Income Distribution and Public Social Expenditure: Theories, Effects and Evidence *

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"Political irrelevance not withstanding, inequality is exacting a considerable cost on the society and turning attention to it would hardly be 'frivolous'." – Smolensky (2002)

What is the relationship between economic inequality and public social expenditure?

Why might it matter?

Because income distribution and social spending are jointly determined by economic growth and political decisions, these issues have long been analyzed by both economists and political scientists. Over seventy years ago, R. H. Tawney, discussed the growth and significance of public provision for education, health and social services, and noted that "the standard of living of the great mass of the nation depends, not merely on the remuneration which they are paid for their labour, but on the social income which they receive as citizens"—and he saw the expansion of such public spending for "purposes of common advantage" as the primary route to overcome inequalities of opportunity and circumstance (1964:133, 121). In his now-classic book, Esping-Andersen has more recently (1990) argued that there are significant differences between countries in the processes that determine public social spending and that these socio economic forces are shaped by the nature of states and their differences.

This paper represents an attempt to contribute further to this tradition. We begin with an overview of some recent literature and data on the relationship between inequality and public social expenditure. We follow the tradition of much of this research and focus on developed nations—developing and third world countries are left in the background.[1]

Even among the world's affluent nations there are many different channels by which goods and services are distributed. Although nonexcludable goods, such as national defense and clean air, are provided to all citizens of a nation and by their nature are not subject to social or economic standing within a nation, governments also take economic, social, and moral stances on the distribution of income or consumption among their citizens. These views help shape the actual inequality with which goods and services are distributed throughout a nation.

Throughout this paper, we will refer to two meanings of the terms "inequality" and "redistribution". Income redistribution through tax and transfer systems may alter the inequality of outcomes (as in the Temporary Aid to Needy Families (TANF) program in the United States). As well, redistributive programs may attempt to equalize the prospective life chances of individuals from different racial, ethnic and social class backgrounds, i.e., reduce inequality of opportunity. Because the philosophical justifications for reducing inequalities of outcome or inequalities of opportunity are often quite different, the analytical distinction is worth making. However, as a practical matter, policies which affect outcomes also affect opportunities. In particular, the distribution of health and health care, child bearing, child support systems, marital institutions, and political institutions mingles both sets of issues.

Because we are interested in how economic inequality affects social expenditures and how this differs among affluent nations, we use cross-national comparisons. The international data indicate that political and economic systems respond to market driven and demography driven changes in social and economic status differently; so it is of interest to policy makers to see how policies are affected by socioeconomic change and especially in reaction to market driven changes in poverty and economic inequality.

It is not our intent to evaluate and reconcile all of the different dimensions of distribution. There is however, much social science research that has examined these issues on limited scales, which we will consider. Political science researchers, such as Moene, Wallerstein, Iversen, and others have summarized and modeled the different paths a nation's political system can affect its distribution of economic and social parameters. Sociologists such as Kenworthy, Pontusson, and Stephens have also looked at these issues through a similar lens. Economists, such as Atkinson, Lindert, Rainwater, and Alesina also often look to multivariate analysis to more fully understand the correlations between distribution and social good provisions—but much remains to be done.

We begin by examining the data on economic inequality and noncash goods in a cross-

national context. We then summarize a selection of key articles in the recent literature dedicated to these issues. We conclude with our own thoughts on where this literature now stands, where it needs to go, and the issues which need further research.

1. Economic Inequality, Cash Benefits and Public Noncash Merit Goods

European discussions of social policy sometimes refer to the concept of a "social wage" (or "family income package"), as shorthand for the aggregate value of the goods, services and transfer payments that the state provides to all residents, as a basic right of citizenship (Sefton 2002). Since the economic resources necessary to deliver a social wage can be seen as (approximately) equivalent to a lump sum payment to all citizens, it is necessarily of much greater relative importance for those who are less affluent in market incomes (see Smeeding 2002b, Smeeding and Rainwater 2002).

This section discusses the differences between pre- and post-tax and transfer income and the impact of the varying size of the "social wage" on the distribution of real incomes across nations. In the first part (1.1), we present a general discussion of economic resources and public goods, and compare incomes and living standards cross-nationally. In the second sub-section (1.2), we explicitly investigate the differences in disposable (post-tax and transfer) income inequality. We then turn to the relative well-being of children in 1.3 and the earnings gap between the top and bottom of the distribution. In the fourth part (1.4), we add noncash incomes and discuss how such benefits affect general measures of income and distribution. Finally, we describe the differences in the provision of (net) public benefits and taxes for different nations.

Our review of the literature and what it suggests about income distribution, redistribution and inequality follows in Section 2. We summarize and conclude in Section 3.

1.1 Economic Resources and Public Goods

If cross national differences in social expenditures and inequality were small, there would be little to discuss, so a useful first step is to assess the current extent of differences across jurisdictions in economic inequality. However, it is clear that societies differ in the extent of their public sectors and in the degree to which social policy is delivered through in kind benefits or cash transfers. Thus, measures of inequality will differ across societies depending on the measure; either pre- or post- tax and transfer, which depend upon the size and design of the social wage. Such policies may also affect individual and labor market behavior and hence, over time, indirectly affect pre-tax and transfer inequality. However, we abstract from this latter behavior and focus instead on cross-national variation in income and inequality using standard pre- and post-tax and transfer income measures.[2]

Total social expenditures vary greatly across nations. In the developed countries, total social expenditures as a percent of GDP (in 1998) ranged from 15% in the U.S. to 26% in the U.K. to over 30% in Sweden (OECD 2002b).[3] The available evidence (Smeeding 2002b) indicates that social expenditures as a fraction of total government spending in OECD nations range from 0.67 in Australia to 0.90 in Denmark and Sweden. That is, 67 to 90 percent of all government spending is made up of redistributive cash or in-kind benefits.[4] Thus, our topic is about most of what governments actually do.

In this section of the paper, we trace cash and near cash (food, housing) benefits for OECD countries back over the past 20 years, using data from the OECD (2003). We present these estimates in comparable format in Figure 1. Here 17 OECD nations—all of the major nations except for the Central and Eastern Europeans—have been grouped into 7 clusters: Scandinavia (Finland, Norway, Sweden); Northern Europe (Belgium, Denmark, Netherlands); Central and Southern Europe (Austria, France Germany, Italy, Luxembourg, Spain); Anglo Saxony (Australia, United Kingdom and Canada); the United States and Mexico.[5]

The Scandinavian and Northern Europeans follow similar patterns—high levels of spending showing responsiveness to the recession of the early 1990s in Sweden and Finland, and a tapering after these events. The Central and Southern Europeans and the Anglo-Saxon nations show remarkably similar spending patterns, again rising in the early 1990s but overall at a level distinctly below that the other two groups. The United States is significantly below all these others and, by the late 1990s is spending at a level closer, in terms of GDP per capita, to Mexico than in the other richer OECD nations. These figures illustrate the wide differences in outcomes that one can find for money social spending, using figures that abstract from financing of health care, education and retirement for the elderly. They also correspond very closely to the measures of money and near-money income inequality used in the analytic literature in this area, including that presented below.

In general, publicly supplied goods are more important to the purchasing power of the poor than the rich because they are more equally distributed than income and because they are supplied relatively equally as government outlays per person (or per student) for both rich and poor. Although publicly provided social insurance programs may bring benefits to both rich and poor, the amount of payment is more relatively important to those less affluent in market income terms, and their probability of receipt is often greater (e.g., the greater employment insecurity of low wage workers implies a greater probability of unemployment insurance receipt). We therefore begin this paper with some estimates of the aggregate value of redistributive public expenditures and their impact across the income distribution.

Our basic question in this section is: "what is the distribution of real income within countries?" When one adds between-country inequality to this inequality within nations, a related question is the real standard of living at each point in the income distribution? In particular, although the United States has the highest average income, income inequality is also highest in the United States. Might it be true that being poor in the United States is better (in the

sense of having an absolutely higher standard of living) than being middle income in other rich countries? The answer is given below.

Smeeding (2002b) estimates the real purchasing power (PPP) parity-adjusted distribution of disposable cash and near cash income—i.e. disposable income—for a number of countries.[6] In general, comparisons of "real" economic well-being or "living standards" look very different across and within countries depending on whether one looks at the relatively rich or the relatively poor.

Here we compare PPP-adjusted distributional measures of living standards for all households and for households with children. We separate disposable income into two components—the part that is derived from market activities (market income, which includes earnings, income from capital and private transfers) and that part which comes from redistributive government transfers, net of the direct taxes paid by citizens which fund these transfers. To these we add in noncash benefits in the form of education and health care for children. (We explore the impact of taxes later in Section 1.5.)

We present evidence on absolute and relative living standards across countries because there are two different types of perspective on why inequality may matter for social outcomes. For example, if it is available material resources during a person's childhood which affect future social outcomes (such as adult earnings capacity), then greater present inequality of outcomes implies both an increase in current inequality of opportunity and in future inequality of outcomes because of the reduced material inputs available to low income families. In this case, the absolute comparison of living standards across countries makes sense because a smaller share of a larger pie could add up to "more pie"—the relative disadvantage of poor households in a rich country could be counterbalanced by a (possibly) greater access to material goods. However, if one thinks that the social pathology of deprivation plays itself out (at least within relatively affluent OECD nations) primarily in terms of the consequences of an inability to attain socially defined

norms of consumption, then it is *relative* income within countries that is all important, and cross country comparisons of the absolute living standards of specific income deciles are of little relevance.[7] We do not want to preclude either of these perspectives.

1.2 Some Results: Real Cash Income for All Persons

Combining PPP's and relative disposable income data for 13 countries we can compare the distribution of real incomes across nations and over the income spectrum, using Figure 2. We compare real incomes adjusted for household size using the square root of family size and presented in a per person basis (see note 3 in Figure 2 and Smeeding and Rainwater 2002). We present not only relative incomes at both the P_{10} and P_{90} income levels, but also real incomes because all percentiles are given as a fraction of the median United States equivalent disposable income per person ($28,005 in 1997 dollars). The reader should note the relative, within nation comparisons as well as the "real income" comparisons, even though the focus of the figure is the real comparisons. (Appendix Figure A-1, in contrast, makes only relative comparisons within nations for a larger set of nations).

Are people at the bottom of the income distribution in the USA "better off", in absolute income, than people at the bottom of the income distribution elsewhere? Apparently not—at the 10^{th} percentile in Figure 2, the United States has the third lowest real income level relative to the median. Only in Australia and the United Kingdom (with average incomes and GDP per capita which are roughly 67 and 75 percent of the United States values, respectively) do low-income persons have a lower real living standard (in money terms) compared to that in the United States. All other nations have higher living standards for the average low-income person measured in equivalent disposable cash income terms, despite the fact that all have average real incomes (and average GDP per capita) far below those found in the United States (Smeeding and Rainwater 2002, Tables 2 and 3). For instance, the average Dutchman has a real income 80 percent as large

as that of an average American, but the low-income Dutchman has an income that is 110 percent of an average American (That is, the Dutch real income at the 10th percentile is 43 percent of the United States median compared to 39 percent in the United States). The United States is about 10 percent below the 13-country average P_{10} of 43 percent of the median.

At the other end of the spectrum, the average high-income American has a living standard that is 209 percent of the living standard of the average American. The next nearest nation is at 185 percent of the United States median (Switzerland) and the next one 167 percent (Canada). On average, a rich person in the United States has a living standard that is 43 percent higher than the average rich person in the other 12 nations (i.e., 209 compared to 146).[8,9]

Combining these percentiles we find two measures of economic distance the decile ratio and the real income gap between the 10th and 90th percentiles (expressed in 1997 United States dollar terms). The gap between rich and poor in America given by the decile ratio is the largest of all the countries at 5.36. The equivalent income (EI) of a low-income person is $10,927 (or 39 percent of $28,005) while that of a high-income person is $58,530 (209 percent of $28,005), producing a gap of $47,608. This amount is 1.64 times the average gap of $29,081, and is more than $11,000 higher than the next nearest gap ($36,406 in Switzerland). The smallest gap ($17,643) is found in Sweden.

1.3 Real Living Standards for Children

Interest in real income for children goes beyond the situation of poor children alone—in comparative studies one also wants to know about the real standard of living of average and well-off children as well. These measures are of interest for two reasons. Because children are individuals, albeit "junior citizens," they have a right to consideration of any deprivation in their current consumption, right now—and some would argue that their lack of control over the determinants of family income gives them a special claim (as "deserving poor") on society's

sympathies. Because children are also "potential adults," inequality in household income may also serve as an indicator of equality of opportunity and as a dollar measure of the types of life chances that a parent can provide for his or her child. Concern about economic inequality among children is therefore based on a mingling of concerns for both equality of outcome and opportunity.[10] Figure 3 addresses the issue of real incomes for children.

Figure 3 is constructed exactly the same as Figure 2, with all incomes expressed as a fraction of the 1997 United States overall median adjusted disposable ($28,005) but with income per adult equivalent weighted by the number of children in the household. The percentiles differ from those in Figure 2 because Figure 3 presents only the incomes for all persons in families with children, and because on average families with children have lower equivalent incomes than do all families. On average children's real incomes at the 10th percentile are the same as all persons real incomes at the 10th percentile (43 percent of the median in Figure 3) but the average incomes of families with children are less than those of all families, mainly because the 90th percentile for children (13 in Figure 4) is below that for the whole population (146 in Figure 2). Thus, inequality as measured by the decile ratio is less than average for children and the real income gap is also lower for children.

The nations with the highest P_{10} offer their poor children the least current deprivation and, to the extent that current resources enable future outcomes, the best economic chance for future success. We would emphasize that the impact of childhood income on life chances is likely to be highly non-linear: although a few dollars more may matter a lot for the severely disadvantaged the same dollar amount is likely to have relatively little impact on the life chances of the already affluent. Mayer (1997) and others have also argued that income alone is a poor proxy for life chances for middle class households with children—another $100 or $1,000 per child for middle income or well-to-do families makes little difference to their children's overall life chances compared to other influences (parents, schools, communities, peers, etc.). But, as

Duncan et al. (1998) note, a child being born into a family with very low income (roughly a P_{10} of 31 to 37 percent of the median) has significantly poorer overall life chances.[11] Thus, the P_{10} for children is a meaningful and important indicator of a fair life chance, for those children who are least advantaged.

On this basis only a (low-income) child in the United Kingdom has a less fair chance at 31 percent of the median than does a child in the United States at 35 percent of the median, based on real incomes alone. Australian children are at roughly the same level of living as the United States kids while the next nearest is the unified Germany at 40 percent. All other nations have children's living standards that are at or above the average standard of 43 percent, which is 8 percentage points above the United States level, or 23 percent higher than the 35 percent United States value. In the United States, this is a $2250 per child deficit in 1997 PPP dollars. The USA is, *on average*, a rich nation. However, because it is also much more unequal than other nations, children in families at the bottom of the income distribution end up absolutely worse off than the worst off children in other nations. Simply put, the inequality extant among American children is not offset by the overall richness of the nation.

At the other end of the scale, American children in prosperous United States households have living standards 80 percent above the median person in the United States. Swiss children are also relatively better off (at 165 percent of the median). The average incomes of the best off children are 131 percent of the median, while United States children are 49 percentage points above this level—or $16,635 per child better off than on average.

These percentiles translate into decile ratios and real income gaps for children that are similar to those found in Figure 2. Here we interpret the economic distance measure as a measure of equality of opportunity or "equal chance." Nations with smaller economic distances (or lower real income gaps) provide more equal chances for their children, both high- and low-income children. The United States gap in decile ratio (5.11) and real PPP-adjusted per child terms is

again the highest. Only one other nation (the United Kingdom) has a decile ratio above 4.00. The real income gap between rich and poor kids in the United States of $40,327 is by far the largest, with Switzerland and Canada the only others above the $30,000 level, and with the other nations near or below the $24,861 average difference. The above average gaps between poor and rich kids in these three nations must be seen in light of the fact that all three have above average P_{10} ratios as well. The real income gap of $40,327 in the United States means that low-income children have resources of $9,802, assuming all resources are evenly split among household members. In contrast, high-income families have $50,129 to spend on each child.

Overall, our conclusion is that there are significant differences in real income levels and inequality across the countries we have examined. If one uses the U.S. as a benchmark, it is clear both low income individuals and poor children are sometimes significantly worse off than their counterparts in other developed countries measured in dollars of equal purchasing power. However, up to this point we have not considered noncash benefits, a topic to which we now turn.

1.4 Public vs. Private Income and the Added Value of Noncash Benefits

The "social wage" can be paid partly in cash and partly in services—but how much is inequality among children affected? To examine this issue we have added the PPP-adjusted value of public health care per child and the PPP-adjusted value of elementary education per child to the cash income figures from the Luxemburg Income Study (LIS), also based on OECD (2002a, 2002b) estimates, and also in 1997 PPP-adjusted dollars. Healthcare spending for children are assumed to equal half of the government cost of healthcare per capita. Recent cross-national research on the cost of healthcare by age groups suggests that this is the average cost of providing insurance per child in rich nations (Smeeding and Freund 2002).[12] Education spending is estimated by the PPP-adjusted spending per elementary school child in every country. All

benefits are assumed to be valued at government cost by the recipients of these benefits, a procedure which clearly understates the value of publicly provided education by implicitly ignoring the rate of return to education. We ignore publicly subsidized childcare, secondary and tertiary education benefits, and all other noncash benefits for youth in this paper.

Smeeding and Rainwater (2002) were not able to directly allocate noncash government benefits across the distribution of disposable incomes here but we assess their importance to children alone based on Smeeding (2002b). Table 1 indicates that noncash benefits are, at the median, higher than cash benefits for children at the median.[13] Only in Sweden, Finland, France, and the United Kingdom are cash benefits greater than noncash benefits for the median child. Health care benefits are smaller than education benefits everywhere. The relative balance between spending on cash and noncash programs differs markedly across nations.

Why do some nations provide, for example, public housing while others provide cash (which could be spent on food, or on alcohol) to enable low income people to pay the rent? Although in-kind benefits are important for child welfare, economists have long argued on efficiency grounds for cash transfers. Presumably, the parents of affected children would prefer to receive the same amount that is being spent on non-cash benefits as a cash transfer, because that would enable them to choose the utility maximizing consumption bundle (from a set which includes the actual in-kind program), or another better alternative of equal cost. In such a case, taxpayers are no worse off and recipient families are potentially better off and as economists would say, a clearly a Pareto superior policy change. However, the crucial issue is one of agency—parents may or may not spend cash transfers for the benefit of their children and there is a potential cost from misallocation within the family. Hence, social policy designers have often preferred to deliver in-kind services, rather than provide cash transfers—and the tradeoff is the efficiency advantages which can be obtained from parental choice weighed against the degree to which parents can be trusted to act in the best interests of their children.

From the point of view of the child and from the point of view of the taxpayer, the large size of non-cash benefits means that they have a large effect on child well-being. In our data, we have no way of estimating the impacts of the balance of cash transfers and in-kind service delivery programs, i.e., the relative size of the efficiency benefits of devolution to parents compared to the potential agency costs of misallocation within the family. We therefore add together the dollar value of cash transfers and in-kind services—a procedure which implicitly assumes that these opposite influences offset each other.

In practice, the United States spends the least on cash benefits but second most on noncash benefits (see Table 1). Only the Norwegians spend more for noncash benefits than does the United States. In fact, many nations spend far below the average amount on noncash benefits, and most spend far less than the United States. When the two are added together, the United States is close to the average of total benefits for all the nations combined but much more of it is spent in ways demonstrating little trust in parental decision making. Measured by total benefits, Australia, Netherlands, and Germany look to be making the least effort, with their education spending being particularly low (see Allmendinger and Leibfreid 2002, on this point). While these values differ by income quintile, the median benefit picture suggests that public noncash benefits are indeed important.

Since we are presuming that these in kind services are equally distributed, their effect on the overall distribution of resources across families with children necessarily lessens the relative distance between the rich and poor child in every nation. Because health (everywhere but in the United States) and education benefits are assumed to be the same regardless of income level, the proportionate effect is greater on low-income children than on high-income ones. Thus, the P_{10}'s rise on average by 6 points, or 14 percent, to 49 percent of the median. The P_{90}'s change by 12 points, or only 10 percent, to 131 percent of the median. The overall ratio of rich to poor falls from 3.11 based on cash alone (Figure 3) to 2.47, when noncash benefits are also taken into

account (Figure 4). However, the dollar distances largely remain unchanged as both rich and poor children are assumed to receive more or less equal benefits.

In low-cash income nations, like the United States, noncash benefits raise the fair chance measures pushing the P_{10} to 46 percent of the median—still below average but now putting American children on a par with French children and above German, Australian, and Dutch children. Rich American children are still far above the median, but the decile ratio is now 3.51 and not 5.11 in the United States. In Norway, Denmark, and Sweden, the ratio of rich to poor is under 2.0. Clearly, noncash benefits have a leavening effect on the differences between rich and poor nations.

This result is highly sensitive to the assumption that noncash benefits are the same value for rich and poor children. In practice, children are at the receiving end of a series of decisions in which educational resources are allocated to school boards, to specific schools and to classes within schools. If, for example, school spending is locally financed from the property tax or local income taxes, as is partially the case in the United States, the revenues available from low income neighborhoods may mean less spending for low-income children compared to high-income ones. Card and Payne (1998) and Wilson (2000) found that public school spending in the United States may differ by 65 to 75 percent between rich and poor districts. However, recent changes in school financing legislation have greatly equalized within school spending (see Murray et al. 1998 and Corcoran et al. 2002). In a recent paper, Wilson et al. (2003) find that once school expenditures are assigned (at the school district level) to students ranked by family income, spending levels between the top and bottom quintile varied by only 15 percent at most in 1998. Adjusting for the differential costs of providing education (according to local wage costs and other factors) reduces this difference to 8 percent. However, adjusting for student needs in terms of the extra costs of educating bilingual, disabled and poor children increases the differences to 25 percent or higher. If poor children, therefore, received education benefits not of

$5960, but rather $5000, while rich children received $7000 in benefits, the P_{10} and P_{90} ratios in the United States would be 43 and 165, respectively, in Figure 4, and the results would be much the same as if only cash benefits were counted. In the United States, the importance of the local property tax base for education funding still differs by locality even after states redistribute to reach minimally acceptable spending levels. But most of the other countries in our data are unitary states, with national government allocation of educational expenditure. In educational finance, each country has its own complexities but there are some grounds for suspicion that national systems are less likely to have substantial differences in school resources than highly fragmented school systems.

Similarly, national systems of public health care are not precisely equal in actual program delivery but have strong bureaucratic and political pressures pushing them towards comparable provision. On the other hand, we know that healthcare benefits are different in the United States, since the Medicaid program which supports low-income children in the United States is very different, in terms of outlays per child, than are employer subsidized programs for the middle class and well-to-do. These differences are reflected in the estimates (see also Table 2 and Appendix Table A-1). Hence within-country distributions of noncash benefits are crucial to the results obtained.

The larger issue here is the notion that the rich can, potentially, "drop out from the top." If inequality greatly increases, at some point the rich can afford to opt out of public programs and purchase substitute services in the private market, perhaps finding it advantageous to do so. In all countries, the fact that taxes increase with income, while benefits are approximately a lump sum amount, means that the rich will pay more in taxes than they receive in value of public services—but the extent of the gap depends on the degree of inequality in market incomes. When the affluent can afford to forego public benefits in order to purchase private alternatives not available to the poor, the under-funding of public services does not affect them personally.

Indeed their incentive to "go private" increases with the size of disparities in market income. Part of this private/public substitution may occur at the firm level, as employers provide highly paid employees with benefits for health and retirement, which supersede government-provided benefits for the same purpose. But whether the mechanism is firm level or personal decisions, when a society becomes more unequal, the same question is increasingly often posed: why should high-income people support public programs?[14]

1.5 The Importance of Taxation and Public Provision of Benefits

Inequality is much higher in the United States than in other countries with similar (and indeed, lower) average incomes. Furthermore, American inequality differs noticeably from that in other rich countries primarily because of differences in relative income levels in the lower tail of the American income distribution. As we have observed, an American child at the 10th percentile of the United States income distribution has an adjusted disposable income that is just 35 percent of United States median income, and between 43 and 46 percent of the median, depending on how noncash benefits are counted. In this context, government efforts on behalf of low-income children are crucially important. Table 2 presents the percentage of net public benefits—cash and total (cash plus noncash) benefits received, net of direct taxes paid for social programs—at the various percentile points of the income distributions in each nation (Appendix Table A-1 contains the details). Here we count not only the amount received by each child, but also the direct taxes that the family pays to the government for all social benefits—for the elderly as well as for children. We estimate tax costs by assuming that all families pay equal proportions of their taxes for social expenditures (transfers in cash and in-kind) and for exhaustive government expenditures (defense, police, environment, and other public goods) in each nation. The share of every dollar of tax paid for social expenditures, ranges from 67 cents per dollar of

tax in Australia to 90 cents per dollar in Norway. The remainder is used to fund non-excludable public goods, which are not allocated here.

On average, more than half (52.9 percent) of the total disposable incomes of low-income families with children come from public cash transfers—up to 67.3 percent once noncash benefits are included (Table 2). The fraction of total incomes that are public benefits varies more with earnings in the bottom of the income distribution than anywhere else. Countries with relatively large numbers of low-income children and families with little earnings, like the United Kingdom and Australia, find that public benefits are 80 or 90 percent of total incomes at the bottom of the distribution. Countries where low-income families work—even high tax-high benefit nations like Denmark and Sweden—find that public cash benefits are one-quarter or less of total cash incomes. Counting noncash benefits as well raises the fraction of income that is publicly supported in every nation to at least 50 percent, including both Denmark and Sweden. The variation in benefits at the bottom is also related to two other factors—the wage level and the generosity of benefits. For instance, low-income parents work more in the United States as in most other nations but the wages they earn are much lower (Smeeding 2002b, Osberg 2002a, Smeeding, Rainwater, and Burtless 2001). Also, public benefits in cash are less generous in the United States, Australia, and the United Kingdom than in most other nations, thus limiting the effects of transfers on low incomes (Smeeding 2002a).

The importance of the state is income redistribution is evidenced by the fact that public benefits make up more than half of total resources for low-income children in every country shown, once noncash benefits are included. Conversely, taxes paid exceed benefits received for upper income groups. At the median, families pay almost as much in taxes for social programs as they receive back in cash benefits, with all families with children, save Britain, Sweden, and France, coming out net taxpayers. But when noncash benefits are included, children in all countries except Germany and the Netherlands are net beneficiaries from the tax-benefit process.

Thus, noncash benefits for children may be important elements of the calculus of support for social programs among families with children in these rich nations.

Because our data includes only direct taxes, it represents an incomplete picture of net fiscal incidence. Nevertheless, well-to-do families with children are net taxpayers everywhere but France. The deficit is very large—rich parents pay over 25 percent more in incomes for direct taxes than is received in benefits for the average rich family. Once noncash benefits are counted, families on average almost break even, though the balance is still in deficit for almost all nations.

In fact, public support for both cash and noncash benefits may be strongly affected by the income position of families. While our estimates are rough, we find that high income families, who can afford private substitutes for public services, have less incentive to vote for the funding of public services. Noncash benefits clearly play a large and equalizing role for most families but greater inequality means that private health insurance or private schooling may be an attractive alternative to public sector provision for high-income families. Thus, in the next section we look at the literature that examines to what degree the political economy of more unequal societies respond with lessened support for public services.

2. The Literature on Public Redistributive Goods and Inequality

2.0 Introduction

The literature on public goods and inequality can roughly be categorized into three main threads and we look at each in turn. The first looks at the relationship between specific measures of social capital and inequality (for example: Putnam 2001, Costa and Kahn 2001, Knack and Keefer 1997, and Alesina and La Ferrara 1999, 2001).[15,16] The intent of this literature is to capture national or jurisdictional (e.g., United States state; Canadian province) tastes for redistributive and collective goods. The second tests the median voter hypothesis (and the closely

related issue of social mobility) or other closely related hypotheses (i.e., social affinity hypothesis), relating it to inequality its effects on growth or on social spending within and across countries. These papers (Milanovic 2000, Bassett, et al. 1999, Alesina and La Ferrara 2001, Kristov, et al. 1992) are typically motivated by the relationships between measures of inequality (e.g., median income levels, share of the median income, or Gini coefficients) and growth but they focus on the impact of inequality decision-making process of the median voter. There is also a much more robust and more recent literature on this topic, including the works of Moene and Wallerstein (2001, 2002), Pontusson (forthcoming), Bradley, et al. (2001), and Kenworthy and Pontusson (2002), which address similar issues. Finally, the third strand we identify is the literature on inequality and growth as they are both affected by redistributive public spending--specifically the effects of health and education benefits This literature includes the papers by Perotti (1992, 1996), Bassett, et al. (1999), Persson and Tabellini (1994), Alesina and Rodrik (1994), Osberg (1995), Sala-i-Martin (1997); Benabou (1996, 2000), Castello and Domenech (2002) and most recently van der Ploeg (2003) and Gylfason and Zoega (2003) regarding inequality and redistribution, including education spending, and their interactions with economic growth.

A general comment to make about almost all this literature is that "redistribution" and "inequality" are usually interpreted, fairly casually, in terms of annual money income. Inequality in lifetime income and year-to-year income insecurity is rarely mentioned. However, many of the cash transfers of the welfare state have a "social insurance" rationale, which is really about redistribution between contingencies, rather than between individuals who may not be "rich" or "poor" in a lifetime income sense, even if their current income is depressed.[17]

Many, if not most, of the programs of the modern welfare state have a "social insurance" rationale. In an insurance program, it is always the case in any given year, that some policyholders receive net payouts (e.g., fire insurance purchasers whose houses burned down)

while others make net payments (e.g., the policy holders whose houses did not burn)—but that does not imply such insurance is "redistributive" in a forward looking sense. Social insurance programs are no different.

For example, in any given year worker's compensation systems pay benefits to those injured in workplace accidents. This can be seen a transfer program that redistributes income from more affluent healthy workers to less well off injured workers. However, it could also be seen as an insurance program whose benefits in greater income security are received by all workers and which may not redistribute expected lifetime income at all. Unemployment insurance benefits and income support programs can be similarly interpreted. Since those who are lucky one year may be unlucky in a subsequent year, the longer is the accounting time frame, the less is the perceived redistributional impact of a social insurance program.

However, even those who are, as things turn out, lucky every year (e.g., because their house never burns or they never actually have a workplace accident) are better off because of the availability of insurance. Hence a better measure of redistribution is the difference among people in net actuarial value of social insurance coverage. Since the lifetime income poor are more likely to be exposed to such shocks as unemployment or workplace injury, the actuarial value of coverage in social insurance programs *is* redistributive. However, the net value of redistribution is only equal to the predictable difference in expected value of benefits, not the face value of benefits. Similarly, the measurement and the conceptualization of the "redistributive" element of in-kind public services (such as education or health care) depend heavily on methodological assumptions.[18]

2.1 Cross-state and Cross-national Research on Redistribution Social Capital and Trust

We begin our review of the literature that investigates expenditures and inequality with a review of some of the studies that focus on social capital (see footnote 14). These papers

investigate issues related to trust, community participation and general social organization. These authors are primarily interested in how individuals (and groups) interact with each other and government, in addition to how they broadly *perceive* society and government and the relationship between the two.

In the first line of research, that by Costa and Kahn (2001) and Alesina and La Ferrara (1999), multiple regressions are run across the states of the United States using a wide variety of datasets, which are difficult to compile for a large number of countries (see Appendix Table A-2). In Alesina and La Ferrara, the authors use the General Social Survey (GSS) and Census state data to construct inequality measures by U.S. states to determine the proportions of respondents involved in any number of social groups. Such groups include churches, fraternities, hobbies, sport clubs, youth groups, literary groups, etc. They construct a probit model where utility is gained from involvement in community activities, and thus measured as a binary variable. Demographic controls include age, marital status, race, education, number of children, real income, full-time/part-time status, and controls for United States state dummies (see their Tables 2 through 6). Predictors of participation typically enter as expected: lower education and younger children tend to reduce participation; women participate less as do younger people (below age thirty); and increases in income tend to increase participation. Additional results indicate that inequality and racial and ethnic fragmentation tend to lower participation in community activities.[19] They conclude that community heterogeneity, measured by fragmentation and inequality, statistically significantly and nontrivially decreases community participation.

Alesina and La Ferrara (2001) extend these ideas further by addressing perceptions of economic and social mobility as they affect peoples taste for redistribution within the United States. They report "people who believe that American society offers equal opportunities to all are more averse to redistribution in the face of increased mobility." Those that do not perceive there to be an equal chance or a great deal of mobility do not find social mobility as a good

substitute for redistributive policies. Thus the political economy approach from the economists' point of view suggests that preferences for redistribution are tied to beliefs about equality of opportunity and social and economic mobility. However, one must emphasize that Alesina and La Ferrara are examining differences in attitudes within the United States—i.e., within a common context of understanding of the acceptable domains of inequality and a common perception of basic human rights. In international comparisons, one cannot explain the unusual level of income inequality in the United States by some unusually high level of belief in equality of opportunity, since the responses of Americans to comparable questions in attitudinal surveys are often much the same as those of respondents in other countries.[20]

Also using the GSS for an analysis of U.S. states, Kawachi et al. (1997) relate social capital indicators, including trust, to mortality rates. They find that states with high levels of mistrust have higher rates of mortality, adjusting for age. In percentage terms, they claim that a "percentage increment in people agreeing that others would take advantage of them was associated with an increase in overall mortality of 6.7 deaths per 100,000." Replicating these types of studies cross-nationally would be a difficult task, primarily due to data restrictions and consistency although Helliwell (2002) uses the World Values Survey cross-nationally in a similar manner.[21]

Drawing on a number of studies and data sources Costa and Kahn (2001) seek to explain the observed decline in social capital in the United States. They conclude that rising community heterogeneity and in particular, rising income inequality explain the fall in social capital outside the home (see also Putnam 2001 and Soroka et al. 2003) La Porta et al. (1997) focus on the effects of trust on large organizations, measured by "government effectiveness, participation in civic organization, size of the largest firms relative to GNP, and the performance of a society more generally." Similar to the findings in Costa and Kahn, Alesina and La Ferrara, Kawachi et al. (1997), and Fukuyama (1995), La Porta et al. (1997) find that trust raises civic involvement

and government and social efficiency. All of these papers therefore, find at least some evidence that social capital and the relationships between people or communities plays at least some role in growth or inequality.

Going further, Knack and Keefer (1997) tie the differences in social capital to differences in trust and civic cooperation in a cross-national context (including developing nations), arguing that low social polarization and institutions which constrain governments from making arbitrary acts, leads to higher levels of trust.[22] The links between inequality, trust, and social spending are clearly important here, and the large variation in countries gives perspective to our "rich country" efforts.

Closely associated to the social capital studies is the small literature which relates various measures of trust to economic outcomes. Recent work by Slemrod (2002) and Slemrod and Katuscak (2002) use the same data used in this study to look at the various impacts of trust. In the latter paper the authors use the WVS data with additional controls for age, education to show that "on average, a trusting attitude has a positive impact on income, while trustworthiness has a negative impact on income" Slemrod (2002) uses the first wave of the WVS to examine the relationship between the extent of tax cheating and the size of government. Clearly, if trust is related to income and taxes, the effectiveness of government policies will be affected and in turn will impact redistribution and social expenditure decisions. Using three-stage least squares, the author claims that "tax cheating is lower in countries that exhibit more (not-government-related) trustworthiness." Additionally, when he considers the effects of prosperity levels, and how prosperity depends on government size and individual levels of trust, he finds some evidence "that both prosperity and government involvement are higher in more trusting societies."

Other work in the area of trust and economic outcomes include studies by Knack and Keefer (1997), Zak and Knack (2001), and Knack and Zak (2002) who make similar conclusions. Knack and Keefer (1997) find that trust exhibits a strong and positive relationship

to growth while Zak and Knack (2001) introduce other influences on growth, including formal institutions, social distance, and discrimination. In the oft-referenced Zak and Knack (2001) paper, the authors' general equilibrium model matches consumers and brokers to test differences in trust across societies and what the consequences of different levels of trust have on the economy. The authors examine the relationship between trust and growth, finding that a one percent increase in trust increases a country's Investment/GDP ratio by 0.2 percent and Growth by 1.1 percent (elasticities calculated at the sample means).[23] In a second set of estimates, Zak and Knack look to explain the determinants of trust and find that higher levels of inequality (various measures), social distance, and economic discrimination lower trust, while increases in "formal institutions" (contract enforceability and corruption) serve as a positive force on levels of trust. The Zak and Knack (2001) study is a prime example of utilizing trust in a broad, cross-national framework; research that has seen increased work over the past few years.

Broadly expanding work on trust and social spending, Glaeser, et al. (2002), construct a model of "institutional subversion." The model aims to capture how people, particularly the wealthy, subvert legal, regulatory, and political institutions by using forms of influence such as intimidation and corruption. In their model, it is the initial inequality in private resources that enables individuals to gain an illicit advantage in regulatory and legal processes, which both accentuates subsequent inequality and reduces future growth. This implies that institutional reform, especially in countries with weak legal and prosecution systems, may be both vital in addressing inequality concerns and difficult to implement. Other work in related areas has included institutional controls in an effort to measure such effects on inequality and other outcome measures.

We conclude that measures of trust in other individuals and trust in governments are important determinants of cross-national (and also cross-jurisdictional) institutions for redistribution. However, trust in government's ability to redistribute and willingness to assign

government the responsibility for redistribution may be perceived differently. Altruism towards ones neighbors and fellow citizens may not translate directly into enthusiasm for government as the mechanism for actualizing these wishes. The relationship between politics, institutions, economics, and more social outcomes, such as trust, is especially complicated within a cross-national framework. The next section looks more closely at work that examines the relationship between inequality and public expenditures per se.

2.2 Inequality and Public Expenditures

In the second thread of economics research, the question of how inequality, public goods and social mobility are related to one another and to economic growth is examined from a cross-national viewpoint. While the earlier literature refers almost exclusively to overall social spending and not as much to education or health care as separate entities with possibly different determinants and distributions, the newer literature explicitly addresses different types of spending, e.g., see Moene and Wallerstein (2002). We begin with the older literature.

Milanovic's (2000) paper outlines one economic theory of social expenditures and inequality as follows:

> When individuals are ordered according to their factor (or market) incomes, the median voter (the individual with the median level of income) will be, in more unequal societies, relatively poorer. His or her income will be lower in relation to mean income. If net transfers (government cash transfers minus direct taxes) are progressive, the more unequal is income distribution, the more the median voter has to gain through joint of taxes and transfers, and the more likely he or she is to vote for higher taxes and transfers. Based on the median-voter as decisive, more unequal societies will therefore choose greater redistribution.

Milanovic uses the LIS data set to analyze 79 country observations (waves 1 through 4). Using fixed effects, Milanovic regresses three measures of inequality (either the Gini coefficient for factor incomes, or the share of total factor income received by the bottom half (bottom quintile) of the population ranked by factor (market) income and the proportion of the population

over 65 years old, on the extent of redistribution (he defines the dependent variable as "how the share of (i) the bottom half of (ii) the bottom quintile (ranked by factor income) increases when we move from factor to disposable income.")

The paper does not, however, present any data on median voters or their incomes compared to the average incomes in society. It is not generally true that the outcomes of the median voter are measured at all by these different indices of inequality,[24] so there is only a very loose link between the model of voting behavior and the inequality measures he seeks to motivate. In fact, more affluent voters may be better able to exert their influence through political contributions, greater political knowledge, or greater access to elected officials (see Ansolabehere et al. 2003). Furthermore, the largest effects of greater inequality resulting in greater social spending by governments seem to come from social retirement expenditures.

In reviewing this literature, it is worth noting that there are strong arguments for distinguishing retirement income transfers from other issues Societies with broad and deep social retirement programs, e.g., Scandinavia and Northern Europe, tend to have lesser amounts of private pension income or savings because of the high benefits from government. These countries therefore have higher pre benefit inequality (Smeeding and Williamson 2001). However, in other countries, the tax exemption of registered private pension plan contributions means that the public sector contributes significantly, through tax expenditures, to the relative size of the private pension sector—but we do not capture this past role of the public sector when we examine current pension receipts. Hence, in the area of old age security, the true size of the public sector role may be more imperfectly measured by current expenditures than is the case for other types of social expenditures. As well, the aggregate value of pensions paid, relative to pension contributions received, (for both the public and private sectors) necessarily depends crucially on the age structure of the population.

Another variant in the political economy vein is provided by Kristov et al. (1992),[25] who proposed a variation on the "pressure group" model. In their model, governments transfer income between different "pressure groups," which are defined as groups who "form and expend their members' resources to promote or to fight any specific income-transfer proposal that has a serious chance of passage." Instead of assuming that members of pressure groups "vote their pocketbooks", the authors develop a model where individuals first decide which group to join and then decide how much effort to expend on political activity. Specifically how individuals translate their own economic status and their subsequent belies as to what social transfers should look like are at least in part determined by the economic climate of a society. Indeed, the authors note,

> Growth might be a negative influence on commitment to social transfers for a reason linked to the social-affinity hypothesis: the greater the recent rate of growth the stronger the perception of upward mobility, reducing sympathy with those presently poor.

Readers will note that this formulation conflates societal and individual income growth; income growth greatly complicates discussions of inequality. Over time, individuals typically receive higher incomes as they grow older, and in general, the year to year change in any person's real income can be expressed as the sum of the change in (1) the change in average real incomes of all people plus (2) their own personal *expected* change in *relative* incomes (e.g., due to greater age/experience) plus (3) any *unexpected* year to year variability in personal income flows. Each component has different implications for inequality.

As already noted, the relationship between growth in average income and redistribution has often been put in terms of social spending being a normal good—hence, higher rates of growth of average income should lead to *higher* rates of public spending. However, changes in average incomes do not necessarily translate into typical individual experiences of income change—it is, for example, quite possible for individuals to experience, over their own lifetimes, a faster rate of change in their personal incomes, even as aggregate growth slows, if the

age/earnings profile becomes sufficiently steeper. But would a faster *predictable* rate of change of income with age necessarily represent greater "mobility"? Even in a caste society, there is some payoff to job experience even if caste members never escape their origins. In a caste society, steeper age/earnings profiles would certainly mean that, in a cross section of individuals of all ages, more individuals move between income deciles—but by most criteria that would not imply greater "social mobility" or "equality of opportunity." Presumably, the concept of equal opportunity refers to opportunities for access to income streams with different expected lifetime present value.

To the degree that age related changes in income are predictable, individuals presumably make an approximate calculation of expected future lifetime income when they are young. Hence, one can think of such expectations as indicating an individual's social class origins. If so, there is an argument that it is the *unpredictable* component of incomes that is closer to what most people mean by "social mobility." But if "income mobility" and "income uncertainty" are much the same idea, how should one predict the voting behavior response to greater *uncertainty* in forecast income streams?[26] Predictions of the median voter response to greater *predictable* mobility in forecast income streams (i.e., a steeper age/earnings profile) are similarly unclear.[27]

Econometrically, Kristov et al. "test" social affinity theory by regressing a series of covariates that attempt to explain patterns in their dependent variable; social transfers as a share of GDP. They find that the larger is the gap between the rich and the middle (the 90/50 ratio), the *greater* is the redistribution that takes place, but the greater the gap between the bottom and the middle, the *less* the redistribution, presumably because of pressure politics (these are exactly the opposite signs to those we hypothesize). Kristov et al. argue that willingness to engage in political activity and resulting redistribution depend on poverty (the clear net gainers from redistribution), social affinity, the growth rate of aggregate income, and income asymmetry (income inequality). Their paper focuses only on the period 1961-1980, when there was both

growing equality and growing real incomes in most of the countries examined.[28] They find that the closer that the poor are to the middle class (or the higher is the mobility between middle and lower incomes), the higher is the willingness to redistribute. In later periods, e.g., 1980-2000, when not all incomes have grown to the same extent, and where rising not falling economic inequality has been the norm in some countries, and where overall rates of wage and income growth have been much less in most nations, the same results may not hold (Osberg 2002b, Smeeding 2002b). While the Kristov et al. paper does not seem to support our hypothesis, we can applaud it for separating the effects of rich and poor on outcomes, and for not just focusing on one simple summary measure of inequality.

The more recent literature on social spending and inequality is both diverse and rapidly expanding (see Moene and Wallerstein 2001, 2002, Kenworthy and Pontusson 2002, Bradley, et al. 2001). These papers all purport to test the "median voter" model, e.g., differences being expressed as the difference between the mean and median incomes or voters, but they then use earnings inequality for all earners (not voters alone) to express this difference. Voting turnout is then used as a measure of intensity of preferences and institutions are represented by right or left government parties. Additional controls in the models found in these papers include demographic and economic characteristics, and union and wage-setting institutions (also see Kahn 2002), among others.

The argument supporting the median voter hypothesis has received significant criticism. Some recent studies argue, as do we, that more affluent individuals may become less "public spirited" as they become more distant from the middle and lower classes. However, these same individuals may also be better able to further their own interests through political contributions, greater political knowledge, higher probability of voting, or greater access to elected officials. A recent study by Bartels (2002a) argues that constituents at the 75th percentile of the income distribution have almost *three times* as much influence on U.S. senators' voting patterns than

those at the 25th percentile. McCarty et al. (2003) also look at the U.S. and speculate that "richer voters represented by both parties are…less likely to favor redistribution and social insurance than were the counterparts of these voters a half-century earlier." Although it is plausible that in all societies the power of the affluent exceeds that of the lower classes, the issue for comparative purposes is the slope of the gradient—*how much* of a difference there is between the effective political influence of the affluent and the poor in different countries.

Noting that even the most right wing Canadian politicians feel compelled to support universal public health care and oppose "two-tier" medicine, we, being Canadian and American, are somewhat skeptical that "left" and "right" relative positions within nations have comparable meanings in a cross-national context—but some political scientists seem to accept this notion. On the other hand, values and tastes for redistribution are rarely used directly (which we think is unfortunate), and the new literature seems to dislike the use of union membership or centrally determined wages (perhaps due to measurement issues) as a proxy for institutions that reflect public tastes for redistribution (Bradley et al. 2001). However, a positive development is that some of the newer papers are using LIS as well as published OECD data or secondary data and that most of these are willing to share their data and variables, making replication and further analysis easier for researchers.

Woo (2003) develops a model to measure the different degrees to which economic, and political institutions affect public deficits. Woo's basic model relies on decade averages of variables for the 1970-1979 and 1980-1990 periods for 57 developed and developing nations.[29] Including income inequality indicators, the author finds that income inequality positively (and statistically significantly) affects public deficits; the coefficients imply that "an increase in inequality of ten Gini points is associated with an increase in the public deficit of 1.5-1.9 percent of GDP." With several sensitivity tests and specification modifications, Woo shows that economic factors—GDP, inflation, liquid liabilities in the system, and measures of trade—enter

the model with signs as expected (positive, negative, negative, positive). Incorporating political variables, such as cabinet changes, changes in effective executive, coups d'etat, and major constitutional change, all enter the model with negative coefficients, though only the latter two are statistically significant. Hence, inequality has important consequences for social spending, not only though transfers, but also how governments choose to balance spending in a broader framework.[30]

Moene and Wallerstein (2002) argue that investigations of the relationship of social expenditures a to inequality should be carried out on a disaggregated basis, because there is no a priori reason why national levels of welfare spending, unemployment insurance, health care, pensions, and education should all have the same determinants. Social insurance, targeted social assistance, and universal benefits programs (like child allowances) may reflect different tastes, values, and mechanisms for redistribution—indeed countries may have different conceptualizations of whether a given program represents "redistribution", "insurance" or delivery of a basic citizenship right. This is particularly likely if the desired impact of redistribution differs--in some countries the "working poor" may be thought to be particularly worthy of transfers while in others redistribution may aim at improving the lot of the least well off (who are usually outside the labor force).

In different countries, "redistribution" may have different intended beneficiaries and different mechanisms of delivery. As already noted, countries differ in their tastes for cash versus goods and services. The implication is that one should model demand for social goods on a policy by policy basis although the danger is that one may ignore the built-in relationships between different programs that are a part of each nation's social history and institutions. In net, however, some disaggregation is to be preferred. In fact, Moene and Wallerstein find that higher levels of inequality in pre-tax earnings are associated with lower levels of spending for policies that insure against income loss for working persons (see also next section on regime models).

While they find different determinants for different types of social spending, they find no category of social spending which is positively related to income inequality.

Surveys of the literature include Arjona, et al. (2001) and Scarth (2000). Although the high level of inequality and low level of redistribution in the United States is an important counter-example, Arjona et al. find support for the hypothesis that higher levels of pre-government ("market") income inequality lead to *greater* levels of redistribution. In suggesting that the form of additional redistribution also matters and that policies that reduce market income inequality directly, by raising the market incomes of the poor, may be good for growth, they raise the important point that a *general* correlation (plus or minus) between inequality and growth may be of very limited use in thinking about *specific* policy choices (and governments always, in practice, have to consider specific policy choices). The example they give is greater education for the poor, which produces lower market income inequality.[31]

There is an emerging literature on social spending, transfers in cash and kind (e.g., education) which has been re-examining the relationship between social policies, employment and economic growth across a wide range of nations and which supports this point of view (see van der Ploeg 2003 and Gylfason and Zoega 2003). These studies include the OECD and also, to a lesser extent, the major developing nations. Both theoretical models and empirical evidence suggest that social policies may indeed promote economic growth as much as they harm them. Education may be a particularly important case where increased spending leads to more and better education and thereby promotes economic growth directly, as well as indirectly through increased social equality and cohesion. As yet however, there is no general agreement in the literature on the effects of social policy on growth, negatively or positively, although the recent literature is much more supportive of a positive relationship.

While the recent literature on median voters, inequality, and redistribution has progressed in many ways, a basic question has not been answered, that being whether more inequality

produces voters and institutions that support more redistribution, or whether greater equality produces support from labor and other institutions for more redistribution (for example, see Bertola, et al. 2002) remains. One possible reason for this uncertainty is that the new literature characterizes inequality with single value measures, (such as the Gini and 90/10 ratio) not with measure of differences in inequality at both the top and bottom of the distribution. However, there is also a more institutional welfare state regime literature on social policy preferences and outcomes that may tell us more about this phenomenon.

2.3 The Institutional Political Science Literature on Inequality and Social Systems

The new literature on cross-national "social policy preferences" is typified by the work of Iversen and Soskice (2001, 2002), Hall and Soskice (2001), and Iversen (1999). The approach, while akin to the earlier "worlds of welfare capitalism" work of Esping-Andersen (1990), offers a much more institutionally driven and sophisticated argument about national preferences for redistribution. The argument is that coordinated nations—those with a high degree of cooperation between business, industry and labor—invest in human capital in different ways than do nations that are of the liberal market economies, where competition replaces consensus seeking. Skill training is more specific (e.g., vocational training), job tenure is longer and job changing is less frequent in these coordinated economies than it is in societies with more general training. In these latter types of economies, market competition rewards high skills with high, "winner take all" wages; labor is not an active political voice; and low skills are punished with low wages. They term this latter group, the riskier "liberal economies."

In the liberal economies, there is less employment protection and less wage protection. In the coordinated economies, strong employment protection and wage protection from within and outside companies, is coupled with high unemployment benefits, adequate and early take-up social retirement, and various other trappings of the European welfare state. As a result, when

market based earnings inequalities grow, more redistribution will take place because of the built-in stabilizers in western coordinated economies (see also Kenworthy and Pontusson 2002).

Franzese (2000) also argues that since the wealthy are more active politically, the relatively less well-off will suffer through changes to the tax-and-transfer systems. Jencks (2002) examines the views held by people at different points in the political spectrum. He particularly focuses on the contradictions in the USA between wanting low inequality, having high inequality, and doing relatively little to systematically address the problem. He states,

> If you are a hard-core Rawlsian who thinks that society's sole economic goal should be to improve the position of the least advantaged, European experience suggests that limiting inequality can benefit the poor. If you are a hard-core utilitarian, European experience suggests—though it certainly does not prove—that limiting inequality lowers consumption. But European experience also suggests that lowering inequality reduces consumption partly by encouraging people to work fewer hours, which many Europeans see as a good thing. If you care more about equal opportunity for children than about consumption among adults, limiting economic inequality among parents probably reduces disparities in the opportunities open to their children.

One of the difficulties in examining inequality cross-nationally, he argues, is the perception of what it means to be poor. Specifically, while Jencks argues that America does less than virtually every other developed nation to limit inequality, rich Americans can buy more than the rich in other nations and poor Americans can buy less.

If (as is the case) the coordinated nations have the least degree of inequality, then lessened inequality and greater social spending are the joint product of the broader systems of social and economic cooperation in coordinated societies (which can be called "business social capital"). This hypothesis is difficult to examine conclusively since clearly there must be some set of processes to generate any particular pattern of inequality, but a number of different processes might generate the same level of inequality. This question also raises the endogeneity issue, which we now address.

2.4 The Endogenity Issue

Recently, Kenworthy and Pontusson (2002) have argued that household earnings inequality can be determined by employment and (household) income variables and that *changes* in redistribution are a function of *changes* in employment, unionization, GDP, trade, and other political controls. Alvarez (2002) and Bradley, et al. (2001) also argue that reductions in inequality can be at least partially determined by measures of social expenditures (overall social expenditures in the former and taxes and transfers in the latter). This is not a surprising view since the goal of social expenditures and public goods is, at least in part, to reduce inequality.

These theories force us, however, to consider the possible reverse causality (endogeneity) of inequality in regression models. The key to resolving the causality issue is to find a variable that determines inequality but is exogenous to the social expenditure decision—and such instruments are hard to come by. Instruments proposed by Alvarez (2002) include government ideology (such as right and left-leaning government legislative/executive bodies) and the ratio of the minimum wage to the average wage. Moene and Wallerstein (2002) use wage-setting institutions and political variables as instruments for inequality (their inequality measure is the logarithm of the 90/10 wage ratio). The exogeneity of these factors to social expenditures, however, is sometimes a difficult case to make, especially if institutions directly affect wage levels (e.g., minimum wages) and employment and training policy.

3. Summary and Conclusion

In this brief summary of the literature, we have not delved at all into the literature on education and health spending and inequality, leaving these for the time being to other projects within this broader effort (for example see Berkman et al. 2002 on health spending and Corcoran et al. 2002 on education finance).

However, we are lead to the following observations:

1. Inequality and poverty are different, and a single summary measure of inequality—e.g., the Gini, or the 90/10 ratio—will not allow us to differentiate among explanations which hinge on forces which affect different parts of the distribution of income or which are affected by different parts of the distribution. Hence, we prefer measures that express the dynamics of income inequality at the top and the bottom of the distribution, e.g., the 90-50 and 50-10 percentile ratios.

2. The measurement of the "redistributive" element of "social insurance" transfer programs and of public services (such as education or health care) depends heavily on the frame of analysis and associated methodological assumptions (e.g., the accounting period for income flows).

3. The relationship between economic inequality and social spending is one of mutual interdependency—for which it may be crucial to distinguish specific types of social spending, which are differentially affected by different aspects of inequality.

4. Most models are of a reduced form nature with little attention paid to desired levels of redistribution (or national differences in the taste for redistribution) in combination with the institutions and voting mechanisms (parties, lobbies, etc.) legitimizing these tastes. In fact, voting models are rarely employed (only assumed) in the "median voter" literature in economics.

5. There is a good deal of evidence for differing national interpretations of whether social spending—e.g., on health care—is perceived as redistributive. Hence, different types of social expenditures—cash, (income maintenance, social insurance), health, and education, may have different political determinants across and within different societies.

6. Huge leaps of analysis are often made in the current literature (such as the assumption that political preferences can be measured on a left/right domestic spectrum that is comparable internationally) which are crucial to the models developed, but which seem to us to be questionable in a cross-national context.

7. The literature on lobbying and buying of political influence is widely divergent in its veins. McCarty, Poole and Rosenthal (2002), Bartels (2002a, 2002b) all find increasing political polarization following economic polarization. Yet this responsiveness of political parties to even more divergent income groups is disputed by at least one recent paper (Ansolabehere et al. (2003)).

The literature on income inequality and social goods provision is rapidly growing, but large gaps remain. We have established why such spending is important, indeed necessary, for

equality of opportunity and fair chances for children in modern society. However, the linkages between economic inequality and social good provisions are often tenuous and need more modeling and estimation. Clearly no one discipline—economics, sociology or political science—can resolve this central issue alone.

Endnotes

1. Conceptually, it is hard to argue that the economic processes and social institutions which affect income distribution and social goods provision are structurally similar in all nations, for example, in the United States and Afghanistan. However, the maintained hypothesis of structural similarity sits behind the cross country regressions methodology. Practically, the lack of reliable data and consistent economic measurement and policy regimes make less developed countries difficult to study in a comprehensive manner. However, we do in one place include comparable social spending in Mexico to illustrate the variance across major OECD nations.

2. This paper makes use of three main data sources. The Organization for Economic Cooperation and Development (OECD) provides a wealth of information, ranging from national account data (GDP, social expenditures) to education data (expenditures, enrollment) to other demographic information (population, race, gender). The Luxembourg Income Survey (LIS) is a collection of household income surveys for almost 30 countries for various years (around 120 country-year surveys are currently available). The different surveys are harmonized so that users can make easy comparisons of household income data across nations and time. Finally, in four separate waves of interviews, the World Values Survey (WVS) collects information on sociocultural and political change for more than 65 countries. The data available in the WVS ranges from religious affiliations to participation in community organizations to beliefs and trust in those around you and the society in which you live.

3. The variation in nonelderly total social expenditures is even more pronounced. There, the Northern European (Belgium, Denmark, Netherlands) and Scandinavian (Finland, Norway, Sweden) countries spend markedly more (as a percentage of GDP) on social expenditures than do the Anglo (Australia, Canada, UK, US) countries (OECD 2003).

4. We estimate this ratio by adding OECD Social Expenditures and OECD Final Government Outlays and dividing this total into OECD Social Expenditures. For more on this method, see Smeeding (2002b) and OECD (2003). Both we and the OECD do not include tax expenditures as public benefits in these calculations.

5. No comparable time series exists that includes both health care and education spending.

6. To compare living standards or other indicators across countries, Purchasing Power Parity (PPP) exchange rates compare the prices of national consumption baskets in order to translate per capita national incomes into a common currency.

7. To take a specific example, if the intergenerational inheritance of poverty is primarily due to the impact on life chances of such things as low self-esteem or the cumulative impact of social exclusion, which are plausibly driven by a low *relative* consumption bundle, then differences in relative income are the crucial issue. Since these general phenomena are often best understood through specific examples, one can cite the anxiety of teens and pre-teens about going to school in unstylish clothes, or their 'need' to have a cell phone to contact their friends, or the equipment requirements of organized youth sports leagues.

It is clear that the absolute cost and degree of newness needed to be "stylish," and the socialization patterns of youth, and the local league requirements for sports gear, differ substantially across countries and have varied considerably over time within countries. However, if children who do not have enough to be part of the team, or to join the mainstream social group, absorb the impacts of that exclusion, then it is the *relative* income of their families that matters.

8 . We note that these differences in money income across nations would be magnified if income was standardized for differences in labor supply, since cross country differences in labor supply are relatively small at the top of the income distribution compared to the bottom. Simply put, the poor in the United States work much harder and still get less, than the poor in other affluent nations. See Osberg (2002a, b) for details.

9. Jencks (2002), also discussed below, raises well-known questions about the appropriateness of such cross-national comparisons. We acknowledge these concerns but feel that such comparisons are useful in a global context.

10. See Phipps (1999) for a more complete discussion.

11. Duncan, et al. (1998) find that American children who live in families with incomes at or below 75 percent of the United States poverty line (roughly 33 to 36 percent of the median income) do less well than do other American children. Similar studies have not been done for other nations. Similar figures to those found here but from an earlier period can be found in Rainwater and Smeeding (2000).

12. In the United States, we also include the value of employer provided health care benefits.

13. The values for the 10th and 90th percentile are included in Appendix Table A-1. The values in Table 1 are averages per child for all children in cash and per school age child for health and education.

14. Note that when it becomes common for elite bureaucrats and politicians to have opted out of public education and health care, both their personal knowledge of these systems, and their credibility with the wider public in proposing reforms, diminishes—which is another argument for why the political economy of more unequal societies may be more dysfunctional.

15. The World Bank also has useful annotated bibliographies on social capital and research on the connection between inequality and violence—see http://www.worldbank.org/poverty/inequal/abstracts/violence.htm and http://www.worldbank.org/poverty/scapital/index.htm

16. Putnam (1995) defines social capital as follows: "By analogy with notions of physical capital and human capital—tools and training that enhance individual productivity—"social capital" refers to features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit.

17. Moss (1996), for example, argues that from the first years of labour legislation in the United States, reforms "were motivated primarily by the problem of worker insecurity."

18. For example, health care services received by the elderly may be of greater dollar value than those received by the middle aged, but if the middle aged can expect to receive similar services in a few years, a lifetime perspective may be more appropriate. As well, should one count the very ill as getting more "income", if they incur expensive hospital stays? Given that all citizens have a chance of illness, the expected value of health care services is a better indicator of benefits.

19 Alesina and La Ferrara's racial and ethnic fragmentation variable is an index that "measures the probability that two randomly drawn individuals in area *i* belong to different races. Therefore, higher values of the index represent more racial fragmentation." They also include individual and state controls in some versions of the regressions; these prove to depress the coefficients on the variables of interest but signs and statistical significance are maintained.

20. See Osberg and Smeeding (2003).

21. Helliwell (2002) uses three waves of the WVS for about 48 countries to test what factors affect individual "satisfaction of life," as measured by the WVS. Showing support for previous work, Helliwell provides some evidence that trust positively affects life satisfaction. He notes that "average well-being would increase by .03 on a ten-point scale for each 0.1 increase in the proportion of the population judging that people can in general be trusted."

22. As well, social capital erodes if individuals increasingly are "too busy" to participate in voluntary associational life. ILO data indicate that from 1980 to 2000, average actual working hours per adult (ages 15-64) rose by 234 hours in the United States to 1476 while falling by 170 hours in Germany, to 973. Although Canada, France, Germany, Sweden, the United Kingdom, and the United States all had average actual hours of paid work per adult which clustered in a fairly narrow interval in 1980, by 2000 the differential in actual hours of paid work was quite dramatic. As Jenkins and Osberg (2003) argue, the rise in average working hours of *other* people will in general make it harder for each individual to arrange a satisfying social life, thereby diminishing the marginal utility of their leisure and fueling a subsequent increase in labor supply. See Osberg (2002a) and Jenkins and Osberg (2003).

23. The authors' estimate both a linear Ordinary Least Squares model and a two stage least squares model. In the latter, religious variables (percent Catholic, percent Muslim, and percent Eastern orthodox) are used as instruments for trust with results almost identical to the OLS estimates.

24. The median voter can easily be, for example, completely unaffected by changes in the share of income received by the bottom quintile.

25. A paper closely related in terms of methodology is Plotnick (1986) who constructs a similar model by individual United States states using AFDC data.

26. Presumably it would be rational for risk averse individuals to want to buy more social insurance, possibly through the public sector, as income risk rose. However, when income risk rises, the certainty equivalent income falls, and whether individuals want more or less redistribution as a result depends on whether such redistribution is a normal good. Unless individuals make systematic prediction errors, the stochastic component in income will be of mean zero—i.e., uncorrelated with growth.

27. If, for income streams of equal present value, the age/earnings profile steepens, there seems no obvious reason why the motive for redistribution to other households should change. However, public pensions and social security are a substantial part of public expenditures—which have often been seen as "forced savings" which people voluntarily impose on themselves. Such programs redistribute income over the life cycle, but again predictions are ambiguous.

28. Note that during much of this period the study of economic inequality was said to be "as exciting as watching paint dry," due to the relative constancy of aggregate measures, such as the Gini index of money income inequality. In international data it is the 1975 to 1995 period, particularly in the United Kingdom and United States that has seen much larger changes in inequality.

29. Note that most works, unless with a specific aim, do not include developing countries due to unavailable or unreliable data.

30. Fiorito and Kollintzas (2002) develop a model that divides goods into merit and public goods. The latter category includes health, education, and other services that can be privately provided—this is the group we tend to focus on in our empirical paper. The former category includes defense, public order, and justice—the typical set of public goods. In all cases, they find that public goods are substitutes while merit goods are complements to private consumption.

31. Clearly, one can also think of policy designs which imply that more redistribution causes lower market incomes (e.g. social assistance rules that create poverty traps and lower labor supply) and reduced economic growth. Arjona et al conclude that they cannot say which interpretation best fits the data.

Table 1. Non-cash Benefits at the 50th Percentile:
1997 U.S. PPP dollars

Country	Cash Transfers[1]	(I [4])	Health[2]	(I [4])	Education[3]	(I [4])	Total Noncash	(I [4])	Total Benefits Cash + Noncash	(I [4])
Australia	2,175	(102)	567	(37)	3,530	(59)	4,097	(55)	6,272	(65)
Canada	2,678	(126)	720	(46)	4,500	(75)	5,220	(69)	7,898	(82)
Denmark	5,558	(261)	645	(42)	6,083	(102)	6,728	(90)	12,286	(127)
Finland	6,041	(283)	512	(33)	4,369	(73)	4,881	(65)	10,922	(113)
France	5,716	(268)	735	(47)	3,436	(58)	4,171	(56)	9,887	(103)
Germany	2,191	(103)	769	(50)	3,183	(53)	3,952	(53)	6,143	(64)
Netherlands	3,350	(157)	641	(41)	3,013	(51)	3,654	(49)	7,004	(73)
Norway	3,902	(183)	749	(48)	7,690	(129)	8,439	(112)	12,341	(128)
Sweden	8,925	(418)	663	(43)	5,194	(87)	5,857	(78)	14,782	(153)
United Kingdom	4,408	(207)	521	(34)	3,017	(51)	3,538	(47)	7,946	(82)
United States	2,133	(100)	1,550	(100)	5,961	(100)	7,511	(100)	9,644	(100)
Simple Average	**4,280**		**734**		**4,543**		**5,277**		**9,557**	

Source: Smeeding (2002a).

Notes:

[1]Median cash benefits per child for all children taken from LIS and expressed in 1997 PPP adjusted dollars.

[2]Public health expenditures per child from OECD in 1997 PPP adjusted dollars, with adjustments for employer provided benefits in the United States (OECD, 2002b).

[3]Public elementary school expenditures per school age child in 1997 PPP adjusted dollars (OECD, 2002a).

[4]Index with US=100.

Table 2. Government Support for Children:
Net Cash (and Non-cash) Transfers (Benefits minus Taxes)
as a Percent of Adjusted Income by Percentile Point[1]

		P10		P50		P90	
Country	**Year**	**Cash**	**(noncash)**	**Cash**	**(noncash)**	**Cash**	**Non-cash**
Australia	1994	82.8	(88.3)	-14.7	(9.3)	-31.2	(-8.1)
Canada	1997	64.0	(73.6)	-20.5	(5.7)	-24.6	(-4.8)
Denmark	1992	22.6	(45.4)	-26.1	(2.7)	-37.3	(-9.0)
Finland	1994	62.0	(72.2)	-4.4	(13.3)	-23.4	(-5.4)
France	1994	47.2	(60.6)	21.2	(33.1)	2.5	(13.0)
Germany	1994	38.1	(55.4)	-27.0	(-4.3)	-34.1	(-15.4)
Netherlands	1994	43.0	(60.6)	-23.2	(-2.1)	-42.2	(-18.0)
Norway	1995	44.6	(63.8)	-15.0	(11.3)	-23.4	(-0.3)
Sweden	1995	26.0	(50.7)	1.6	(25.0)	-27.6	(-1.2)
United Kingdom	1995	92.5	(94.4)	4.8	(19.9)	-34.7	(-15.8)
United States	1997	58.4	(74.7)	-10.3	(16.3)	-27.6	(-4.9)
Average		**52.9**	**(67.3)**	**-10.3**	**(15.2)**	**-27.6**	**(-3.7)**

Source: Appendix Table A-1 and Figure 3

Note: [1]Cash transfers and cash transfers plus education benefits at each level of income, net of direct taxes paid for social programs. See text for details.

Appendix Table A-1. Mean Amount for Children at that P. Point in National Currency

Panel A. 10th Percentile Point

Country	Year	DPI	MI (earnings)	Transfers	Taxes	Net Cash Transfers	Non-cash Benefits: Health	Non-cash Benefits: Education	Net Transfers[2]
Australia	1994	10,082	1,729	8,551	199	8,153	567	3,530	12,250
Belgium [1]	1996	12,322	3,592	8,730	0	8,730	765	5,205	14,700
Canada	1997	12,322	4,434	8,036	511	7,377	720	4,500	12,597
Denmark	1992	13,442	10,401	7,081	5,248	-2,206	645	6,083	4,521
Finland	1994	12,882	4,894	9,795	2,077	5,911	512	4,369	10,792
France	1994	12,322	6,511	5,866	55	5,757	735	3,436	9,928
Germany	1994	11,202	6,938	5,650	1,386	2,878	769	3,183	6,831
Netherlands	1994	11,762	6,699	8,453	3,467	1,596	641	3,013	5,249
Norway	1995	15,403	8,334	8,467	1,878	5,190	749	7,690	13,629
Sweden	1995	13,442	9,944	7,417	3,920	-422	663	5,194	5,435
Switzerland	1992	14,283	7,787	6,867	2,348	4,147	742	5,489	10,377
United Kingdom	1995	8,682	648	8,087	110	7,924	521	3,017	11,462
United States	1997	9,802	4,074	5,954	417	5,311	955	5,961	12,226

Panel B. 50th Percentile Point

Country	Year	DPI	MI (earnings)	Transfers	Taxes	Net Cash Transfers	Non-cash Benefits: Health	Non-cash Benefits: Education	Net Transfers[2]
Australia	1994	22,964	26,331	2,175	3,752	-8,909	567	3,530	-4,813
Belgium [1]	1996	24,924	21,328	3,597	0	3,597	765	5,205	9,567
Canada	1997	28,565	34,430	2,678	5,964	-14,609	720	4,500	-9,389
Denmark	1992	26,605	33,548	5,558	11,386	-19,781	645	6,083	-13,053
Finland	1994	22,964	23,970	6,041	7,210	-9,107	512	4,369	-4,226
France	1994	24,364	19,191	5,716	440	4,604	735	3,436	8,775
Germany	1994	22,964	29,169	2,191	7,312	-14,600	769	3,183	-10,647
Netherlands	1994	22,964	28,293	3,350	7,552	-14,804	641	3,013	-11,151
Norway	1995	27,725	33,078	3,902	8,262	-14,970	749	7,690	-6,531
Sweden	1995	22,684	22,332	8,925	7,645	-8,258	663	5,194	-2,401
Switzerland	1992	30,245	37,058	0	6,104	-13,625	742	5,489	-7,395
United Kingdom	1995	19,604	14,059	9,408	3,274	1,363	521	3,017	4,901
United States	1997	28,005	30,900	2,133	3,841	-7,157	1,550	5,961	354

Panel C. 90th Percentile Point

Country	Year	DPI	MI (earnings)	Transfers	Taxes	Net Cash Transfers	Non-cash Benefits: Health	Non-cash Benefits: Education	Net Transfers[2]
Australia	1994	34,726	45,567	571	7,821	-22,393	567	3,530	-18,297
Belgium [1]	1996	35,566	32,608	2,958	0	2,958	765	5,205	8,928
Canada	1997	43,688	54,449	2,116	9,701	-24,986	720	4,500	-19,766
Denmark	1992	31,926	43,827	5,101	15,294	-29,143	645	6,083	-22,415
Finland	1994	38,087	47,017	7,348	14,530	-25,256	512	4,369	-20,375
France	1994	38,367	37,417	2,935	1,575	-1,088	735	3,436	3,083
Germany	1994	33,886	45,436	2,283	12,048	-25,382	769	3,183	-21,430
Netherlands	1994	30,806	43,798	3,238	13,093	-29,420	641	3,013	-25,767
Norway	1995	35,286	44,965	3,939	12,490	-23,603	749	7,690	-15,165
Sweden	1995	27,165	34,671	5,163	11,406	-20,351	663	5,194	-14,494
Switzerland	1992	46,208	53,368	600	7,074	-15,055	742	5,489	-8,825
United Kingdom	1995	35,566	47,903	1,580	11,283	-26,747	521	3,017	-23,210
United States	1997	50,129	63,982	1,759	12,362	-30,742	1,700	5,961	-23,081

[1] Countries with only after-tax earnings.

[2] Net Transfers = Net Cash Transfers plus Education plus Health.

Source: Authors' calculations of the Luxembourg Income Study.

Appendix Table A-2

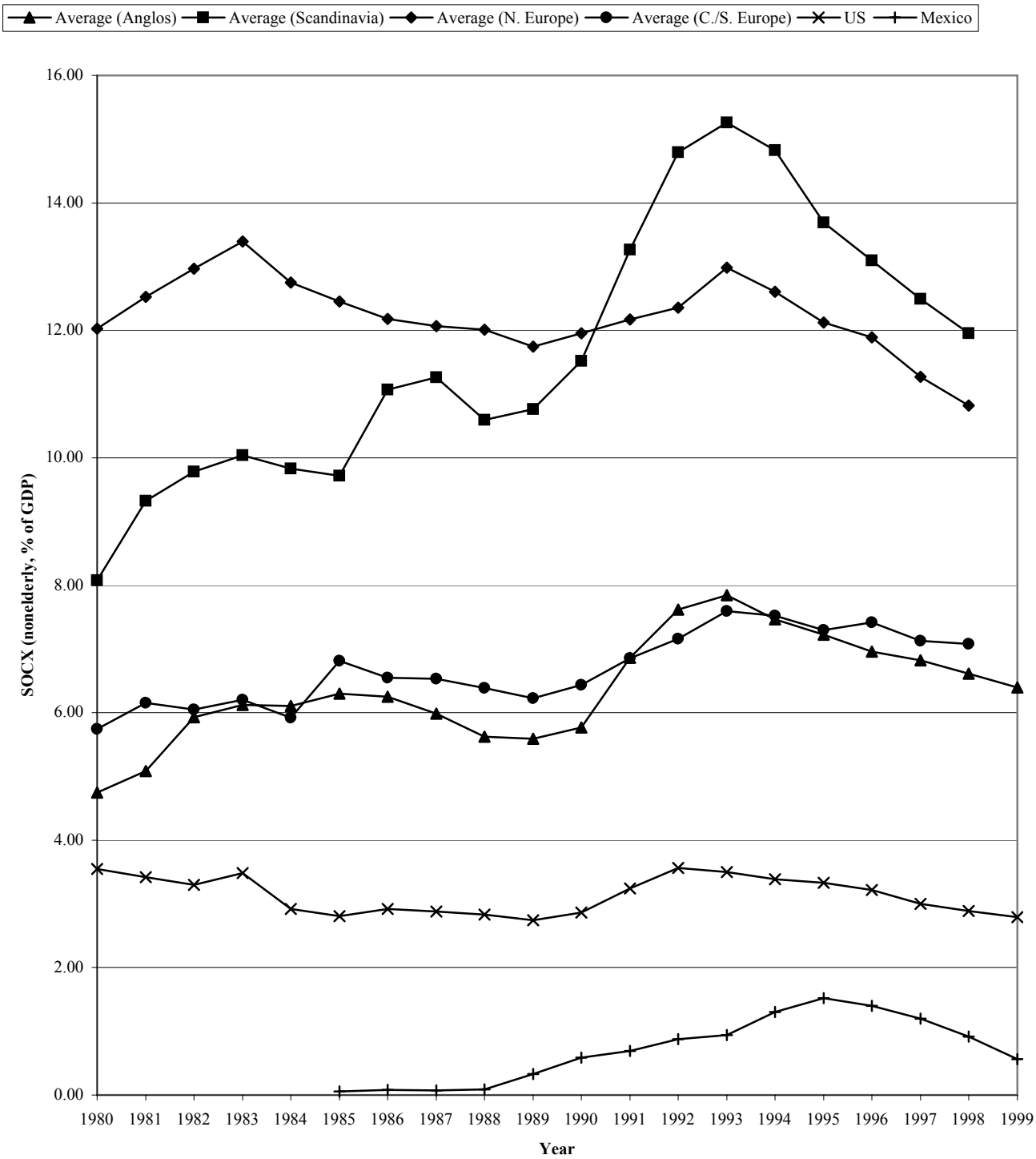
Author(s)	Dataset	Survey Years	Variables	Use[1]
Costa and Kahn (2001)	American National Election Study	1952, 1972	Organization membership	T,A
	Americans' Use of Time	1964-1965, 1985	Time visiting friends; at parties	T,A
			Time spent in organization activity	T,A
	Current Population Survey (CPS)	1974, 1989	Any volunteer work in past year/week	T,A
			Hours volunteered in past year (grouped)	T,A
	DDB Life Style Survey	1975-1998	Frequency entertained in past year	T,A
			Frequency volunteering in past year	T,A
		1975-1998	Frequency family eats dinner together	T
	The Five Nation Study	1960	Organization membership	T
	General Social Survey (GSS)	Selected years	Frequency spent evening with friends	T
		1974-1998	Frequency spent evening with neighbors	T
			Frequency spent evening with relatives	T
			Organization membership	T,A
	Giving and Volunteering in the United States	1988-1996	Any volunteer work in past year/week	T
	The NPD Group Time Study Data	1992-1996	Time spent volunteering	T
			Time visiting family/friends	T,A
	Political Participation in America	1967	Organization membership	T
	Time Use in Economic and Social Accounts	1975-1976	Time visiting friends; at parties	T,A
			Time spent in organization activity	T,A
Alesina and La Ferrara (1999)	General Social Survey (GSS)	1972-1994	Membership in organizations	T,A
	CPS	1996-1998	State level Gini coefficients	T,A

Appendix Table A-2 (con't)

Author(s)	Dataset	Survey Years	Variables	Use[1]
Alesina and La Ferrara (2001)	General Social Survey (GSS)	1978-1991	Demographic/income variables	T,A
	Panel Study of Income Dynamics (PSID)		Constructed mobility indices	T,A
Milanovic (2000)	Luxembourg Income Study (LIS)	waves1-4	age, factor/market income	T,A
Bassett, et al (1999)	World Bank (Deininger and Squire)	around 1965	income shares	A
	Paukert (1973)	around 1965	income shares	A
	Perotti (1996)	around 1965	income shares, measures of democracy	A
	Penn World Tables	1960, 1970	GDP, income shares	A
	Barro-Lee	1970-1985	Age	A
Persson and Tabellini (1994)	Various sources	various years	GDP, income shares, education, electorate	A
Kristov, Lindert, McClelland (1992)	OECD	1960-1981	Transfers/GDP, unemployment, share of population over 65, per capita GDP, relative price deflator, deadweight loss, GDP growth, two inequality gaps (log of pre-fiscal income ratio, top (middle) quintile to middle (bottom) quintile).	A

Note:
[1]T=trends; A=analysis

Figure 1. Nonelderly Social Expenditures in 6 sets of 17 Nations*

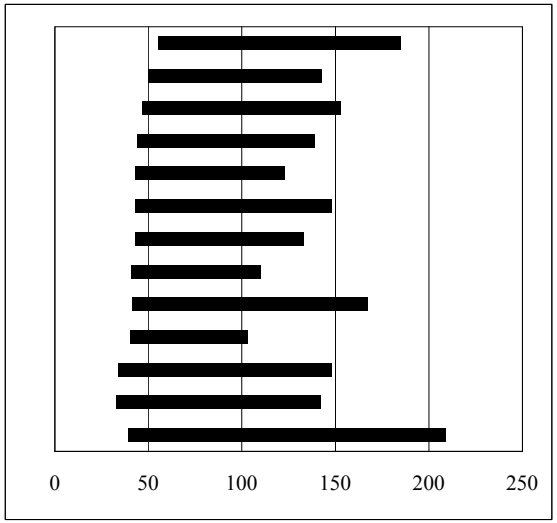


* Total Nonelderly Social Expenditures (as percentage of GDP), including all cash plus near cash spending (e.g., food stamps) and public housing but excluding health care and education spending. OECD (2002b). Anglos include Australia, UK, Canada; Scandinavia includes Finland, Norway, Sweden; Northern Europe includes Belgium, Denmark, Netherlands; Central/Sourthern Europe includes Austria, France, Germany, Italy, Luxembourg, Spain.

Figure 2. Economic Distance and Real Standards of Living

(numbers given are percent of overall US 1997 Median Equivalent Income in PPP terms)

	P10 (Low Income)	Length of bars represents the gap between high and low income individuals	P90 (High Income)	P90/P10 (Decile Ratio)	Real Income Gap [3]
Switzerland 1992	55		185	3.36	$36,406
Norway 1995	50		143	2.86	26,044
Belgium 1996	47		153	3.26	29,685
Germany 1994	44		139	3.16	26,604
Denmark 1995	43		123	2.86	22,404
France 1994	43		148	3.44	29,405
Netherlands 1994	43		133	3.09	25,204
Finland 1995	41		110	2.68	19,323
Canada 1994	41		167	4.07	35,286
Sweden 1995	40		103	2.58	17,643
Australia 1994	34		148	4.35	31,925
United Kingdom 1995	33		142	4.30	30,525
United States 1997 [1]	39		209	5.39	47,608
Average[2]	43		146	3.49	$29,081



Notes:

[1] The United States median income per equivalent person in 1997 was $28,005.

[2] Simple average.

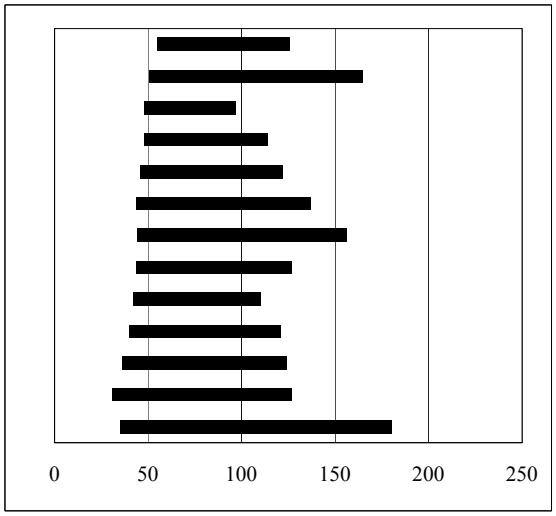
[3] Figures given are expressed in 1997 U.S. PPP adjusted dollars per equivalent person, weighted by the number of persons per household.

Source: Authors' calculations from Luxembourg Income Study.

Figure 3. Equal Opportunity and Fair Chance: Economic Distance and Real Standards of Living for Children

(as percentage of overall US 1997 median equivalent income in PPP terms)

	Fair Chance	**Economic Distance**		**Equal Opportunity**	
	P10 (Low Income)	Length of bars represents the relative gap between high and low income individuals	P90 (High Income)	P90/P10 (Decile Ratio)	real income gap
Norway 1995	55		126	2.29	19,884
Switzerland 1992	51		165	3.24	31,926
Sweden 1995	48		97	2.02	13,722
Denmark 1997	48		114	2.37	18,483
Finland 1995	46		122	2.66	21,283
France 1994	44		137	3.11	26,045
Canada 1997	44		156	3.55	31,366
Belgium 1997	44		127	2.89	23,244
Netherlands 1994	42		110	2.62	19,043
Germany 1994	40		121	3.03	22,684
Australia 1994	36		124	3.44	24,644
United Kingdom 1995	31		127	4.10	40,327
United States 1997	35		180	5.15	26,885
Average[2]	**43**		**131**	**3.11**	**$24,580**



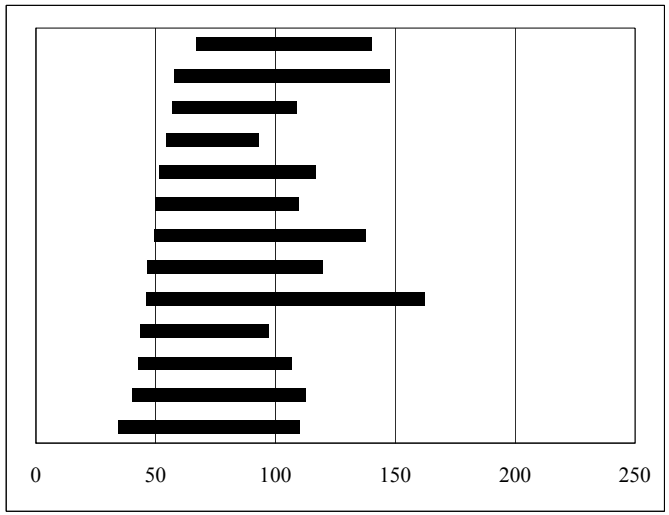
Notes:

[1] Figures given are adjusted dollars per equivalent person 1997 U.S. dollars, weighted for the number of children in each unit size, and relative to the overall U.S. median of $28,005.

[2]Simple average.

Source: Luxembourg Income Study and author's calculations.

Figure 4. Equal Opportunity and Fair Chance:
Economic Distance and Real Standards of Living for Children Cash and Non-cash Income[1]
(as percentage of overall US 1997 median cash plus non-cash income)



	Fair Chance	Economic Distance		Equal Opportunity	
	P10 (Low Income)	Length of bars represents the relative gap between high and low income individuals	P90 (High Income)	P90/P10 (Decile Ratio)	real income gap
Norway 1995	67		123	1.83	19,889
Switzerland 1992	58		148	2.56	31,964
Denmark 1997	57		109	1.92	18,468
Sweden 1995	54		93	1.71	13,851
Belgium 1997	52		117	2.27	23,085
Finland 1995	50		110	2.19	21,310
Canada 1997	49		138	2.79	31,609
France 1994	46		120	2.58	26,282
United States 1997	46		162	3.51	41,199
Netherlands 1994	43		97	2.24	19,179
Germany 1994	43		107	2.50	22,730
Australia 1994	40		112	2.82	25,572
United Kingdom 1995	34		110	3.20	26,992
Average[2]	**49**		**119**	**2.47**	**$24,861**

Notes:

[1] Figures given are adjusted dollars per equivalent person in 1997 US dollars, weighted for the number of children in each unit size. P10 and P90 are divided by overall US median of $35,516.

[2]Simple average.

Source: Luxembourg Income Study and author's calculations.

Appendix Figure A-1.
"Social Distance": Relative Income Comparisons Across 21 Nations in the 1990s

(Decile Ratios for Adjusted Disposable Income)

(numbers given are percent of median in each nation)

	P10 (Low Income)	Length of bars represents the gap between high and low income individuals	P90 (High Income)	P90/P10 (Decile Ratio)
Sweden 1995	60		156	2.59
Finland 1995	59		159	2.68
Belgium 1992	59		162	2.76
Norway 1995	56		157	2.82
Denmark 1992	54		155	2.84
Austria 1987	56		162	2.89
Luxembourg 1994	59		173	2.92
Netherlands 1994	56		171	3.08
Germany 1994	54		174	3.18
France 1994	54		179	3.32
Taiwan 1995	56		188	3.36
Canada 1994	47		184	3.90
Spain 1990	50		197	3.96
Israel 1992	50		205	4.12
Japan 1992	46		192	4.17
Ireland 1987	50		209	4.20
Switzerland 1992	45		192	4.22
Australia 1994	45		195	4.33
United Kingdom 1995	46		209	4.52
Italy 1995	43		201	4.68
United States 1997	38		214	5.64
		0 50 100 150 200 250		
Average[1]	52		183	3.63

Source: Author's calculations from Luxembourg Income Study and Japan taken from Ishikawa (1996).

[1]Simple average.

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