest among all nations studied, much closer to the median than on a cash only basis, but still with P10's far below the overall average of 66. United States well to do elders continue to be far above other elders in relative terms, owing a mainly the high levels of US health care subsidies. Non elderly adults without kids are the least well off group in all countries at the P10, owing to the fact that they receive less net benefits and that their comparison distribution is filled with single persons who do not earn much at all.

Panel C in Figures 4-7 imputes the all country average of each benefit within each group. That is comparisons between panel B ( Actual Benefit FI) and panel C ( Average benefit FI) suggest the degree to which difference between DPI (Panel A) and adding non-cash benefits are driven by either the inclusion of in-kind benefits at all (panel C) or the specific value of non-cash benefits in each nation( Panel B). Indeed for children the results are that non-cash benefits makes a difference however valued, but for elders, the value of health care benefits can make a large degree of difference all by themselves. We discuss these differences more fully below in the sensitivity section and in Table 3.

Non cash benefits are doing much to limit the variance across nations. Indeed in an earlier, but less complete article on this topic looking at many of these same nations in the early



1980's. Coder, et al.(1993) found that inclusion of health care and education subsidies valued at government cost lessened inequality among countries, but did not produce much if any change country inequality ranking. This is still the case with the estimates presented here (see Appendix Table 3) though the decile ratios are much closer now because indirect taxes are counted here (and not in w the 1993 article), but mainly because non cash benefit values for health and education have grown much faster than cash income over the past two decades.

Finally, no value of P10 in Panel B of Figures 4-7 lies below 50 percent. By definition then, a relative poverty definition based on FI which sets the poverty line at 50 percent of the median for each group would result in poverty rates below 10 percent for children and for the elderly in each and every elder nation. These results are far from those found based on cash income alone. Clearly, we must take a closer look at the way that we measure and value non cash health and education benefits.

### **Sensitivity of Results to Valuations of in-kind benefits**

The results in Panels A and B in Figures 4-7, may be sensitive to a number of assumptions underlying the simulations, including: 1) non-cash benefits are the same value for rich and poor and 2) cross national differences in expenditures on health and education measure real differences in quantity of services. With respect to the first assumption, for the United States, for example, we take some account of differences in spending for health (public vs. employer vs. uninsured). We take no account for children's education. If school spending (relative to children's needs) is lower for low-income children compared to high-income children, the result might be somewhat different. Card and Payne (1998), Wilson (2000), and Duncombe and Yinger (1997) find that public school spending in the United States may differ by up to 50 percent between rich and poor districts. Wilson, Lambright and Smeeding (2004) find

that while per student benefits differ across the parental income distribution by only about 10 percent, when corrected for differences in needs due to poverty, disability and English as a second language, benefits for top quintile children are 25 to 30 percent larger than for poor children. If poor children received education benefits of only two thirds to half those received by rich children, the results for the United States children would be much closer to the results shown for cash alone (Panel A vs. Panel B in Figure 5). But, expenditures on schooling may differ by income class in other countries besides the United States and we have no evidence of how much.

The valuation of in-kind benefits is particularly knotty in cross-national research. As we have seen, the United States spends substantially more on education and health than all other nations. In large, part the differences in health care are attributable to higher relative and absolute salaries of doctors, nurses, and other personnel in the United States (Anderson et al. 2003). It is hard to believe that the differences in expenditures for health care translate dollar for dollar into differences in the quantity and quality of services received. One simple way to address this issue empirically is to assume that the quantity and quality of education and health services is the same across nations. Thus, we simulated equal benefits of education and health across nations, using the mean benefit across nations, but preserving the difference in financing costs in Panel C of Figures 4 -7. This has the effect of discounting the value of United States health and education benefits. In a second simulation, we used estimates of purchasing power parity (PPP) to estimate adjusted health care expenditures where the quantity of care is controlled for. This adjustment reduces differences across nations, but does not eliminate them. We do not report the results of the PPP simulations because they are virtually identical to the full income results<sup>10</sup>. The results for equal benefit value across all nations' scenario, however, are quite different from the full

income results and are present in panel C in tables 4-7 and summarize the differences for the United States alone in Table 3. Indeed, for the populations as a whole the equal benefit value across all nation results are somewhat closer to the disposable income than to the full income results. This is especially true at the top of the distribution, where the US 90/10 ratio is 1.84 times that for Sweden for disposable income, 1.36 for full income, and 1.67 for full income with equal benefit value across nations.

For families with children (Figure 5), the equal benefit results are closer to the full benefits simulation, indicating that no matter how we value in kind benefits for children, counting them makes a large difference in relative resources across all nations and especially for United States children. Under all scenarios examined for families with children, taking account of health and education expenditures substantially reduces differences among nations in general and improves the position of United States in particular. The remaining differences between the English speaking, continental, and Scandinavian countries are large enough to make us confident that they are real. But, among the English speaking nations, the differences are small enough relative to our knowledge regarding distributions of expenditures and the appropriate valuation of expenditures to give us pause.

For elders (Figure 6), however, the equal benefit results are much closer to the disposable income results. Indeed, the P10 ratios for disposable income and equal value benefits simulations in the US for the elderly are virtually identical (see summary Table 3 for all US figures). Moreover, these results for the elderly clearly prompt the question, is the US getting its money worth the vastly disproportionate amount of resources we are devoting to health care expenditures for this group?

The sensitivity of our results also points to the need to undertake research on differences in expenditures on health and education within countries by income class (as in Wilson, Lambright, and Smeeding 2004). But there are other conceptual problems. Even if the expenditures were equal across income classes, the value of benefits might differ by income class. For example, per pupil expenditures in some inner city American schools are equal to and, in some cases, higher than expenditures in their suburban counterparts. But the inner city schools have inferior physical plants, inferior teachers, more difficult to educate students, and more disciplinary problems resulting in unequal learning opportunities (Phillips and Chen 2003). Similarly, the quality of health care varies substantially within cities where Medicaid financed low-income clinics and public hospitals deal with different populations than do their suburban counterparts. It is not clear how to address these issues empirically.

More generally, it is not clear that expenditures should be valued at government cost. Economists generally assume that in-kind benefits are worth less to recipients than the cash equivalent value would be. These differences are liable to be the largest where the ratio of in-kind to cash income is the largest, among poor families. Since the 10/50 ratio for low-income persons rises from 39 to 53 percent for all persons (Figure 4), while that children rises by almost 50 percent (from 39 to 58 in Figure 5) and for elders by almost as much (from 42 to 58), once these benefits are added in, the differences between market value (government cost) and recipient value are liable to be largest for low-income families. And because high-income units are net taxpayers and are also more mobile than are low-income families, one should assume that the high-income family values education and health benefits closer to their market value (government cost).

In a final sensitivity analysis therefore, we both discount in-kind benefits in general and discount them more for lower income groups. Following Smeeding (1982) we discount health benefits care benefits by 20 percent for the top quintile, 30percent for the 2<sup>nd</sup>, 4percent for the 3<sup>rd</sup>, 55 percent for the next to bottom quintile and 65 percent for the poorest quintile. Although there are not estimated cash equivalent values of education, we discount education benefits by 10, 25, 40, 45, and 50 percent, respectively, for the five quintiles. The results, reported in Table 4 and Figure 8 panel C, indicate that the cash equivalent values, like the equal country benefit value results, are much closer to the disposable income results than to the actual full income results.

On the other hand, it could be argued that we have underestimated the value to children of the in-kind benefits because though education is targeted exclusively at children, we add the value of education to household disposable income and then divide by the square of household size to obtain equivalent income per child. Arguably, it would be more appropriate to add the value of education per child to equivalent disposable income. Doing so would give more even more weight to the in-kind benefits. Future research should examine the sensitivity of results to all of these variations. Similarly, our valuations take no account of the external benefits of education.

## **VI. Summary and Conclusion**

This paper estimates the redistributive effects of welfare state expenditures on disparities in the economic well-being of in ten nations. Data on cash and non-cash social welfare benefits are used to describe differences in the size and nature of welfare states. We combined aggregate OECD data on social welfare expenditures with micro data on households from the Luxembourg

Income Study (LIS) to estimate the redistributive effects of the expenditures and to construct measures of the differences in the relative standard of living at various points in the income distributions of their countries.

Similar to previous research, we find that the English speaking nations devote less of their GDP to social welfare spending than do the continental European and Scandinavian nations. Differences among the English speaking nations are smaller than the differences between the English speaking and other nations. Among the English speaking nations, the United States ranks last if employer provided health benefits are not counted, but second, just below the United Kingdom, if employer provided health insurance benefits are counted. But differences between countries are substantially narrower for net social welfare expenditures than for gross social welfare expenditures. Because the United States GDP is so much higher than the GDP of the other nations, however, per capita social welfare expenditures in the United States are the highest and substantially higher than levels in all other English speaking nations. Finally, the aggregates in Figures 1-3 suggest that the United States spends much less on cash and near-cash assistance than other countries and as much or more on education and health.

In all nations, the redistributive effects of social welfare expenditures are large—both in raising the level of resources at the bottom and reducing levels of resources at the top. The aged are clearly the largest net beneficiaries of the fisc. In every nation and at every income level, benefits exceed taxes for this group. And rising health care costs with low fertility and rapidly aging populations have properly rung a danger bell regarding future costs of aging societies in every one of these nations. There should be additional pressure in these countries to have the elders—especially those who are well off—assume more of their own fiscal responsibility for health care and retirement needs in old age.

In general, the English speaking nations raise the bottom for children the most because such a large proportion of children at the bottom are cared for by a non-working single mother and because these nations are relatively less generous with cash benefits for children or their parents. The bottom for the aged are raised by health and social retirement pensions, and the least impacts are where there are substantial private pension systems (Finland, United States and the Netherlands).

In each nation, non-elders in the top fifth of the income distribution and especially childless adults are the ones paying the majority of the taxes to finance these benefits. Some might be forever childless, others may have grown children no longer living with them. But in any case, while they are childless, they pay more in taxes than they get in benefits in any and all rich nations.

Similar to previous research, we also find that poor children in English speaking nations are relatively worse off than their continental European and, especially, their Scandinavian counterparts. These rankings remain even after taking account of in-kind benefits and the taxes required to finance them, but the differences are narrowed substantially. When cash disposable income is the metric, the difference between the 10/50 ratio in Sweden and the United States is nearly 2 to 1 and the difference in the 90/10 ratio is more than 2 to 1. These differences shrink by at least half when health and education benefits are valued at cost and added to cash incomes net of the taxes used to finance these benefits. The results for the aged are far more sensitive to the valuation of health care benefits.

How to value in-kind benefits is problematic both conceptually and empirically (Smeeding 1982). In this paper, we have taken only a first stab at the problem. But, conceptually it is clear that these benefits are worth some nontrivial amount to both rich and poor alike. They

are also likely worth something to the childless that pay for them, especially in an intergenerational or intertemporal framework. Empirically, health and education are as large as or a much larger part of what the welfare state does for families than are the provision of cash benefits in all nations. We need to realize this fact as we consider the relative effectiveness and generosity of all welfare states, most especially the United States.



## Endnotes

1. Our imputations do not include tax expenditures; they do include tax related refundable credits such as the Earned Income Tax Credit (EITC) in the United States and the Family Tax Benefit in the United Kingdom.
2. We assume that employer payroll taxes and employer provided health insurance in the United States are taken from wages that employers would otherwise pay. Thus, the “incidence” is on labor and to calculate income gross of benefits, we added these to market income. Direct taxes—personal income and employee payroll taxes—were allocated to the households and workers paid for them. Corporate taxes and value added taxes were assumed to be shifted to the consumer and were allocated according to total consumption (see text). Property taxes are assumed to fall on owners and renters and were distributed in proportion to housing consumption.
3. OECD data on early childhood education are by their own admission incomplete and inaccurate. Sources provided by Gornick and Meyers (2003) were more complete and consistent, except for subsidized child care for children under age three, where data is even less complete. Consequently, we omitted child care for children under age three.
4. Ordering of mixed cases was as follows Elders (persons 65 and older) with children are counted among families with children (age under 18); elders are only elders without kids. The remainder has neither elders nor kids and are the childless non aged.
5. Tax expenditures for housing are not counted.
6. The distribution of expenditures varies systematically with their provider. If tax expenditures and employers subsidize ‘social’ spending, the distribution of these benefits will be much more pro-rich than if the distribution is subsidized by governments directly.
7. These differences and the ones discussed in the next paragraph are not shown here but are available from the authors, or in Garfinkel, Rainwater, and Smeeding 2004.
8. This public and employer subsidized figures in Appendix Table 1-A understate how much more Americans spend on health than do citizens of other countries because private, out of pocket, health expenditures, which are quite substantial in the United States—another 2 percent of GDP—are not reflected in the table.
9. The average benefit simulations and their distributions are shown in Appendix Table 2.
10. In a second simulation for children, we used estimates of purchasing power parity (PPP) to estimate adjusted health care expenditures where the quantity of care is controlled for. This adjustment reduces differences across nations, but does not eliminate them. For more, see Garfinkel, Rainwater and Smeeding (2004).

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Table 1. Net Benefits as a Percent of Full Income by Quintiles of Two Measures of Full Income<sup>1</sup>

**A. All Persons**

Country	Year	LOW	2	3	4	HIGH	TOTAL
Australia	1994	80.4	51.9	9.1	-10.1	-30.5	0.0
Canada	1997	51.2	36.6	9.4	-6.0	-22.7	0.0
United Kingdom	1999	70.6	51.0	19.7	-10.1	-28.6	0.0
United States	2000	33.6	24.5	10.9	-2.0	-16.1	0.0
Belgium	1997	68.3	49.2	13.1	-10.2	-29.1	0.0
France	1994	18.6	16.0	13.9	0.9	-16.3	0.0
Germany	2000	54.6	35.4	12.9	-7.3	-24.8	0.0
Netherlands	1999	42.5	27.8	3.5	-8.3	-17.5	0.0
Finland	2000	53.8	25.4	5.0	-5.3	-15.7	0.0
Sweden	2000	56.8	32.1	12.2	-2.9	-24.0	0.0
Average <sup>2</sup>		53.0	35.0	11.0	-6.1	-22.5	0.0

**B. Childed Households**

Australia	1994	71.9	30.8	7.1	-3.9	-25.0	3.5
Canada	1997	50.7	23.4	6.0	-4.6	-18.9	1.3
United Kingdom	1999	65.6	39.9	18.7	-3.4	-19.9	6.2
United States	2000	33.6	26.4	14.3	3.9	-11.3	5.2
Belgium	1997	44.9	9.4	-6.3	-18.8	-32.9	-10.5
France	1994	1.2	2.4	1.9	-8.5	-27.0	-10.2
Germany	2000	37.9	11.3	0.2	-6.9	-17.3	-1.9
Netherlands	1999	34.7	8.6	5.7	-0.5	-10.5	2.4
Finland	2000	47.1	22.5	9.5	-1.0	-8.7	6.7
Sweden	2000	34.3	11.7	2.7	-5.1	-20.2	-2.1
Average <sup>2</sup>		42.2	18.6	6.0	-4.9	-19.2	0.1

**C. Elder Households**

Australia	1994	92.6	93.6	88.1	63.5	6.7	52.0
Canada	1997	93.5	85.5	71.0	50.3	16.6	49.9
United Kingdom	1999	90.2	86.3	77.5	60.8	17.0	53.1
United States	2000	63.0	65.0	55.6	40.9	10.8	34.8
Belgium	1997	93.9	96.1	89.2	74.3	46.1	70.7
France	1994	93.0	87.7	84.9	81.6	70.9	80.1
Germany	2000	88.8	86.6	82.3	71.5	37.3	65.3
Netherlands	1999	90.2	83.2	66.7	44.3	20.6	50.7
Finland	2000	66.1	41.9	31.4	15.5	1.5	20.7
Sweden	2000	95.6	90.6	86.1	77.6	43.3	70.3
Average <sup>2</sup>		86.7	81.7	73.3	58.0	27.1	54.8

**D. Childless Households**

Australia	1994	70.6	13.6	-15.5	-24.8	-36.3	-17.4
Canada	1997	34.5	3.4	-13.6	-20.9	-31.3	-17.6
United Kingdom	1999	51.3	6.0	-22.9	-34.6	-37.2	-23.6
United States	2000	11.4	-8.0	-15.4	-19.7	-25.4	-18.2
Belgium	1997	54.5	12.7	-16.2	-30.9	-45.3	-22.5
France	1994	-24.8	-23.3	-21.2	-23.7	-36.8	-28.7
Germany	2000	44.7	0.1	-27.4	-39.5	-42.6	-28.2
Netherlands	1999	21.9	-5.0	-20.2	-31.2	-28.6	-20.7
Finland	2000	51.2	9.7	-12.2	-20.4	-24.3	-12.3
Sweden	2000	37.8	-8.9	-32.1	-42.4	-42.4	-29.6
Average <sup>2</sup>		35.3	0.0	-19.7	-28.8	-35.0	-21.9

Source: Authors' calculations from the Luxembourg Income Study.

Notes: <sup>1</sup>This table uses the difference between taxes paid and total benefits received as a percent of "final" or "full" income.

<sup>2</sup>Simple average.

**Table 2. Distribution of Mean Benefits<sup>1</sup>**  
(in real 2000 US PPP dollars)

**A. ALL HOUSEHOLDS**

Country	Year	All Benefits	Cash and Near		Noncash Benefits		Percent Shares		
			Cash Transfers		Education	Health	Cash Transfers	Education	Health
Australia	1994	\$8,648	\$3,787		\$1,787	\$3,074	43.8	20.7	35.5
Canada	1997	14,381	6,980		2,912	4,488	48.5	20.2	31.2
United Kingdom	1999	12,050	6,400		2,301	3,350	53.1	19.1	27.8
United States	2000	17,278	5,082		4,213	7,983	29.4	24.4	46.2
Belgium	1997	16,558	10,376		2,268	3,913	62.7	13.7	23.6
France	1994	15,573	9,086		2,586	3,900	58.3	16.6	25.0
Germany	2000	13,945	7,731		1,893	4,321	55.4	13.6	31.0
Netherlands	1999	12,277	6,294		2,426	3,557	51.3	19.8	29.0
Finland	2000	9,122	4,353		2,023	2,746	47.7	22.2	30.1
Sweden	2000	14,676	8,584		2,349	3,744	58.5	16.0	25.5

**B. CHILDED HOUSEHOLDS**

Australia	1994	\$12,681	\$3,809		\$5,289	\$3,583	30.0	41.7	28.3
Canada	1997	18,835	5,510		8,318	5,007	29.3	44.2	26.6
United Kingdom	1999	17,928	6,799		7,591	3,598	37.9	42.3	20.1
United States	2000	23,982	3,372		11,404	9,206	14.1	47.6	38.4
Belgium	1997	18,801	7,122		7,566	4,113	37.9	40.2	21.9
France	1994	17,446	5,631		7,624	4,191	32.3	43.7	24.0
Germany	2000	18,726	5,916		7,910	4,901	31.6	42.2	26.2
Netherlands	1999	16,404	4,392		7,879	4,133	26.8	48.0	25.2
Finland	2000	17,429	7,143		7,032	3,255	41.0	40.3	18.7
Sweden	2000	22,193	9,014		8,774	4,405	40.6	39.5	19.8

**C. ELDER HOUSEHOLDS**

Australia	1994	\$12,326	\$7,621		\$0	\$4,705	61.8	0.0	38.2
Canada	1997	22,448	15,908		0	6,540	70.9	0.0	29.1
United Kingdom	1999	15,382	10,662		0	4,720	69.3	0.0	30.7
United States	2000	23,981	13,142		0	10,839	54.8	0.0	45.2
Belgium	1997	24,282	18,863		0	5,419	77.7	0.0	22.3
France	1994	23,619	18,160		0	5,459	76.9	0.0	23.1
Germany	2000	21,848	15,550		0	6,298	71.2	0.0	28.8
Netherlands	1999	18,150	12,890		0	5,260	71.0	0.0	29.0
Finland	2000	7,812	3,694		0	4,119	47.3	0.0	52.7
Sweden	2000	21,053	15,229		0	5,824	72.3	0.0	27.7

**D. CHILDLESS HOUSEHOLDS**

Australia	1994	\$4,318	\$2,233		\$0	\$2,085	51.7	0.0	48.3
Canada	1997	7,497	4,250		0	3,247	56.7	0.0	43.3
United Kingdom	1999	6,103	3,700		0	2,403	60.6	0.0	39.4
United States	2000	8,413	2,746		0	5,668	32.6	0.0	67.4
Belgium	1997	9,967	7,137		0	2,830	71.6	0.0	28.4
France	1994	8,836	6,145		0	2,692	69.5	0.0	30.5
Germany	2000	7,224	4,259		0	2,965	59.0	0.0	41.0
Netherlands	1999	6,965	4,519		0	2,445	64.9	0.0	35.1
Finland	2000	5,145	3,238		0	1,907	62.9	0.0	37.1
Sweden	2000	7,274	4,937		0	2,337	67.9	0.0	32.1

Source: Authors' calculations from the Luxembourg Income Study.

Note: <sup>1</sup>The values for the average imputations are shown in Appendix Table 2.

**Table 3. Summary of US in Comparative Perspective  
as Check on Fact (Average Benefit FI) vs. Amount (Actual Benefit FI)<sup>1</sup>**

**A. ALL**

<b>Income Measure</b>	<b>P10</b>		<b>P90</b>		<b>P90/P10</b>	
	<b>US</b>	<b>Average</b>	<b>US</b>	<b>Average</b>	<b>US</b>	<b>Average</b>
Disposable Cash Income	39	51	210	184	5.43	3.72
plus Actual Benefit Full Income	53	55	193	172	3.65	3.14
plus Average Benefit Full Income	45	54	203	173	4.48	3.20

**B. CHILDREN**

<b>Income Measure</b>	<b>P10</b>		<b>P90</b>		<b>P90/P10</b>	
	<b>US</b>	<b>Average</b>	<b>US</b>	<b>Average</b>	<b>US</b>	<b>Average</b>
Disposable Cash Income	39	53	207	173	5.24	3.35
plus Actual Benefit Full Income	58	61	181	160	3.14	2.64
plus Average Benefit Full Income	52	69	191	159	3.66	2.71

**C. ELDERS**

<b>Income Measure</b>	<b>P10</b>		<b>P90</b>		<b>P90/P10</b>	
	<b>US</b>	<b>Average</b>	<b>US</b>	<b>Average</b>	<b>US</b>	<b>Average</b>
Disposable Cash Income	42	60	237	194	5.59	3.34
plus Actual Benefit Full Income	58	66	209	178	3.62	2.70
plus Average Benefit Full Income	43	60	246	191	5.77	3.28

**D. CHILDLESS**

<b>Income Measure</b>	<b>P10</b>		<b>P90</b>		<b>P90/P10</b>	
	<b>US</b>	<b>Average</b>	<b>US</b>	<b>Average</b>	<b>US</b>	<b>Average</b>
Disposable Cash Income	38	44	197	177	5.22	4.07
plus Actual Benefit Full Income	45	46	198	180	4.39	3.93
plus Average Benefit Full Income	39	45	208	180	5.37	4.01

Source: Figures 4-7.

Note: <sup>1</sup>Average value of health and education benefits are the same for all countries!



**Table 4. U.S. in Comparative Perspective  
Cash Equivalents: Do They Make a Difference?**

**A. ALL**

<b>Income Measure</b>	<b>P10</b>	<b>P90</b>	<b>P90/P10</b>
Disposable Cash Income	39	210	5.43
plus Actual Full Income	53	193	3.65
plus Cash Equivalent Value FI	44	204	4.63

**B. CHILDREN**

<b>Income Measure</b>	<b>P10</b>	<b>P90</b>	<b>P90/P10</b>
Disposable Cash Income	39	207	5.24
plus Actual Full Income	58	181	3.14
plus Cash Equivalent Value FI	46	192	4.17

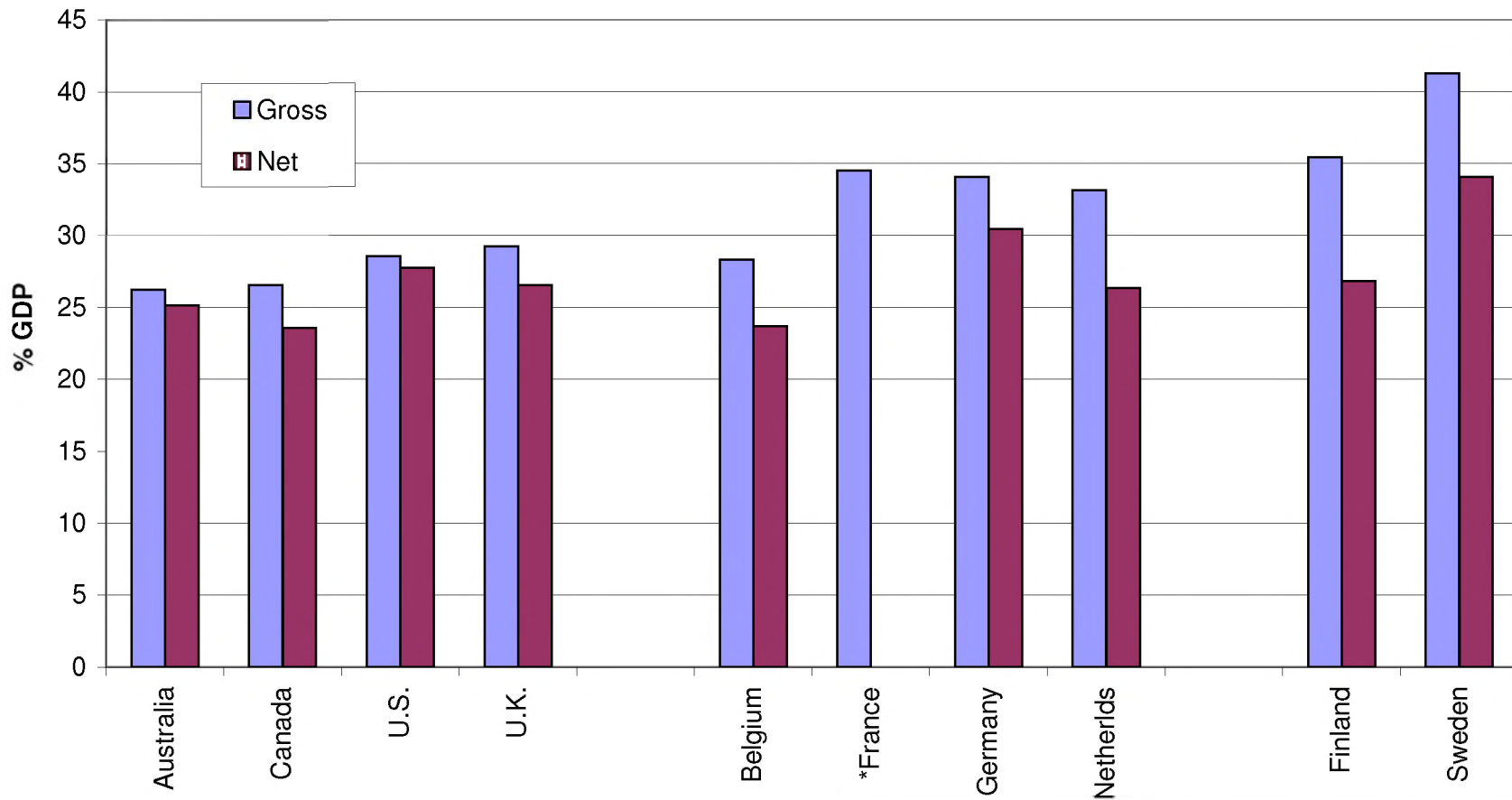
**C. ELDERS**

<b>Income Measure</b>	<b>P10</b>	<b>P90</b>	<b>P90/P10</b>
Disposable Cash Income	42	237	5.59
plus Actual Full Income	58	209	3.62
plus Cash Equivalent Value FI	45	235	5.22

Source: Authors' calculations.

Notes: \* Ratio of cash equivalent to government cost for **health care** in bottom quintile = .35; at median = .60; in top quintile = .80. (Source: Smeeding (1982) p. 67. Ratio of cash equivalent to government cost for **education** in bottom quintile = .50; middle = .60; top = .90. See text for additional explanation.

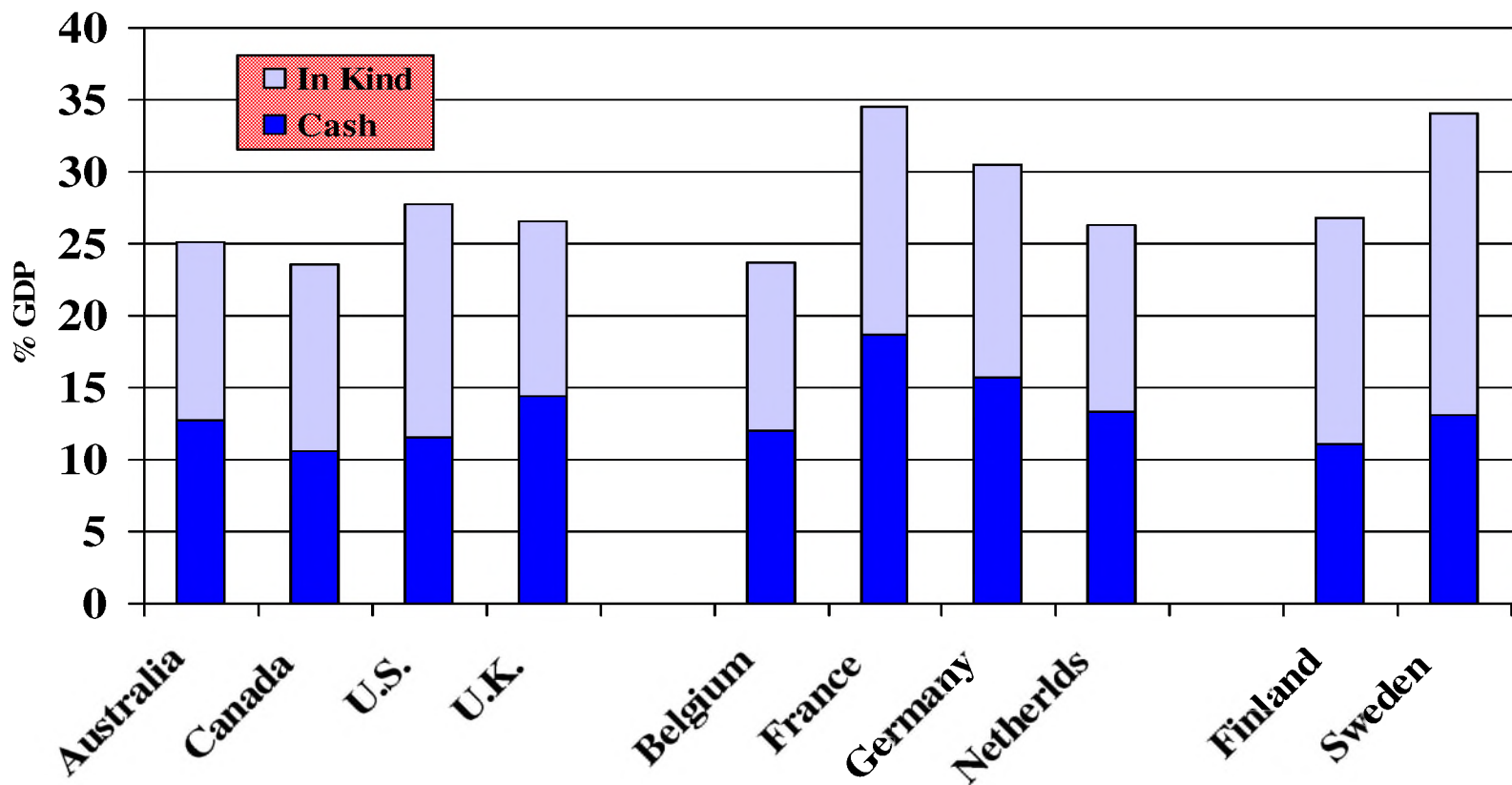
**Figure 1. Gross and Net Social Welfare Expenditures<sup>1</sup> in the  
U.S. and Other Welfare States  
FY 1997**



Note: <sup>1</sup> Definition: Gross Benefit figures include all welfare state spending on housing, health care, education, pension, family and work related benefits and other cash and near cash benefits. Also includes employer-provided pensions, health care and other welfare benefits lived on. Net Benefit figures include the net value of benefits after adjustments for the taxing back of cash benefits and for sales and value added taxes. User charges are not included.

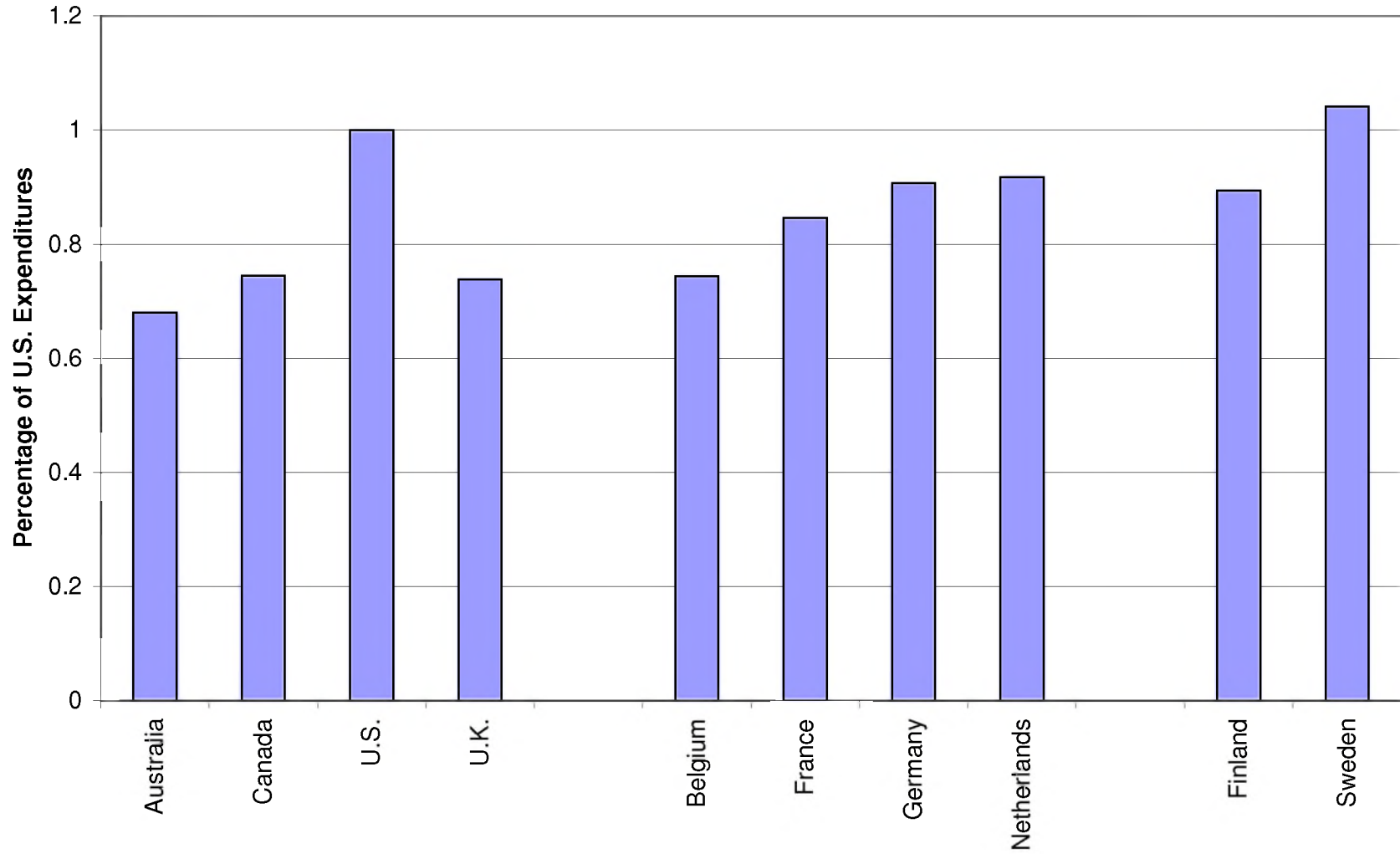
\* net data unavailable.

Figure 2  
 Net Cash and In Kind Social Welfare Expenditures<sup>1</sup>  
 in the U.S. and Other Welfare States  
 FY 1997



Note: <sup>1</sup>Definition: Net Benefit figures for cash benefits are same definition as Figure 1; In Kind figures include health care, education, some housing, and other social services in kind for which gross and net benefits are the same.

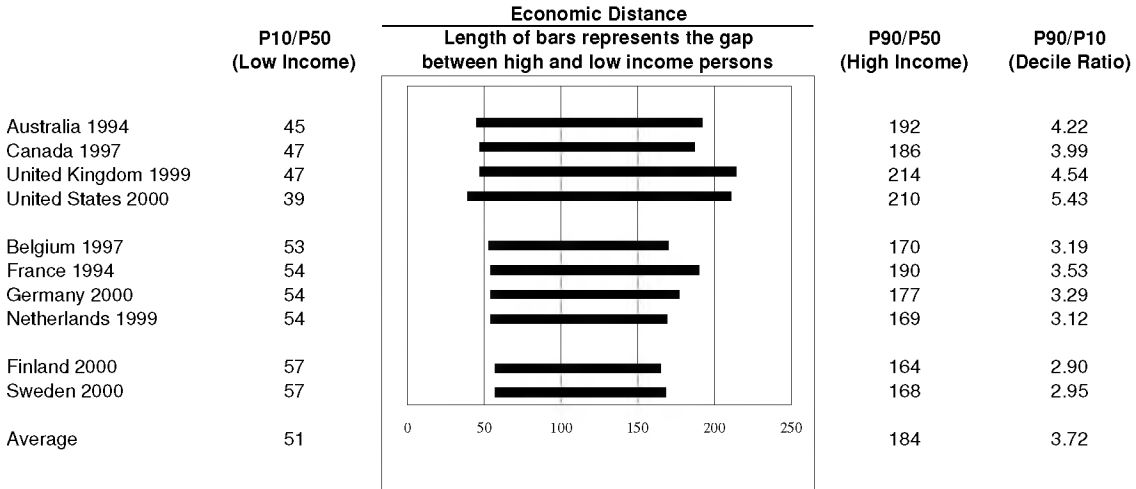
**Figure 3. Per Capita Social Welfare Expenditures  
of Other Countries Relative to the United States  
FY 1997**



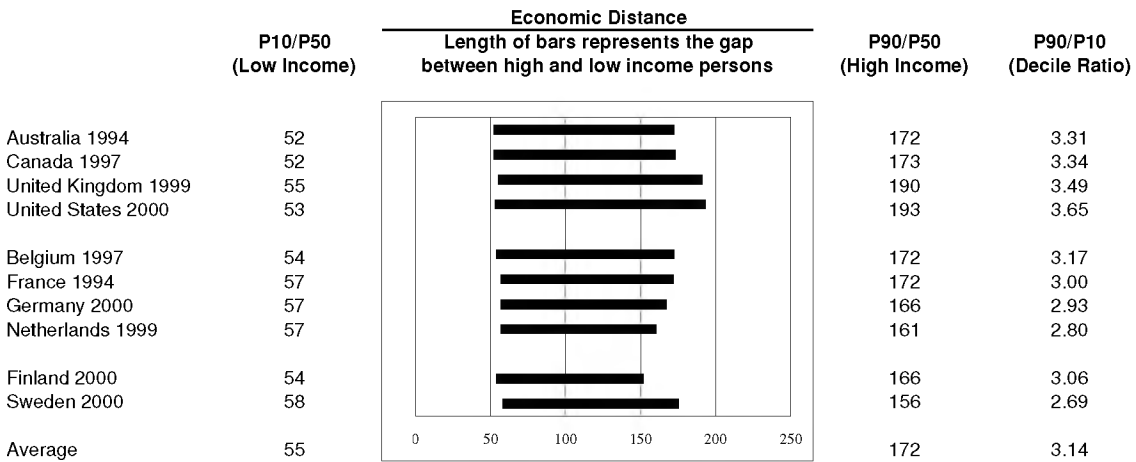
Note: Gross Benefit figures are same definition as Figure 1; Per capita spending in 2000 US Dollars per capita PPP Terms with US Spending = 1.0.

**Figure 4. Three Measures of Relative Economic Well-being: ALL PERSONS**  
 (numbers given are percent of all persons' median equivalent income in each nation in each panel)

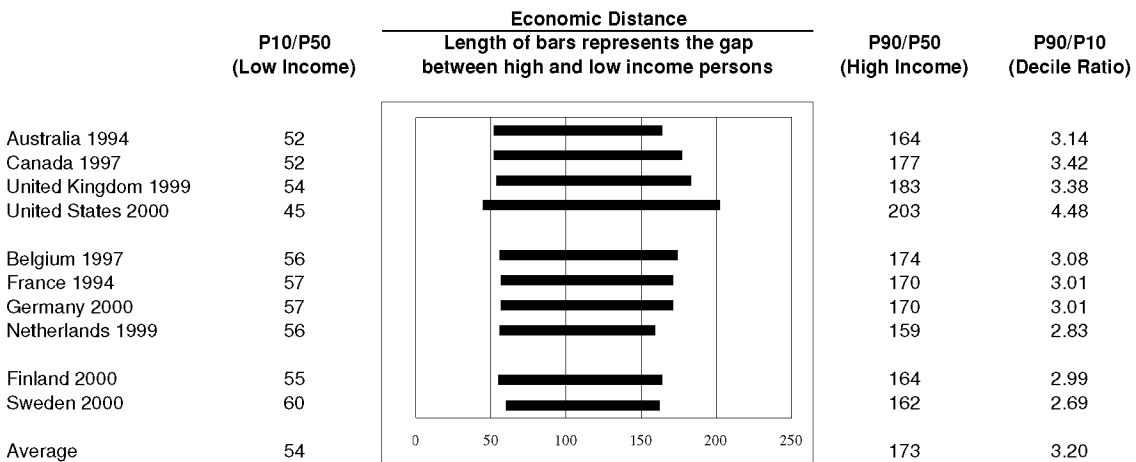
**A. Disposable Personal Income**



**B. Actual Full Income**



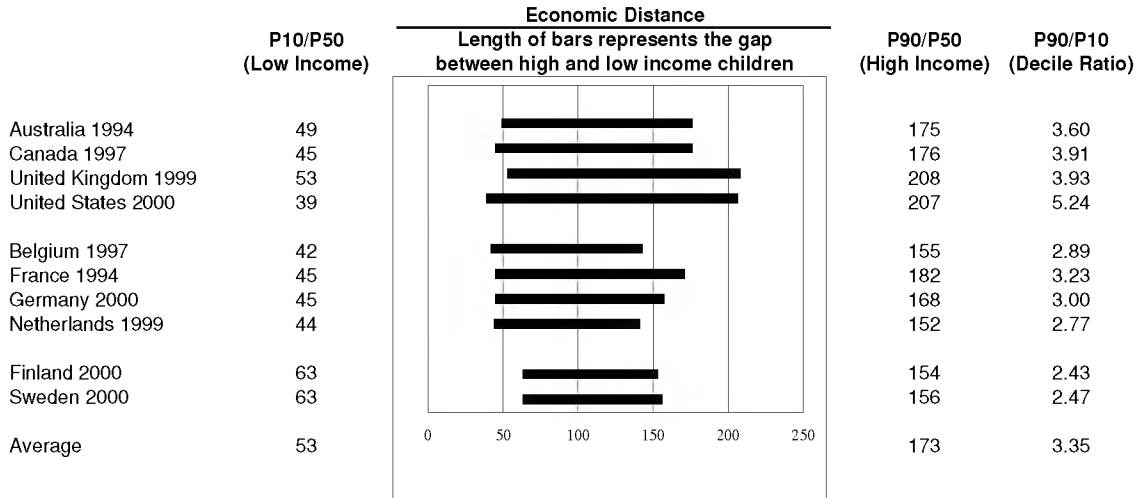
**C. Average Benefit Full Income**



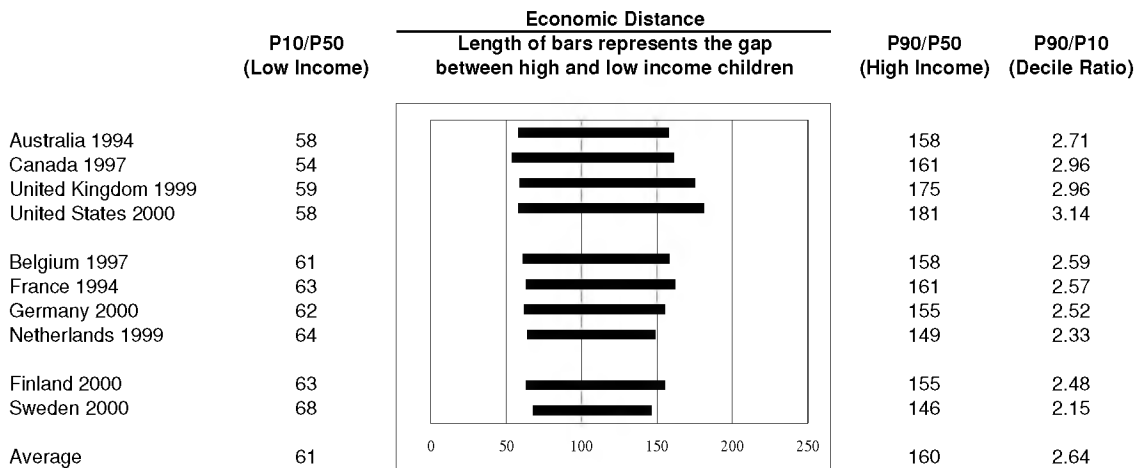
Source: Authors' calculations from the Luxembourg Income Study.

**Figure 5. Three Measures of Relative Economic Well-being: CHILDREN**  
 (numbers given are percent of children's median equivalent income in each nation in each panel)

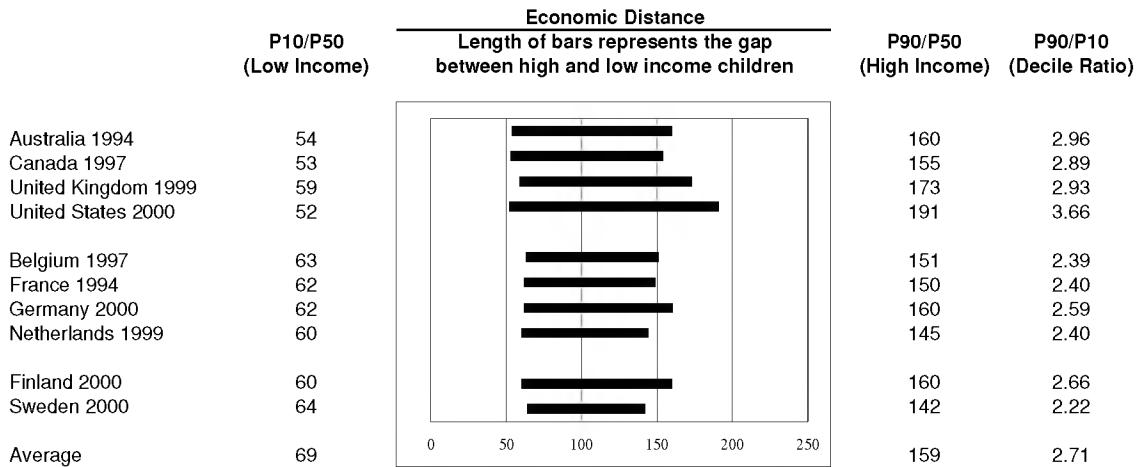
**A. Disposable Personal Income**



**B. Actual Full Income**



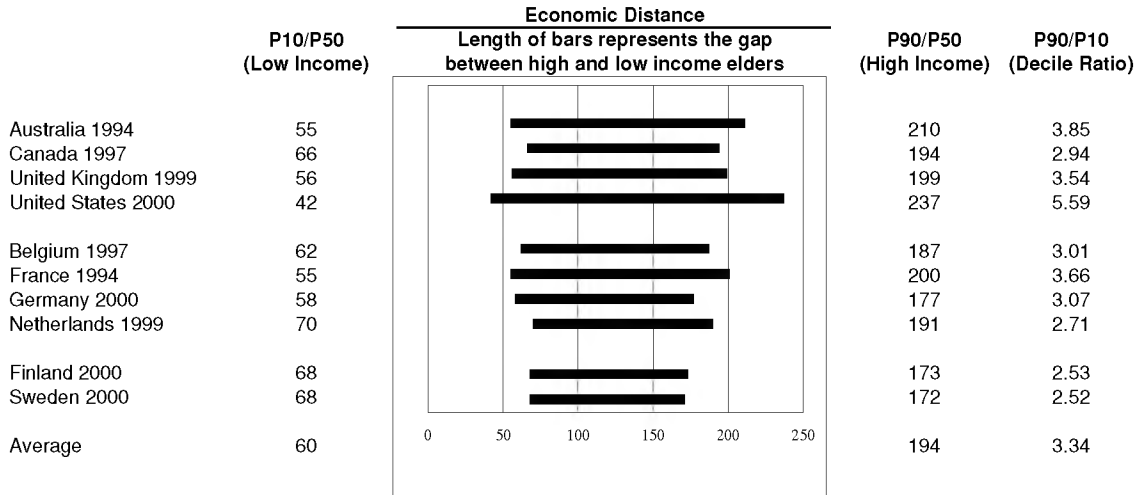
**C. Average Benefit Full Income**



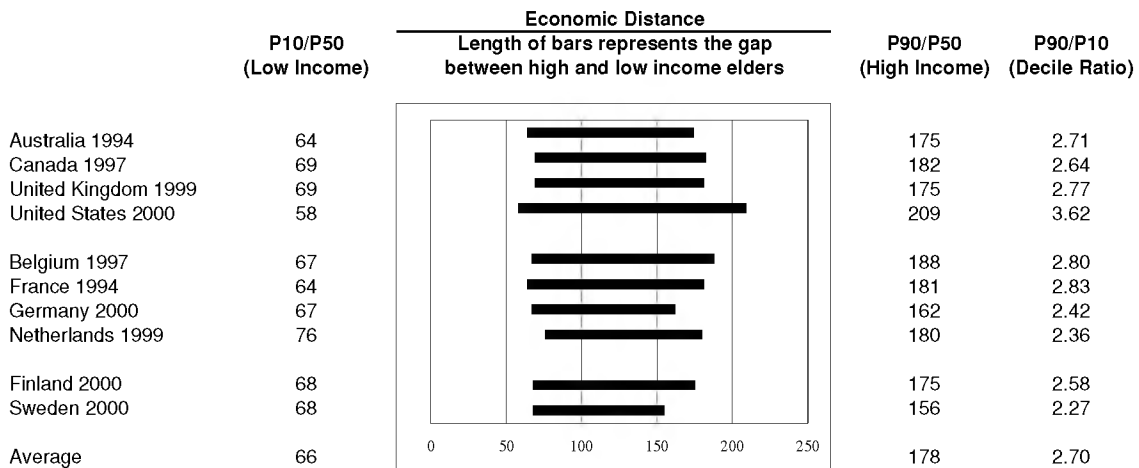
Source: Authors' calculations from the Luxembourg Income Study.

**Figure 6. Three Measures of Relative Economic Well-being: ELDERS**  
 (numbers given are percent of elder's median equivalent income in each nation in each panel)

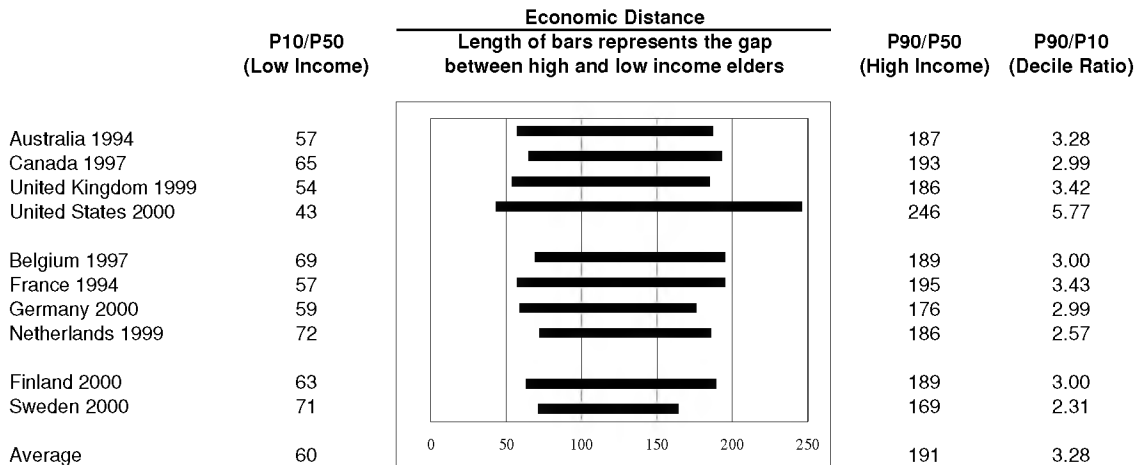
**A. Disposable Personal Income**



**B. Actual Full Income**



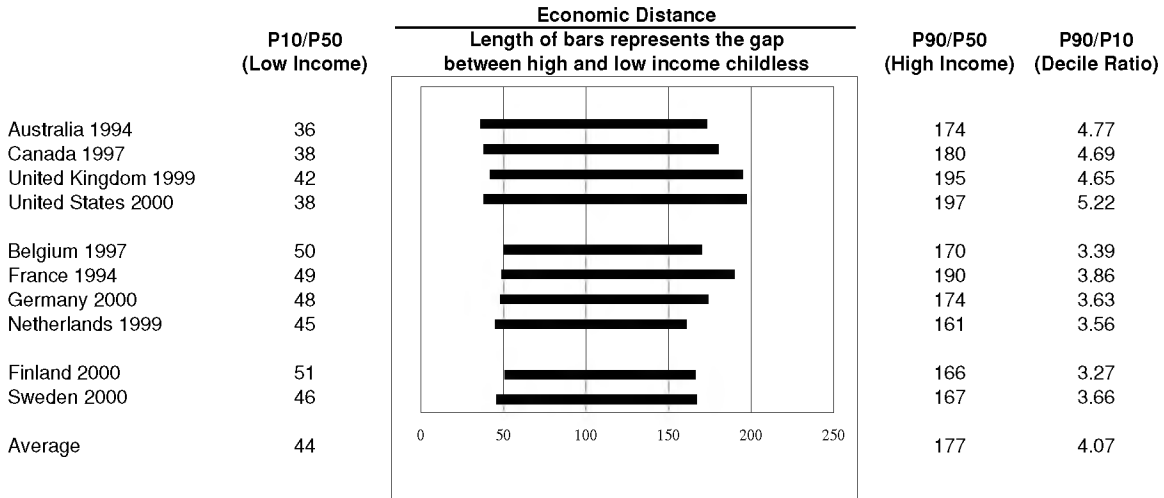
**C. Average Benefit Full Income**



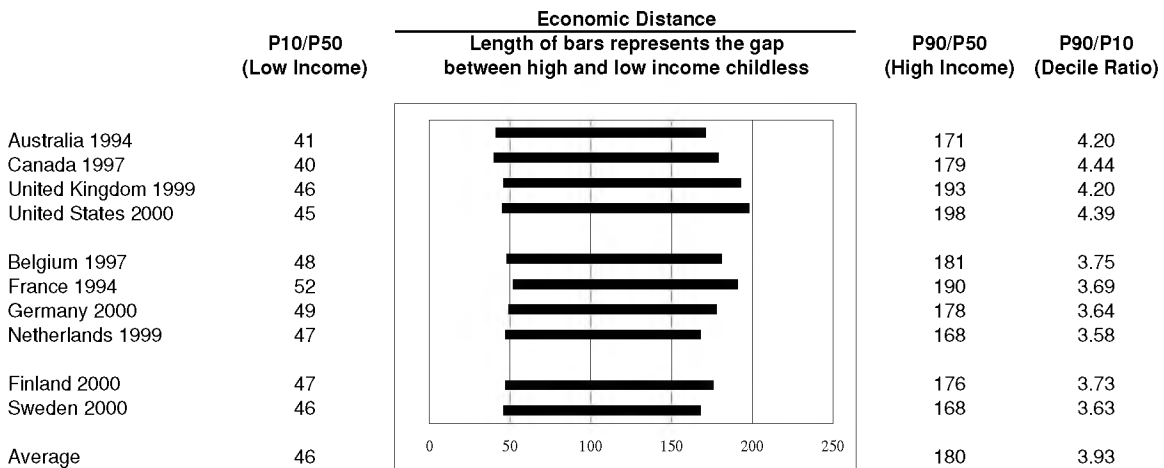
Source: Authors' calculations from the Luxembourg Income Study.

**Figure 7. Three Measures of Relative Economic Well-being: CHILDESS PERSONS**  
 (numbers given are percent of childless persons' median equivalent income in each nation in each panel)

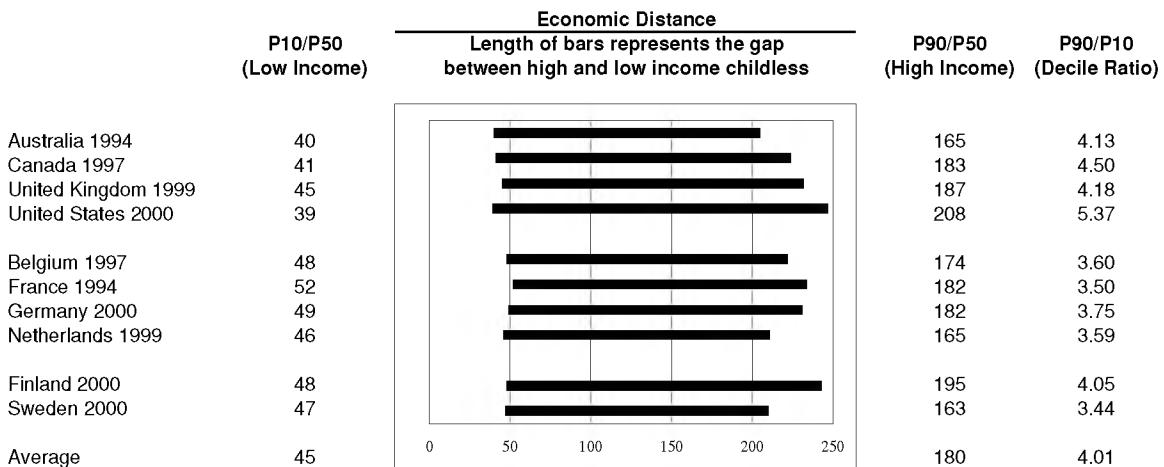
**A. Disposable Personal Income**



**B. Actual Full Income**



**C. Average Benefit Full Income**

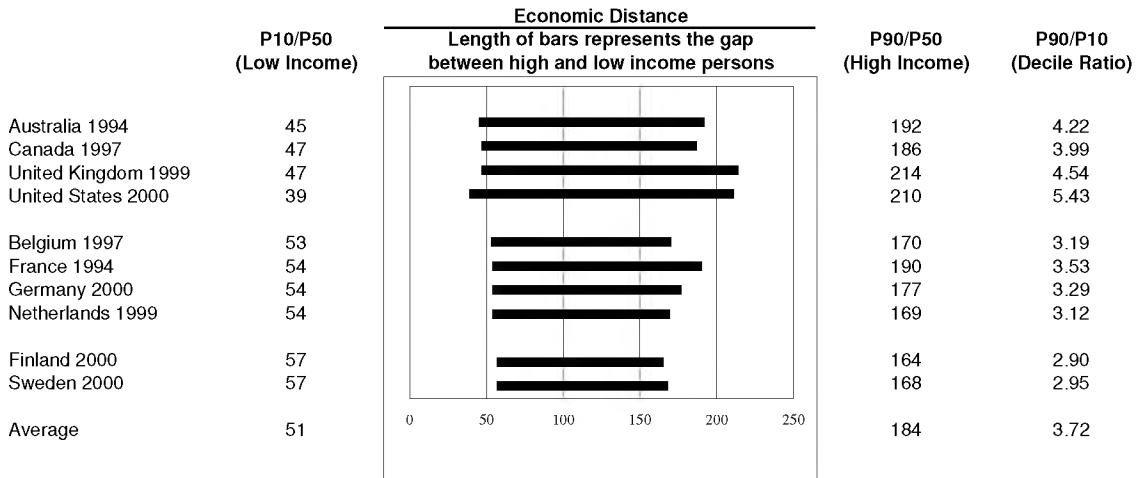


Source: Authors' calculations from the Luxembourg Income Study.

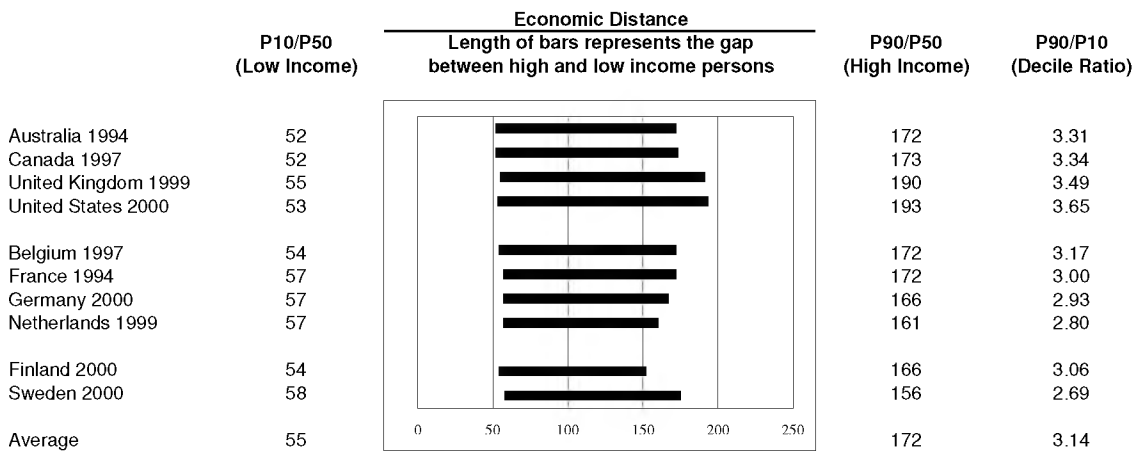


**Figure 8. Three Measures of Relative Economic Well-being: ALL PERSONS \***  
 (numbers given are percent of all persons' median equivalent income in each nation in each panel)

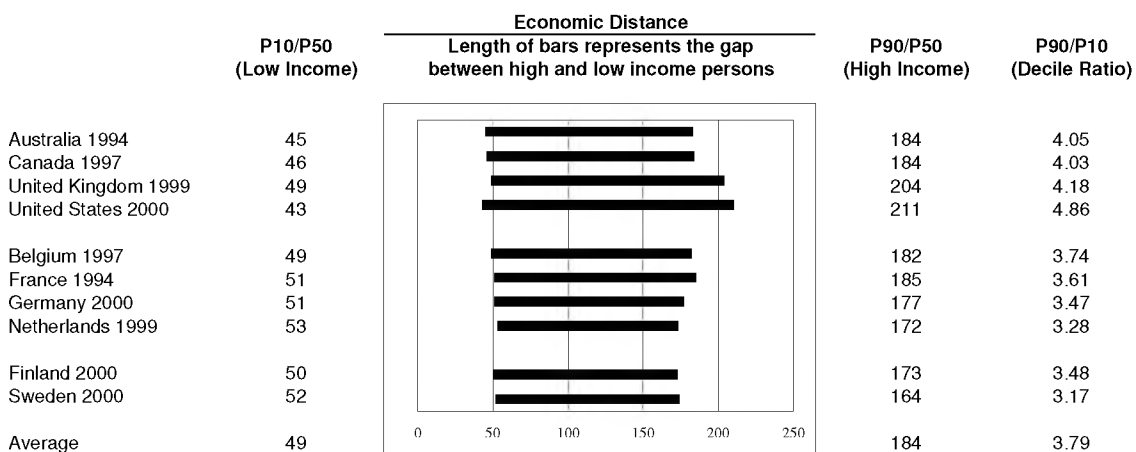
**A. Disposable Personal Income**



**B. Actual Full Income**



**C. Cash Equivalent Full Income**



Source: Authors' calculations from the Luxembourg Income Study.  
 Note: \* Panels A and B are identical to those in Figure 4.

## **Appendix: Technical Imputation Description**

We begin with Luxembourg Income Study net after direct tax and cash transfer disposable income for ten nations. To this cash and near cash data we add third party health care subsidies (public spending in all nations, and employer subsidies in the United States) and education subsidies (public sector support for early childhood education (ECE), elementary and secondary schooling, but not tertiary schooling or public daycare for children under age three). We then subtract direct and indirect taxes, including the LIS direct taxes (income and payroll taxes), and also VAT (sales, excise), corporate taxes, and real property taxes. We next rebalance total taxes to just equal total expenditures for the entire population. Thus, we exclude taxes paid for government final goods and services, and only subtract out taxes to the extent that they equal overall benefits paid in each country.

We use OECD (2003) purchasing power parities to put all non-cash benefits into 2000 United States PPP adjusted dollars, nationally price indexed to the correct nation year (1997 to 2000 for all but France and Australia, both 1994). When given OECD or other PPP adjusted benefits, we can then convert these to country currency, or vice versa. (For instance, we use both ECE data provided by Marcia Meyers (2003), which comes from Danish sources and is in national currency, and OECD data in United States dollars.) Given imputed benefits and taxes, we then analyze the relative effects of both on the entire population. Here we present only the highlights of our imputation schemes and analyses. Additional detail is available from the authors.

## **Health Care Benefit**

Health Insurance and third party expenditures on health care are the largest single element of non-cash benefit in every major country. We begin with OECD average public subsidy per person taken from OECD (2002a). These subsidies are given in Appendix Table 1-A. The United States amount is not just public subsidy, but includes two additional amounts: employer subsidies, taken from the Employment Benefit Research Institute (2004), and an amount for the uninsured (about 15 percent of the United States population) who are receiving charity or other public care with a value of half of the amount provided by the public sector. Thus, for 2000, these per capita amounts are: \$2,005 (public subsidy); \$2,535 (employer subsidy); \$1,002 (uninsured subsidy). From the Current Population Survey (CPS) data which underlie LIS we can separate the United States population into those with public subsidy (Medicare, Medicaid, other); those with employer provided insurance; and the uninsured (from estimates provided by Barbara Wolfe 2002), and assign each person an average subsidy. In every other country we just assign public subsidies alone.

We then decided to impute the “insurance value” of coverage to each person based on their age. That is, we take each national average per capita amount, assign that to 19-34 year olds, and from there adjust the insurance subsidy according to a person’s age. The insurance value is the amount that an insured person would have to pay in each age category so that the third party provider (government, employer, other insurer) would just have enough revenue to cover all claims for such persons. The multipliers we used were .75 for persons under age 18; 1.0 for persons age 19-34; 1.25 for 35-54; 1.75 for 55-64; 3.0 for 65-74; and 4.0 for those 75 and over. These age related factors were taken from a paper by Smeeding and Freund (2002) who

surveyed the literature on the topic. The same adjusters were used in all countries. We then readjusted the individual amounts so that the overall average imputed benefit just equaled the OECD overall average subsidy (and OECD, employer and uninsured overall subsidies in the United States) in each country. The resulting amounts are shown in column 1 of Appendix Table 1-A. The amounts ranged from \$1,063 in Australia (1994), to \$3,715 in the United States (2000). Germany, at \$2,086, is the closest nation to the United States. These were the “base case” or “full benefit” imputed amounts used in the simulation.

As a final technique, and to determine the affects of “equal” spending and thus the effect of “average” non-cash benefits alone in all nations, we assigned the overall average amount of \$1,719 (bottom row, Column (1), Appendix Table 1-A) to each and every person in each and every one of the ten countries. Again, we used the same age and overall benefit level adjusters to impute final amounts.

## **Education**

We used OECD (2002b) data to obtain average primary and secondary public expenditure per pupil in each country year (columns 2 and 3 of Appendix Table 1-A). These were assigned students according to starting and ending ages of primary and secondary school in each nation up to age 18. No account was taken of drop-outs or attending nonpublic schools. Each person received the same national average benefit according to OECD estimates. That was the easy part.

The hard part was determining the level and amount of spending for early childhood education (ECE) in each country. OECD (2002a) outlays were at odds with all other available data sources. Marcia Meyers (2003) was kind enough to share the data used in here recent book

with Janet Gornick (Gornick and Meyers 2003) and to help us update these data. We used several sources including the Clearinghouse on International Developments in Child, Youth, and Family Policy at Columbia University (<http://www.childpolicyintl.org/>) and the European Union “Eurydice” website (<http://www.eurydice.org/>). These sources gave us five parameters: (1) number of children using ECE benefits in each nation; (2) number receiving full day vs. half day benefits; (3) average amount spent per child per day; (4) average number of days attended; and (5) total spending in each country. We limited benefits to children aged three or over in the survey year; we randomly assigned children each benefit amount; and we integrated benefits in each nation with the year they began normal elementary schooling. Full details are available from authors.

These amounts are included in the overall average amount of benefit per child aged 3-18 in Appendix Table 1-A, columns 3 and 4, bottom row. We also considered a “PPP” type adjustment for education based on the average pupil-teacher ratio in each nation. However, the overall average and variance were so small that we ignored these differences. Thus, our “PPP-Quantity Adjusted” benefits for education are the same as those shown in Appendix Table 1-A, columns 3 and 4.

In our third and final simulation we assigned the overall average education benefit for elementary, secondary and ECE to each child in each nation. These amounts are, found at the bottom of columns 2 and 3 in Appendix Table 1-A.

## **Taxes**

We used OECD data on tax to GDP ratios and on the relative distribution of taxes by source for each nation, covering five taxes: personal income, payroll, corporate income,

property, and “goods and services” (value added, sales, or excise) taxes. The LIS gives us the first two taxes directly (though the amount of employer payroll tax had to be imputed and then counted in the tax balancing equations). We assumed the incidence of the corporate tax, and goods and services tax, was on the consumer, and thus distributed according to overall consumption; the incidence of the property tax was assumed to fall on housing consumption. We assigned corporate and “goods and services” taxes (and property taxes) according to LIS calculated ratios of overall expenditure (housing expenditure) to income ratios by LIS disposable income decile provided by Eva Sierminska and Thesia Garner from their LIS-based consumption work (Sierminska and Garner 2002). We then rebalanced all taxes to arrive at the average mix across taxes within nations, and to just equal total benefits paid in transfers or subsidies (cash and near-cash benefits, education, and health care) in each nation for the aggregate only. Hence, benefits just equal taxes in every nation. Again, greater detail is available from the authors upon request.

**Appendix Table 1-A. National Health and Education Benefits per Beneficiary for Each Country**

<b>Country</b>	<b>Year</b>	<b>Health Care<sup>1</sup></b>	<b>Education<sup>2</sup></b>	
		<b>(OECD \$/person)</b>	<b>Elementary</b>	<b>Secondary</b>
Australia	1994	\$1,063	\$2,810	\$4,530
Belgium	1997	1,420	3633	5570
Canada	1997	1,532	5000	5900
Finland	2000	1,276	4136	6079
France	1994	1,398	3222	5761
Germany	2000	2,086	3929	6672
Netherlands	1999	1,461	4162	5670
Sweden	2000	1,866	5879	5973
United Kingdom	1999	1,371	3627	5608
United States	2000	3,175	6912	8537
Overall All Nation Average Benefit across All Types of Beneficiaries		\$1,719	\$4,331	\$6,030

Source: Authors' calculations from the Luxembourg Income Study.

Notes: <sup>1</sup>Includes OECD public subsidies, plus employer and other third party subsidies.

<sup>2</sup>Overall Education benefit per beneficiary by type of schooling. Ages of schooling vary by country. The average ECE per child was \$4001 for those enrolled full year, full time.

**Appendix Table 1-B. Mean Benefits per Household with Children for  
Three Education Levels<sup>1</sup>**

<b>Country</b>	<b>Year</b>	<b>Day Care</b>	<b>Elementary</b>	<b>Secondary</b>
Australia	1994	38	2,506	2,744
Canada	1997	389	4,154	3,776
United Kingdom	1999	470	3,118	3,943
United States	2000	303	5,302	5,800
Belgium	1997	767	2,902	3,897
France	1994	1,091	2,178	4,355
Germany	2000	498	1,753	5,658
Netherlands	1999	576	3,537	3,766
Finland	2000	902	4,297	1,833
Sweden	2000	773	6,351	1,650
<b>Average<sup>3</sup></b>		<b>581</b>	<b>3,610</b>	<b>3,742</b>

Source: Authors' calculations from the Luxembourg Income Study.

Note:<sup>1</sup>These are averaged over all households with children and are not the same as spending per beneficiary, which is shown in Appendix Table 1-A.



**Appendix Table 2. Average National Imputation of Benefits  
(in real 2000 US PPP dollars)**

**A. All Households**

Country	Year	All Benefits	Cash and Near		Noncash Benefits		Percent Shares		
			Cash Transfers		Education	Health	Cash Transfers	Education	Health
Australia	1994	\$11,300		\$3,787	\$2,542	\$4,971	33.5	22.5	44.0
Canada	1997	14,773		6,980	2,757	5,036	47.2	18.7	34.1
United Kingdom	1999	13,172		6,400	2,572	4,201	48.6	19.5	31.9
United States	2000	11,635		5,082	2,857	3,696	43.7	24.6	31.8
Belgium	1997	17,644		10,376	2,529	4,739	58.8	14.3	26.9
France	1994	16,787		9,086	2,904	4,797	54.1	17.3	28.6
Germany	2000	13,093		7,731	1,801	3,560	59.0	13.8	27.2
Netherlands	1999	13,026		6,294	2,546	4,187	48.3	19.5	32.1
Finland	2000	10,122		4,353	2,070	3,698	43.0	20.5	36.5
Sweden	2000	13,970		8,584	1,938	3,448	61.4	13.9	24.7

**B. Childed Households**

Australia	1994	\$17,157	\$3,809	\$7,553	\$5,794	22.2	44.0	33.8
Canada	1997	18,982	5,510	7,845	5,618	29.0	41.3	29.6
United Kingdom	1999	19,743	6,799	8,432	4,512	34.4	42.7	22.9
United States	2000	15,356	3,372	7,722	4,262	22.0	50.3	27.8
Belgium	1997	20,550	7,122	8,447	4,981	34.7	41.1	24.2
France	1994	19,363	5,631	8,578	5,154	29.1	44.3	26.6
Germany	2000	17,500	5,916	7,545	4,038	33.8	43.1	23.1
Netherlands	1999	17,521	4,392	8,265	4,864	25.1	47.2	27.8
Finland	2000	18,746	7,143	7,219	4,384	38.1	38.5	23.4
Sweden	2000	20,191	9,014	7,121	4,057	44.6	35.3	20.1

**C. Elder Households**

Australia	1994	\$15,229	\$7,621	\$0	\$7,607	50.0	0.0	50.0
Canada	1997	23,246	15,908	0	7,338	68.4	0.0	31.6
United Kingdom	1999	16,580	10,662	0	5,918	64.3	0.0	35.7
United States	2000	18,161	13,142	0	5,019	72.4	0.0	27.6
Belgium	1997	25,426	18,863	0	6,563	74.2	0.0	25.8
France	1994	24,874	18,160	0	6,714	73.0	0.0	27.0
Germany	2000	20,739	15,550	0	5,190	75.0	0.0	25.0
Netherlands	1999	19,081	12,890	0	6,191	67.6	0.0	32.4
Finland	2000	9,242	3,694	0	5,548	40.0	0.0	60.0
Sweden	2000	20,593	15,229	0	5,364	74.0	0.0	26.0

**D. Childless Households**

Australia	1994	\$5,605	\$2,233	\$0	\$3,372	39.8	0.0	60.2
Canada	1997	7,893	4,250	0	3,643	53.8	0.0	46.2
United Kingdom	1999	6,714	3,700	0	3,014	55.1	0.0	44.9
United States	2000	5,370	2,746	0	2,624	51.1	0.0	48.9
Belgium	1997	10,564	7,137	0	3,427	67.6	0.0	32.4
France	1994	9,455	6,145	0	3,311	65.0	0.0	35.0
Germany	2000	6,702	4,259	0	2,443	63.5	0.0	36.5
Netherlands	1999	7,397	4,519	0	2,878	61.1	0.0	38.9
Finland	2000	5,807	3,238	0	2,568	55.8	0.0	44.2
Sweden	2000	7,090	4,937	0	2,152	69.6	0.0	30.4

Source: Authors' calculations from the Luxembourg Income Study.

**Appendix Table 3. Ranking of Countries: ALL Person Inequality by 90/10 Ratio**

		<b>DPI</b>		<b>FI</b>		<b>Cash Equivalent Income</b>	
(Most Inequality)	1	United States	5.43	United States	3.65	United States	4.86
	2	United Kingdom	4.54	United Kingdom	3.49	United Kingdom	4.18
	3	Australia	4.22	Canada	3.34	Australia	4.05
	4	Canada	3.99	Australia	3.31	Canada	4.03
	5	France	3.53	Belgium	3.17	Belgium	3.74
	6	Germany	3.29	France	3.00	France	3.61
	7	Belgium	3.19	Finland	3.06	Finland	3.48
	8	Netherlands	3.12	Germany	2.93	Germany	3.47
	9	Sweden	2.95	Netherlands	2.80	Netherlands	3.28
(Least Inequality)	10	Finland	2.90	Sweden	2.69	Sweden	3.17
		<b>Average</b>	<b>3.72</b>	<b>Average</b>	<b>3.14</b>	<b>Average</b>	<b>3.79</b>

Source: Authors' calculations from Figure 8.