INCOME MAINTENANCE IN OLD AGE: CURRENT STATUS AND FUTURE PROSPECTS FOR RICH COUNTRIES

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Abstract

The purpose of this paper is to review the recent evidence on the antipoverty effectiveness and other characteristics of income maintenance for the elderly in the rich nations of the world. As they move toward Social Security reform due to worldwide population aging, strategies to reduce the future Social Security deficit in most nations examined here need to take into account the way that impending program changes affect poverty and benefit adequacy, as well as fiscal soundness. Different nations offer various approaches which would help the high elderly poverty nations to achieve lower poverty rates while also providing fiscally responsible solutions to the future public costs of an aging society.

1 Introduction

The purpose of this paper is to review the recent evidence on the antipoverty effectiveness and other characteristics of social protection of incomes for the elderly in the rich nations of the world. We will show that a wide range of poverty rates and income maintenance policies can be found among older residents in these countries. Within each country a unique set of antipoverty policies combines with other social protection policies to help reduce poverty in old age. We briefly examine the ways in which various types of policies: income maintenance private (though perhaps regulated or mandated by governments) and public income maintenance affect income maintenance and poverty among the elderly in general, and among women in particular.

Our objectives are three-fold: first, to describe the levels of poverty across society; second to assess the arithmetic effects of social protection policies in preventing poverty and maintaining incomes; and third, to outline new issues that must be addressed by future income maintenance policy for the aged. In so doing, we discuss the responsiveness of modern society to one of its most longstanding risks: benefit adequacy in old age. The final part of the paper forecasts the continuing need for improved income maintenance as population aging of the baby boom cohort brings large changes to the demographics of the persons supported by traditional retirement income security systems.

We use the Luxembourg Income Study (LIS) database to address this topic (see www.lisproject.org and section 2 below). From the list of 25 rich LIS nations (Appendix Table A-3) we have selected several to examine here: three young large Anglo Saxon nations with "underdeveloped" welfare states (United States, Australia, Canada); eight European nations (United Kingdom, Spain, France, Luxembourg, Belgium, Denmark, Germany and The Netherlands) which span the social policy spectrum; and three "advanced" Scandinavian welfare

states (Sweden, Norway, Finland). While other choices of nations were available, this set fairly well represents the types of social protection systems available in rich nations. For some analyses we restrict our attention further to a subset of these nations, which include the four major Anglo-Saxon countries (United States, United Kingdom, Canada, and Australia), three European nations (France, Germany, and the Netherlands), and one Scandinavian nation (Sweden). This smaller subset of nations fairly well reflects the diversity of elder income maintenance systems from rich countries available for the LIS. [1]

We begin with a brief review of poverty concepts and measures and income maintenance categories and a description of the data used in this paper. This is followed by a presentation of the results, and finally by a discussion of our findings and their implications for the design of future social protection systems for the elderly.

2 Concepts of Well-Being, Poverty, and Resource Measures among the Elderly in Rich Nations

The measurement of economic poverty in all nations, rich or poor, involves the calculation of economic well-being or resources relative to needs. Economic well-being refers to the material resources available to households. [2] In most rich societies, and particularly in the United States, the aged rely heavily on the market to purchase most goods and services, and even social goods such as health care and long-term care services. Money income and wealth are the

1. We deliberately exclude the newly reformed Central and Eastern European nations on the grounds that their welfare states are in some ways remnants of the former Warsaw block and are hence in a state of transition. For more in social policy in these nations, see Torrey *et al.* (1999); Schrooten *et al.* (1999).
2. We use the terms household and family interchangeably. Our formal unit of aggregation is the household—all persons living together and sharing the same housing facilities—in almost all nations. Only in Sweden does the "household" refer to a more narrow definition of the "family" unit, but among the elderly this is not an important distinction. Were we to focus on Asian or central European nations where elders live with their adult children, the difference would be crucial. For more on this point see Saunders and Smeeding (1999).

central resources in these societies (McGarry 2002). There are also other important kinds of elder resources such as family social capital (Coleman 1988), and substantial noncash benefits in the form of health care and housing subsidies that benefit the aged. Still, in the nations we study here, the vast majority of the elderly rely on cash incomes to support their basic needs in old age. Family economic transfers either in money, or in the form of shared living arrangements, are not as crucial for the aged in rich nations compared to central and east European societies making the transition to market economies.

In these rich societies, we argue that income—or the ability to consume—is the key measure of economic resources and the ability to avoid poverty. While income—consumption plus change in net worth—brings with it more complicated issues of period of measurement and life cycle considerations, income is a much more appropriate and, we would argue, more easily measured index of well-being for rich nations than is consumption (see Johnson and Smeeding 1997 on this topic). While we would like additional data on wealth status (housing equity and liquid wealth), we have only interest, rent, and dividends on a comparable basis.[3] In any case, however, income maintenance policies are in most nations either of the social insurance variety (without any means-test), or are of the income-tested variety where low-income but not low-assets are criteria for benefit receipt.[4] Hence, for our purposes the omission of wealth data is not terribly problematic.

Our measures of elderly poverty are based on annual disposable money income. Detailed comparable information exists on money income by source, taxes paid, and certain kinds of transfers that have a cashlike character, such as housing allowances, fuel assistance, and food

3. We could add data on home ownership but not equity in owned homes as well, but do not do so for this paper.
4. The United States and Australia are important exceptions to this rule. However, asset tests in Australia are many times less restrictive than in the United States.

stamps, for the 14 nations that we will investigate here. Unfortunately we cannot take into account the major in-kind benefits which are available to the aged in most countries—for example, health care in all, and long-term care benefits in Germany, and to a lesser extent in Britain, Canada, and other nations. To the extent that the level and distribution of these resources is different in different countries, our analysis of money income-based income maintenance must be treated with some caution. Because we are herein interested in the effects of social insurance and safety nets on preventing poverty, we would in any case prefer a measure of poverty that produces results that help evaluate the responsiveness of governments and other institutions in providing income maintenance and social protection to the otherwise poor elderly.

2.1 Equivalence Scales

Households differ not only in terms of resources but also in terms of their needs. We take differing needs, due to differences in household size using an equivalence scale. The adjustment for household size is designed to account for the different requirements families of different sizes and different circumstances have for participating in society at a given level. Different equivalence scales will yield different distributions of well-being. Several studies in Europe, the United States, and Australia point to an equivalence scale that implies fairly large economies of scale in the conversion of money incomes to social participation among larger families with children (Buhmann *et al.* 1988; Bradbury 1989; Rainwater 1990), but not for the aged (Burkhauser *et al.* 1996). Because choice of equivalence scale may favor small versus large families, depending on which level is selected, we aim to find a middle ground value that is appropriate for measuring vulnerability for smaller aged units (e.g., single elderly women living alone). In fact, we find that the responsiveness of poverty measures to choice of equivalence scale among the elderly is much higher than among the nonelderly.

Buhmann *et al.* (1988) have proposed that disposable income be adjusted for family size in the following way:

$$\text{Adjusted income} = \text{Disposable Income}/\text{Size}^{E} \quad (1)$$

The equivalence elasticity or "equivalence factor" E, varies between 0 and 1; the larger is E, the smaller are the economies of scale assumed by the equivalence scale. The various studies reviewed in the survey from Buhmann *et al.* (1988) and later Atkinson, Rainwater, and Smeeding (1995) make use of equivalence scales for analyses of per capita income ranging from E = 0 (or no adjustment for size), to E=1 (which ignore all economies of scale). Between these extremes, the range of possible values is evenly covered. The reader should keep in mind that all money income estimates in the paper are based on adjusted or equivalent income calculated according to the above formula.

The obvious question is which measure of E to use for this study. Following Atkinson, Rainwater, and Smeeding (1995, especially chapters 2, 3, and 7), we have selected an E value of .5, similar to that used by Organization for Economic Cooperation and Development (OECD) (Förster 1993), and Eurostat (Hagenaars *et al.* 1994) for most of our studies and an E-value of approximately 0.56 (for one U.S. only figure, #3, where we use the United States poverty line equivalence scale). For the most part, national rankings by *overall* poverty rates are not sensitive to the measure of E selected (Burkhauser *et al*. 1996; Smeeding, 1997). However, the *level* of subgroup poverty rates in general, and elderly poverty rates in particular, are very sensitive to the choice of equivalence scale (though national subgroup rankings are not so sensitive). Thus, the .5 value strikes a balance and is close to that used by others in the literature.

In fact, this issue is of more than academic importance. There is far too little research on the appropriate measure of E among the elderly in rich nations. For instance, the United States poverty line equivalence scale says that a single elderly woman needs about 80 percent of the income of a couple when the husband passes away (E=.56). In contrast, the E=.50 equivalence scale argues that a single older woman needs 69 percent of the income of a couple, while the equivalence scale built into the United States Social Security system (or any system that provides

1.0 for the first adult and 0.5 for the second), reduces a couple's benefits by one-third when a spouse dies (E=0.42). The poverty rates at these different levels of E produce a range of results from 8 to almost 14 percent poor, a difference of more than 70 percent! The argument here is that the level at which one sets the safety net for single elderly persons relative to couples will be an important determinant of the adequacy of those benefits as measured by their effect on poverty, especially if the poverty line adjustment and the Social Security systems adjustment differ.

Having defined equivalent income in this way, we determine the equivalent income of all households and all individuals in each country. We then examine the distribution of equivalent incomes of elderly households (head aged 65 and older or aged 75 and older), and of persons (aged 65 and over or aged 75 and over) in households in relation to the selected poverty line. That is we tabulate both the percentage of elderly persons who have given characteristics, and the percentage of households with given characteristics. In technical terms, our person calculations are weighted by the number of persons of each type (all persons including children, adults, elderly) residing in each household type.

2.2 Poverty Measurement

Needs can be measured two ways, an absolute definition and a relative definition. Relative poverty involves deciding on the income concept for relativity (median or mean) and on the fraction of adjusted income that signifies poverty. Absolute poverty measurement means locating the "absolute" poverty line and then converting that poverty line into national currency.

We rely here on a relative concept of poverty, the percent of persons living with incomes below half of median income. This income is in line with a well-established theoretical perspective on poverty (Sen 1992; Townsend 1979). Such a measure is now commonly calculated by the European Commission (Hagenaars *et. al.* 1994; Ramprakash 1995), by the OECD (Förster 1993) and by other international groups. Only the British and one other major

international study (Cantillion *et. al.* 1996) use a fraction of mean income as a standard, though Cantillion *et al.* use both mean and median income-based poverty rates in their study.

Our measure of poverty here is the simple headcount, i.e., percent of households or persons with incomes less than half of the median income. We use only the headcount in this paper, although measures of poverty gap or more sophisticated measures of poverty such as the Foster-Greer-Thorbecke (FGH) (1984) and Sen (1976) indices could be deployed. Were the purpose of this paper poverty measurement alone, we would present additional measures of both absolute and relative poverty. However, poverty measurement is **not** the major purpose of the paper. In practice, each of the other measures of poverty suggested above may have severe computational problems in a cross-national context. For instance, the poverty gap, FGH, and Sen indices are all very sensitive to the accuracy of the income measure at the bottom of the income ladder. Differences in survey reporting, survey editing, and bounding of incomes by survey agencies may each drastically affect these measures of poverty as they, in effect, present artificially different lower bound income amounts within each nation.

Moreover, the determination of "absolute" poverty lines in a cross-national context requires both the selection of an absolute poverty line in one currency and its translation into other currencies. Such translations rely on "purchasing power parities" (PPPs) such as those constructed by Summers and Heston (1991) or by OECD (1998a). However, PPPs are based on aggregated data and on income (consumption) concepts that are not well suited for use with microdata, and which are highly sensitive to the price deflator used under conditions of rapid inflation. Hence, we rely on the relative poverty-based headcount measure alone for our cross-national comparison.[5] While we stress the half of median measure, we use one additional

5. For poverty studies using absolute poverty rates, see Kenworthy (1998), Smeeding et al (2001), Danziger and Jantti (2000). For more on the vagaries of using PPPs to adjust "real" poverty lines, see Gottschalk and Smeeding (2000). The reader should note that the absolute United States poverty line is the one used in Figure 3 alone.

measure of relative poverty to test the sensitivity of our headcount measures to alternative poverty lines. Forty percent of the median is also chosen for comparison because it is very close to the ratio of the United States poverty line to the United States median. It also is used as a measure of "deep poverty" in other cross-national studies (Smeeding *et al.* 2001).

2.3 Measuring Resources: Disposable Income, Market Income and Independent Income Measures

Cross-national comparisons of poverty have focused primarily on the distribution of disposable money income after direct taxes (income and employee payroll) and after transfer payments.[6] While this definition of post-tax and transfer disposable income is broad, it falls considerably short of the Haig-Simons comprehensive income definition, typically by excluding much of capital gains, imputed rents, home production, and in-kind income (including employment related benefits received in old age).[7] Most cross-national studies of poverty employ either a measure of income gross of all taxes, or a measure that subtracts "direct taxes"—income and employee payroll taxes—alone.[8] In general, studies do not count personal property taxes or wealth taxes as direct taxes. Employer payroll taxes are implicitly assumed to fall on employees, and indirect taxes are ignored.[9]

6. Direct taxes are most often estimated from tax imputation models rather than official tax records. For example, the after-tax data for Australia, Germany, and the United States are obtained using a tax imputation model at the level of the individual household to estimate direct taxes. Sweden uses official records of taxes paid.

7. Still, this definition is broader than some. For instance, the United States Census Bureau's annually reported household income and poverty statistics use data from the United States Current Population Survey that include cash transfers but exclude taxes, thus making it difficult to ascertain the long-term effects of even income taxes on income inequality in the United States. United States Bureau of the Census (1998).

8. Because the elderly pay small direct taxes in most nations, they are not of great interest in this case (Scherer 1996).

9. Because of differential reliance on employer and employee social security contributions across nations, and because of the differential mix of personal, business, earnings, income, property, and goods (expenditure, V.A.T., sales) taxes across rich nations, the manner in which taxes are collected may have some effect on the results of cross-national comparative analyses of poverty. In order to calculate the burden of indirect taxes, however, a great deal of additional information is needed. Incidence assumptions (consumers, labor, and capital) need to be made and relative types and amounts of consumption need to be identified. Largely because of these additional requirements, we know of no studies of poverty which include the effect of indirect as well as direct taxes.

2.4 Measuring the Effects of Income Maintenance Policy on Elderly Poverty

Because we want to measure the effects of public policy on poverty alleviation, we also examine the impact of public transfers (and taxes) on well-being by estimating the percent of persons with incomes below half of adjusted median disposable income based on their adjusted **Market Incomes** (MI). MI, or pre-government income, includes all forms of earnings (wages, salaries, and self-employment income) plus capital income (in short, rent, dividends). Next we factor in "private transfers," including especially occupational pension benefits and also regular cash inter household transfers. **Occupational Pensions** therefore includes pensions paid by former employers (including the public sector), or by unions. Together with MI, these two categories cover all sources of income except government transfers and taxes. We also separate out the effects of two different types of transfers on poverty: **Universal and Social Insurance Transfers,** termed "Social Retirement" including primarily social retirement (old age or survivors' insurance), but also veterans' benefits and long-term disability benefits. The great majority of the anti-poverty effect measured here comes from social retirement benefits. Finally, **Social Safety Net** benefits (income-tested, means-tested, social assistance, and emergency benefits) are counted. The latter category includes targeted cash and near cash transfers, which are assumed equivalent to cash income. These near-cash benefits include such items as food stamps in the United States and housing allowances in Sweden, each of which are easily measured in national currency terms. We also include the very minor effects of taxation here. In all nations except for Sweden income taxes and payroll taxes on the elderly are very small (less than 1.5 percent of income) and refundable tax credits are zero. Once we have added these together, we reach disposable personal income or DI, which includes all types of income, including taxes and transfers.

We also present poverty rates among the elderly by gender, by living arrangements (single living alone; couple alone; other adults present). We present elder poverty rates and the effect of income maintenance programs by households (age of head older than a specified age) and by person.

2.5 Database

The database used to carry out this analysis is the Luxembourg Income Study (LIS) database, which now contains information on elder poverty for 28 nations in 100 databases covering the period 1967 to 1997 (see www.lisproject.org and Figure A-2 where the nations selected here are shown in bold type). The LIS consists of a set of existing household income microdatasets, which have been "harmonized" (categories of income and demography are made consistent) producing data files that are more comparable than are the raw files. These data can be accessed remotely at zero cost for researchers in all member countries. While the LIS process certainly raises the ratio of "signal" to "noise" in cross-national comparisons of income, poverty and economic well-being, some of the inconsistency remains. Moreover, the amalgam of results presented here have been generated by different studies using slightly different measures of income, poverty, software, or revised versions of LIS data. Hence, there may be some slight variance across the results presented in various tables. On the whole, however, the results are relatively robust with respect to cross-national comparisons and are consistent within each table or figure. Finally, the LIS website contains over 325 papers using these data to investigate topics similar to the one examined here. [10]

3 Results: Poverty and Income Maintenance

10. For instance, recent papers and publications on poverty, inequality and social protection using LIS include Gottschalk and Smeeding (1997); Danziger and Jantti (2000); Smeeding (1997); Kenworthy (1998), Smeeding *et al.* (2001).

Our purpose is to assess the relative levels of poverty across the selected nations and the effect of social protection systems on these societies. We begin with the level and trend in poverty (Tables 1-3). Then we look to the effects of income maintenance programs on poverty and on income distribution (Tables 4 and 5 and Figures 1, 2, and 3).[11]

3.1 Policy Issue

We begin with income poverty, the ultimate measure of the effectiveness and benefit adequacy of an income maintenance system. The implicit questions we pose are three:

- How do nations compare with respect to poverty rates for the elderly as a whole?
- Which particular age and gender groups are at the highest risk of poverty within a given nation?
- What have been the trends in poverty rates among the elderly over time?

These comparisons serve as the basis for our further work on future income maintenance programs in section 4.

We present both the one-half median and 40 percent of median poverty rates in Table 1. The 40 percent standard is close to the United states "official" poverty measure while the one-half median includes what Americans would call "near poor" (100 to 125 percent poverty range) and is, in fact, the international line most used in cross-national studies.

At the lowest poverty standard (40 percent median), the United States stands out with the highest overall poverty rate, but at the international standard (50 percent median) it ranks third. As we move cumulatively up the poverty scale, at the 50 percent median level the United Kingdom and Australia have poverty rates that exceed those found in the United States. Canadian and European elderly poverty rates are in the single digits (Table 1, Panel A). Women in general (Panel B) and the oldest women living alone (panel D) generally do worse than the

11. For earlier LIS-based investigations of poverty in rich countries, see Hauser (1998), Smeeding (1998, 1997), and Smeeding and Sullivan (1998).

average older person. The pattern is that poverty rates rise within countries as one moves down the table and to the right, suggesting that gender, age, and living arrangements all tend to increase poverty. In some nations—e.g., Sweden, The Netherlands, Germany, and Canada—older persons do better than others—United States, United Kingdom, Australia. In these last three countries, between 43 and 62 percent of women aged 65 and older, and even higher fractions of the oldest women, have incomes less than 0.5 percent of the median. In all nations except The Netherlands, poverty rates for the oldest women living alone at the one-half median poverty standard are 15 percent or more. Thus, single women over the age of 75 are an area of concern in all nations.

A different look at the broadest range of nations in Table 2, this time focusing on *households* (not persons) comes to a similar conclusion (the seven nations in Table 1 are in bold in Table 2 for easy comparison). In almost every nation (except for The Netherlands) the highest poverty rates are among single elderly women living alone (bold column)—higher than that found among couples (who are generally younger), single men, or in other households where an aged person is the head. Poverty rates for older single women households average 22.5 percent, and are above 50 percent in Australia; in the 40 percent range in the United States and the United Kingdom; above 30 percent in Norway and Finland; and below 10 percent only in France and The Netherlands. Because of differences in life expectancy, marriage patterns and timing of retirement, older women are the large majority of all elderly people in most rich countries and also then the majority of all very elderly poor. Elderly survivors, living alone and widowed in retirement, typically spend 8 to 15 years in that state in the rich countries studied here (Smeeding 1999). Also included among this single person household group are never-married women and divorced and separated women. Overall, older women make up more than 70 percent of poor elders in every rich nation studied here.

The final glimpse at elderly poverty shows its trend compared to that for other groups: overall population, children (under age 17), and adults (aged 18 to 64) updated from a recent United Nations publication (Smeeding 1997). Here we see that changes in elder poverty show as much variance as do changes in the level of poverty for other groups across the nations studied here.

Overall poverty rose the most in the 1980s and 1990s in the United States and in the United Kingdom, with no other nation exhibiting an overall poverty change of 2.0 points or more. Thus, only two nations exhibited a significant change in the poverty rate over the 1980s: the United Kingdom (5.4 percentage point increase) and the United States (2.5 percentage point increase). Changes in adult poverty mirror the changes in overall poverty rates, something one expects when 55 to 70 percent of the population in each nation consists of persons aged 18 to 64.

Different patterns are found among the aged and children and here we concentrate only on the aged. Among the old, large changes in poverty rates in both directions are evident within most nations studied here. Elder poverty decreased dramatically in the United States (5.8 percentage point drop), despite the overall increase in poverty noted above, while in the United Kingdom elder poverty rose (by 5.0 percent) consistent with the overall change in poverty. However, poverty levels remain high in both nations (see Tables 1 and 2). Elder poverty decreased by 4.0 points or more in many nations and increased by large amounts in a few, with the largest increase a 6.1 point gain in Norway. Lesser gains were noted in Sweden (3.0 percentage point rise) and The Netherlands (3.8 percentage point rise), though elder poverty rates in both of these nations remained at 6 percent or less, even after these increases (Table 2). Elder poverty rates fell dramatically in Canada (15.3 points), Spain (7.5 points), and France (by 4.3 points or more), with Germany also showing a minor decrease (see also Smeeding and Sullivan 1998 on this point).

It is important to note that changes in relative poverty rates are not always the same as changes in income inequality. While income inequality rose precipitously in the United Kingdom and the United States, and poverty with it, overall income inequality in Sweden, Denmark and Australia also rose over this period with no appreciable effect on overall poverty rates in these nations (Gottschalk and Smeeding 2000, 1997). In many countries, elder poverty rates moved opposite to the change in inequality, e.g., United States, Canada, and France.

We conclude that both the level and trend in poverty among the old differ by nation and by sub-group. In some nations, elder poverty has risen but still remains modest in absolute and comparative terms (Sweden, The Netherlands). In other nations poverty has fallen but remains high (United States) and in still others, elder poverty is both high and rising (United Kingdom, Norway). In all nations, the most at risk group are older single women living alone. Based on their relatively high poverty rates, it appears likely that the income maintenance system has failed some elders, older women in particular.

3.2 Income Maintenance

Most nations fight poverty among the old by combining two programmatic income maintenance strategies:

- Social retirement (social insurance)
- Social safety net (social assistance)

The first strategy usually consists of universal (or nearly universal), pay-as-you-go, defined benefit, social retirement schemes. Whether in the German-Bismark or British-Beveridgian tradition, "social retirement" systems are designed to provide income replacement and some modicum of benefit adequacy to all of its participants. In most such systems one finds a two (or more) tier benefit design: a lower tier with a higher replacement rate for lower lifetime earners (or a high minimum benefit), coupled with an upper tier which is more closely related to contributions but which pays out benefits at a much lower fraction of lifetime earnings for high

earners. In most societies, these social retirement schemes are the major source of income of the aged.

Most nations also couple their social retirement system with some form of social assistance benefit. Such benefits are targeted at the low-income population and supplement social retirement with an income-related safety net. In some cases these programs are different from social retirement (e.g., the United States' Supplemental Security Income (SSI) program, which is also means- or asset-tested), while in others, which are more successful in reducing poverty, they are folded directly into the social retirement scheme (e.g., the Canadian Guaranteed Income Supplement or GIS program which is only income-tested). These systems are specifically targeted at low income families and are most often determined on a household income basis. In contrast, social retirement schemes are usually based on individual earnings supplemented by a spousal benefit package for those who spent less career time in the paid labor force. It should also be noted that one nation, Australia, has only an income-tested system of old age benefit and no contributory social retirement scheme.

The effects of both types of benefits are clearly laid out in Table 4 where we progress from market income (MI), poverty rates (in column A) to disposable income (DI) poverty rates (in column D), factoring in both types of social spending outlined above. We also include the effects of occupational pensions, which are contributory old age income schemes, related to either private or public employment and more directly related to previous earnings.[12]

Moving from left to right, we can identify the sequential impact of each type of old age income support. As expected, poverty rates are highest based on market income alone. Most elderly households do not have sufficient earnings and property income (interest, rent, dividends) to by themselves eliminate poverty. Countries which have higher labor force participation rates

12. Such schemes may be either of a defined contribution or defined benefit nature. However benefits are determined, the systems are usually pre-funded by employer and employee contributions.

at older ages have lower MI-based poverty rates (e.g., United States, Spain). The second column (B) adds in occupational pensions (and other private transfers). In nations, which rely more heavily on such schemes, poverty rates are lower. For instance, elder poverty, including occupational pension benefits, is in the 60 to 65 percent range in the United States, United Kingdom, Canada, and The Netherlands. It is much higher in societies, which have smaller (or fewer) occupational pensions, e.g., Sweden and France.

Counting these sources of income sets the stage for measuring the impact of the income maintenance system. First (column C), we note the impact of "social retirement" and next (column D) the impact of the social assistance "safety net" programs on poverty rates. The largest affect on old age poverty in every nation (except Australia) comes from the social retirement system (compare the percentage point declines in column E and F). In general, the more generous the first tier benefit for lower wage earners, the larger the antipoverty effect (column E), but the higher the cost (see Figure 1 following on costs). Thus, Sweden, Germany, and France have the largest effects on poverty (68 to 79 percentage point reductions) followed by The Netherlands and Spain (53 to 57 point reductions). In lower spending nations like Canada, United States, and the United Kingdom, the effect on poverty is also less, with social retirement reducing elder poverty by only 36 to 49 percentage points.

These benefits set the scene for the final stage impacts of the social safety net programs in columns D and F. Here skillfully targeted supplements with high participation rates may produce large final antipoverty effects. In Canada and Sweden, the impacts are largest followed by France and The Netherlands (column F). In Germany the effects are small with most of the "heavy lifting" of the elderly from poverty being accomplished by their social retirement system.

The net effect of these systems is to produce widely varying poverty outcomes depending on the mix and strength of each component of the system (column D). Those systems which spend more (e.g., Sweden, Germany, The Netherlands, France, and Spain) end up with lower poverty rates. Those with well-targeted social assistance benefits also do well at fighting poverty (e.g., Canada but also Sweden, The Netherlands), while those without such strong or well-targeted systems do not do as well (e.g., Australia, United Kingdom, and the United States).

3.3 Income Composition

Finally, we look at the composition of the income of the aged at various income levels. We examine five sources of income: earnings, capital/property income, occupational pensions (from private or public sector employees), social retirement, and other safety net income which is largely from means- or income-tested benefits in most nations (Table 5). We look at these sources at three points in the distribution: the lowest decile, the middle decile, and the highest income decile. Several patterns emerge:

- In all nations (except Australia), social retirement is overwhelmingly the most important source of income for the lowest decile and for the median decile. Means-tested income is usually the second most important source for the lowest decile indicating that the standard of living among the low and middle income aged is largely determined by public sector income maintenance, particularly by the benefits from social retirement benefits.

- At higher income levels one finds a more balanced portfolio in almost all nations. Earnings, property income, occupational pensions, and social retirement all help support the economic status of the better off aged (except for Sweden, where social retirement continues to dominate): and Australia, where the income-tested old age benefit system peters out.

- Middle income elderly still receive two-thirds or more of their incomes from social retirement in every nation studied here. In fact, middle income older persons rely as much or more on social retirement as do low income persons in the United States, Germany, and Sweden.

- Older women (final three columns) look remarkably like all of the aged in terms of their income sources, with an even greater reliance on social retirement as an income source, and a lesser reliance on earnings.

We conclude that there is greater diversity among the aged with respect to poverty, but much greater similarity with respect to reliance on income sources. All of the aged, and particularly those at low and middle income levels rely on social retirement as a source of economic well-being. Property income and occupational pensions account for more than 25 percent of incomes only among the well-to-do elderly. The structure and size of the income maintenance system explains why some nations do better than do others in fighting poverty.

3.4 Summary of Results

In the end three key factors help determine the antipoverty effectiveness of income maintenance schemes for the elderly:

- How much one spends
- How well it is targeted
- How generous is the minimally adequate benefit level.

Two diagrams summarize these three points. First of all, what is spent (amount) and how it is spent (targeting) both make a difference. Figure 1 is based on OECD (1999) Social Expenditure data and person-based poverty rates (Tables 1 and 4). There is a fairly clear relationship between expenditure level and poverty, with high spending income maintenance states having lower poverty rates and the low spending Anglo-Saxon nations being at the opposite end of the line. For each extra .5 percent of GDP spent, poverty rates fall about 3.0 percentage points. A similar diagram and a similar pattern for household-based poverty rates can be found in the appendix (Figure A-1).

Note that targeting is also important. For instance, a country like Canada has a very efficient income-related lower tier benefit, which produces a low poverty rate for a modest level of social expenditure. In contrast, Sweden has about the same elder poverty rate, but spends twice as much or more than do the Canadians to reach these levels. In general, nations with better targeted income maintenance schemes are found below the regression line while those who do worse are above the line.

Finally, Figure 2 suggests that the minimum old age benefit for a single person from the combined social retirement/social safety net package is also an important determinant of poverty. Here we examine the minimum income package for single elderly in eight countries in two periods, expressed as a percent of adjusted median income. The first set of figures for the 1980s were calculated by the OECD in the early 1990s. The second set were calculated from LIS data for the 1990s.[13] Both sets of estimates tell the same story. If you have a low minimum benefit package, poverty rates will be higher than if you have a higher level of benefit adequacy. Patterns of poverty rates among the elderly presented earlier generally mirror the patterns of minimum benefits found in Figure 2.

4 The Future of Income Maintenance for the Elderly

If the benefit of an expensive but successful income maintenance program is low elder poverty, the cost is fiscal unsustainability. Numerous authors and organizations have suggested that pay-as-you-go social retirement schemes will require that 2 to 6 percent higher percentages of GDP be devoted to these schemes to maintain current benefits over the next 30 years (e.g., OECD 1998b; Smeeding and Smith 1998). The costs of providing health care benefits to a rapidly growing older population will only add to these pressures (OECD 1998b). The choices are really very simple, either taxes (or charges for health care) must be raised to support these levels of expenditures or benefits must be curtailed. Almost every nation examined here is embarking upon a scheme to raise retirement ages, to tighten eligibility for early retirement benefits, or both. A few are contemplating a changeover to a contributory defined benefit

13 Smeeding (1998) discusses the varieties of benefit packages that provide this level of support. For instance, in the United States, the minimum income package is made up of three separate programs (Social Security, SSI, and food stamps).

scheme, and at least one, the United Kingdom, has already made such a switch. Others (e.g., Sweden) have added a third tier benefit that is much like a contributory private pension. However, the vast majority are counting on economic growth, willingness of taxpayers to raise taxes, and/or minor benefit changes to save the day. We can only hope for the best in these cases. In response to fiscal pressures, changes in the retirement income system will be played out over the coming decades, and indeed one might ask how these changes will affect the income maintenance systems in each of these nations?

Two cautionary tales can be told. The first tale is that of the United Kingdom where the privatized State Earning Related Pension Scheme (SERPS) public retirement system has benefited the well-to-do more than it has the lowest income tier of elderly beneficiaries. Benefit adequacy for those at the bottom of the elderly income distribution is a serious issue in the United Kingdom, as minimum benefits have not kept up with the rest of the growing economy (Figure 2). A recent "White Paper" on pension reform sets out to fix this problem, but the issue has yet to be addressed. This situation suggests that we must be wary of the way in which fiscally driven social retirement reform and prioritization affects the benefit adequacy and safety net features of social retirement systems (Smeeding and Sullivan 1998).

The second tale is one of demographic change but not one of population aging per se. In America, the future Social Security financing situation has not yet been addressed. However the fiscal deficit (about 2 percent of GDP) is made up, additional changes will be needed if Americans wish to find lower poverty rates for its elderly women in 20 years time. Figure 3 suggests that the fraction of older women who fall below the official United States government poverty line (an "absolute" line adjusted only for price changes and not income changes, and set at about 40 percent of adjusted median income in 1991) will be the same in 2020 as it was in 1991 if reformers only fix the financing scheme leaving the benefit scheme the same (Estes et al 1999; Smeeding 1999).

The reason for this disappointing performance is entirely due to the changing demographics of older women. In the United States, as in many other rich western countries, the fraction of older women who will spend their old age as divorcees or never-married will greatly increase over the coming decades (Overbye 1997). Thus, even if poverty rates decline among widows, elderly couples, and divorcees, overall poverty rates will not change. Also, as never-married older women increasingly become never married single parents, their poverty rate is expected to increase in 2020 compared to 1991. Thus, changes in the composition of the elderly, as well as changes in the numbers of older persons must be taken into account by policy changes that seek to preserve or enhance benefit adequacy.

5 Conclusion

In summary, different schemes for income maintenance in old age produce very different poverty results. More spending, well targeted spending, and adequate minimum benefits all produce lower poverty rates. Spending that is not well targeted or that suffers take-up problems, and systems with relatively low minimum benefits, do not do so well.

Fiscal realities suggest that income maintenance in general and social retirement in particular will change in the future. We expect that spending will fall on cash social retirement, and that housing, health care, and long term care benefits, which largely benefit the elderly, will also shrink. The fiscal realities of an aging society with increasing longer lifespan at older ages demands this change. The question is not whether social retirement benefits will fall, but by how much they will fall. In making these changes, retirement income systems must address not only the fiscal realities of low fertility and rapid population aging, but also the realities of maintaining or improving their safety net when faced with a changing distribution of beneficiaries. The way that benefits are structured and the levels at which minimum benefits are set for workers, survivors, and spouses will still be important. However, old age income maintenance systems

will need to also address increased numbers of divorced, separated, and never-married older women, all of which are on the increase in the countries studied here, if we are to maintain low elder poverty rates in many rich nations and to reduce them further in others.

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Table 1. Poverty [1] Rates Among the Aged; [2]
Being Old and Being Female

Percent of Population with Incomes Less than Given Percent of Adjusted National Median Disposable Income

Country	Year	40%	50%
A. Elderly			
United States	1994	13.4	22.7
United Kingdom	1991	11.0	23.9
Australia	1989	7.2	28.6
Canada	1994	1.3	6.1
Germany	1994	4.9	8.7
Netherlands	1991	3.2	4.4
Sweden	1992	1.5	6.4
B. Elderly Women (65+)			
United States	1994	16.7	27.5
United Kingdom	1991	13.4	34.8
Australia	1989	8.0	34.1
Canada	1994	1.4	8.3
Germany	1994	5.7	10.7
Netherlands	1991	2.9	4.0
Sweden	1992	1.9	9.1
C. Elderly Women (65+) Living Alone			
United States	1994	26.9	43.1
United Kingdom	1991	23.3	50.1
Australia	1989	12.4	62.1
Canada	1994	2.5	16.2
Germany	1994	9.3	15.9
Netherlands	1991	2.1	3.4
Sweden	1992	3.0	14.7
D. Elderly Women (75+) Living Alone			
United States	1994	27.7	46.6
United Kingdom	1991	25.2	51.8
Australia	1989	12.3	64.5
Canada	1994	2.4	14.8
Germany	1994	9.9	17.8
Netherlands	1991	1.6	3.1
Sweden	1992	3.1	17.4

Source: Luxembourg Income Study

Notes:

[1] Poverty is defined as percentage of elderly living in households with adjusted disposable income less than given percent of median adjusted disposable income for all persons. Incomes are adjusted by E=0.5 where adjusted DPI=actual DPI divided by household size(s) to the power E: Adjusted DPI=DPI/s^E.

[2] Aged are all persons aged 65 and older. Person level and houshold level files were matched and income data weighted by the person sample weight from the person level file.

Table 2. Household Poverty [1] (in percent) by Living Arrangements

		Households with an Aged Head				
Country	**Year**	**Overall**	**Couples [2]**	**Single Women [3]**	**Single Men [4]**	**Other [5]**
Australia	**1989**	**19.8**	**8.7**	**52.7**	**42.3**	**5.5**
Belgium	1992	11.3	11.3	17.7	13.8	2.9
Canada	**1991**	**5.8**	**3.8**	**12.0**	**11.7**	**2.5**
Denmark	1992	10.8	3.0	19.8	21.6	na
Finland	1991	14.7	2.7	33.2	13.6	3.6
France	1984	4.3	2.2	8.9	5.0	2.6
Germany	**1989**	**7.4**	**4.9**	**12.5**	**5.9**	**4.3**
Luxembourg	1985	13.4	12.9	17.7	14.0	7.9
Netherlands	**1991**	**3.9**	**4.4**	**2.8**	**5.3**	**3.3**
Norway	1991	11.9	1.1	34.2	20.7	0.3
Spain	1990	12.3	15.5	20.1	11.4	7.7
Sweden	**1992**	**6.1**	**0.6**	**14.7**	**8.1**	**na**
United Kingdom	**1991**	**22.0**	**16.4**	**42.3**	**26.9**	**5.3**
United States	**1994**	**18.9**	**12.1**	**38.2**	**24.3**	**13.2**
Overall Average		11.1	6.9	**22.5**	15.2	4.7

Source: Smeeding (1997) and the Luxembourg Income Study.

Notes:

[1] Poverty is measured at 50% median adjusted disposable personal income (DPI) for individuals. Incomes are adjusted by E=0.5 where adjusted DPI=actual DPI divided by houshold size(s) to the power E: Adjusted DPI=DPI/s^E.

[2] Families with only two adults (aged 65 and older) present.

[3] Single Women living alone aged 65 and older.

[4] Single Men living alone aged 65 and older.

[5] All other families with a household head aged 65 and older.

Table 3. Overall Trends in Poverty:
Persons with Income Less than Half of Median Income

Country	Years	Overall	Aged	Adults	Children
Australia	1981-1989	0	+	0	0
Belgium	1985-1992	0	+	0	0
Canada	1981-1994	0	---	+	0
Denmark	1987-1992	0	0	0	0
Finland	1987-1991	0	0	0	0
France	1984-1989	-	---	0	0
Germany	1984-1994	+	-	+	++
Netherlands	1986-1991	+	++	+	++
Norway	1979-1991	+	++	0	0
Spain	1980-1990	-	---	-	0
Sweden	1975-1992	+	.++	+	-
United States	1979-1994	++	---	++	+++
United Kingdom	1979-1991	+++	++	+++	+++

Source: Author's calculations based on Luxembourg Income Study and Smeeding (1997).

Legend of Change from Beginning to End:

0 = within +/- 1.0 points
\+ = increase of 1.0 to 1.9 points
++ = increase of 1.9 to 3.9 points
+++ = increase of 4.0 points or more
\- = decrease of 1.0 to 1.9 points
-- = decrease of 1.9 to 3.9 points
--- = decrease of 4.0 points or more

Table 4
Elderly Poverty Rates by Income Maintenance Source [1] and Income Definition

	(A)	(B)	(C)	(D)	(E)	(F)
					Role of Income Maintenance: Percentage Point Decline in Poverty Due to:	
	Market Income (MI)	*Col. A* + Occupational Pensions	*Col. B* + Social Retirement Transfers	*Col. C* + Social Safety Net Transfers [2]	Social Retirement *(B to C)*	Social Safety Net *(C to D)*
Australia 1994 [3]	79.5	73.0	72.8	23.1	0.2	49.7
Canada 1994	78.9	61.6	15.4	6.1	46.2	9.3
France 1989	86.6	86.2	17.9	13.4	68.3	4.5
Germany 1994	88.0	77.6	9.3	8.7	68.3	0.6
Netherlands 1991	92.3	65.8	8.5	4.4	57.3	4.1
Spain 1990	72.0	68.6	15.6	13.0	53.0	2.6
Sweden 1992 [4]	91.6	91.6	13.1	6.4	78.5	6.7
United Kingdom 1995	83.3	65.5	29.3	23.9	36.2	5.4
United States 1994	73.8	60.2	23.5	22.7	36.7	0.8

Source: Luxembourg Income Study.

Notes:

[1] Poverty measured at 50 percent of median adjusted household disposable income, where E=.5 and ADI=DI/S ^{E}.

[2] Column D presents disposable income poverty rates.Social Safety Net includes effects of direct taxes.

[3] Australia has no social insurance based retirement system for the elderly.

[4] In Sweden, we cannot separate the effect of private pensions from social retirement.

Table 5
Within Decile Gross Income Composition of Aged [1]

	All Aged			Single Women 65+		
	Decile 1	Decile 5	Decile 10	Decile 1	Decile 5	Decile 10
United States 1994						
Earnings	2.61	9.58	37.90	0.63	1.88	17.17
Capital or Property Income	6.12	9.16	23.16	9.28	5.79	34.64
Occupational Pension	3.68	14.68	20.05	2.65	6.56	21.22
Social Retirement	69.73	65.73	18.75	68.63	84.25	26.75
Income-Tested and Other Income	17.87	0.85	0.14	18.81	1.54	0.21
United Kingdom 1991						
Earnings	0.00	1.98	25.30	0.00	0.27	3.14
Capital or Property Income	4.03	7.74	28.62	3.77	2.49	32.57
Occupational Pension	3.37	16.14	30.15	2.98	4.44	37.48
Social Retirement	85.04	65.62	15.32	85.51	64.65	26.75
Income-Tested and Other Income	7.56	8.51	0.62	7.74	28.14	0.06
Canada 1994						
Earnings	1.23	5.42	30.22	0.06	0.18	5.97
Capital or Property Income	2.21	8.23	20.37	1.64	6.39	25.39
Occupational Pension	1.66	14.77	27.25	2.72	3.44	32.97
Social Retirement	87.04	68.14	20.07	88.42	85.33	19.92
Income-Tested and Other Income	7.85	3.56	2.08	7.15	4.69	1.89
Germany 1994						
Earnings	0.71	1.71	25.29	0.80	1.26	6.16
Capital or Property Income	0.34	0.78	10.47	0.20	0.32	17.24
Occupational Pension	1.02	7.97	28.92	1.01	15.70	31.20
Social Retirement	88.87	88.35	34.09	85.38	80.80	43.29
Income-Tested and Other Income	9.07	1.19	1.22	12.61	1.92	2.10
Netherlands 1991						
Earnings	0.21	0.31	11.14	0.00	0.00	0.87
Capital or Property Income	1.89	4.87	14.70	2.25	1.29	16.78
Occupational Pension	5.99	18.41	48.61	5.99	11.96	51.63
Social Retirement	81.54	72.80	24.73	74.91	82.20	30.23
Income-Tested and Other Income	10.37	3.62	0.82	16.85	4.55	0.49
Sweden 1992						
Earnings	0.38	1.74	16.46	0.00	0.15	5.09
Capital or Property Income	7.01	7.09	12.37	7.28	12.09	10.65
Social Retirement [2]	76.80	90.58	71.17	78.98	74.66	84.18
Income-Tested and Other Income	15.80	0.60	0.00	13.74	13.10	0.08
Australia 1989						
Earnings	1.17	0.95	42.93	0.00	0.00	10.01
Capital or Property Income	16.44	15.63	40.50	23.04	6.15	46.44
Occupational Pension	2.17	2.94	9.56	3.79	1.88	29.55
Income-Tested and Other Income	4.50	0.02	0.78	8.28	0.00	1.40
Social Insurance [3]	75.73	80.47	6.22	64.89	91.97	12.61

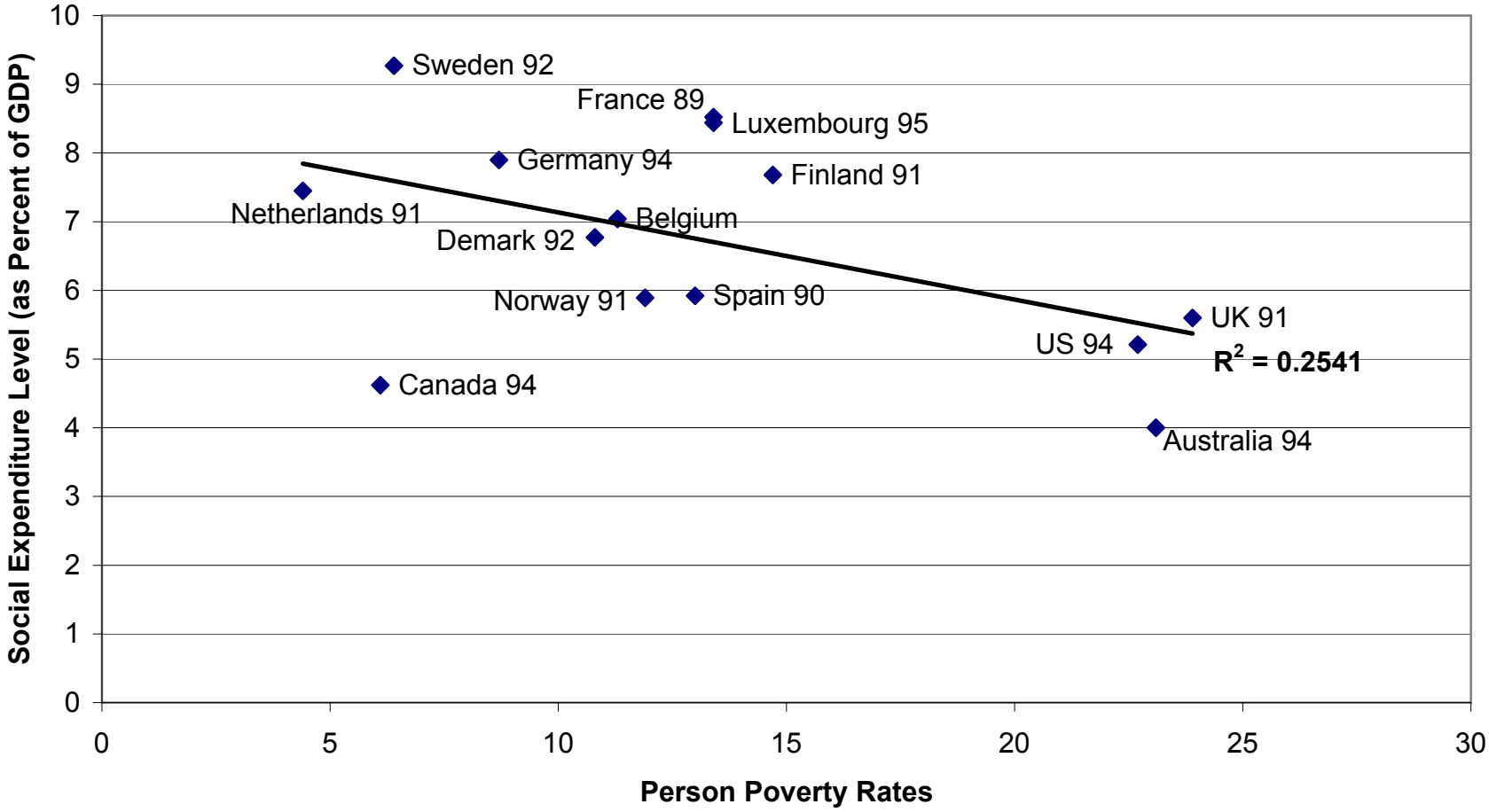
Source: Author's calculations from Luxembourg Income Study.
Notes:

[1] Incomes are adjusted for family size using an equivalence elasticity of E=.5 where $EGI=GI/S^E$ and GI is gross income.

[2] In Sweden, occupational pensions are included with social retirement.

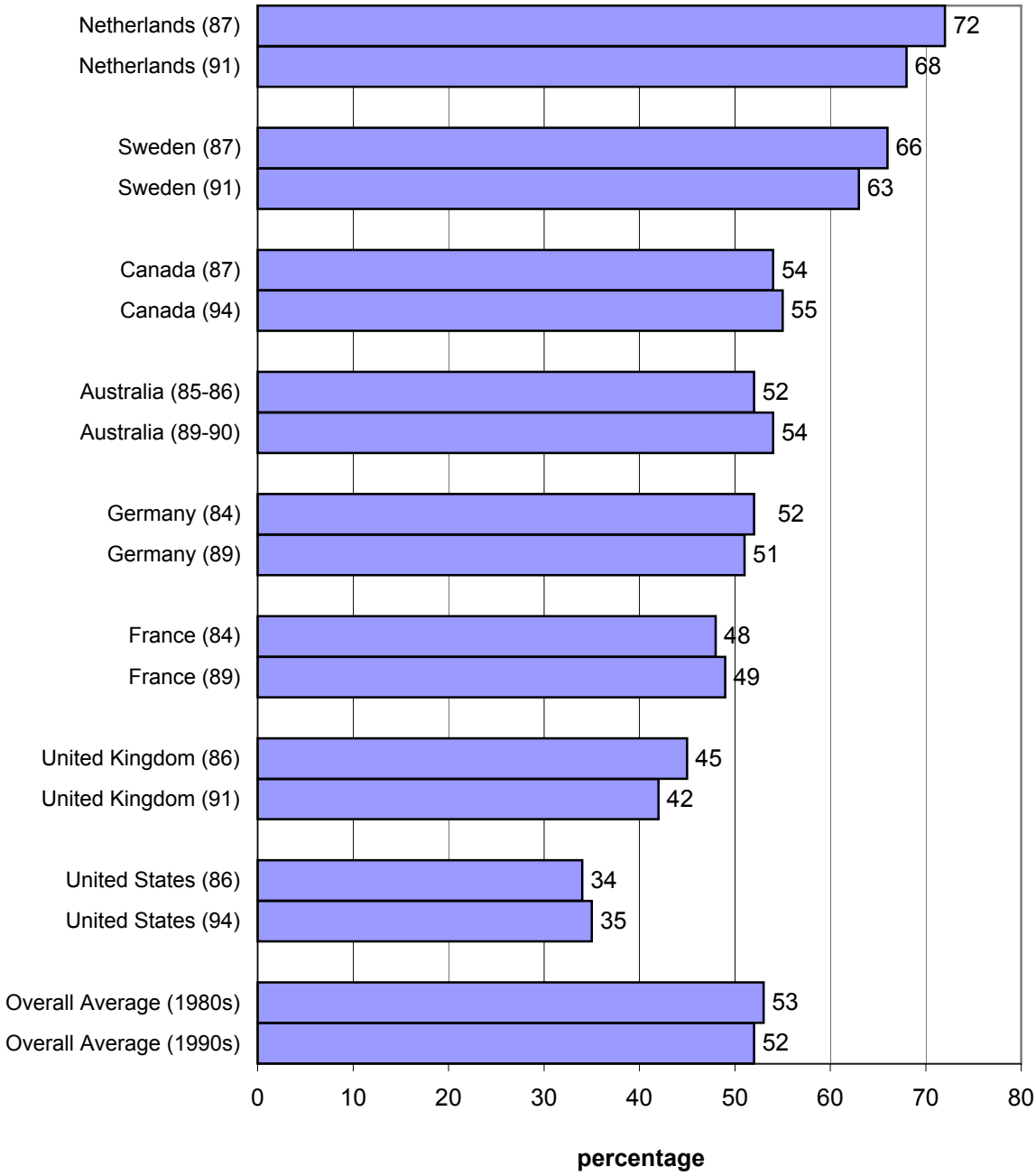
[3] In Australia, social insurance and other income includes small programs for veterans, disabled and unemployed.

Figure 1. Income Maintenance Spending and Elder Person Poverty



Source: Cash social expenditures on the elderly from OECD (1999); poverty rates for persons age 65 and over from Tables 1 and 4.

Figure 2. Generosity of the Safety Net: Minimum Old Age Benefit [a] as Percentage of Adjusted Median Income [b] for Single Persons

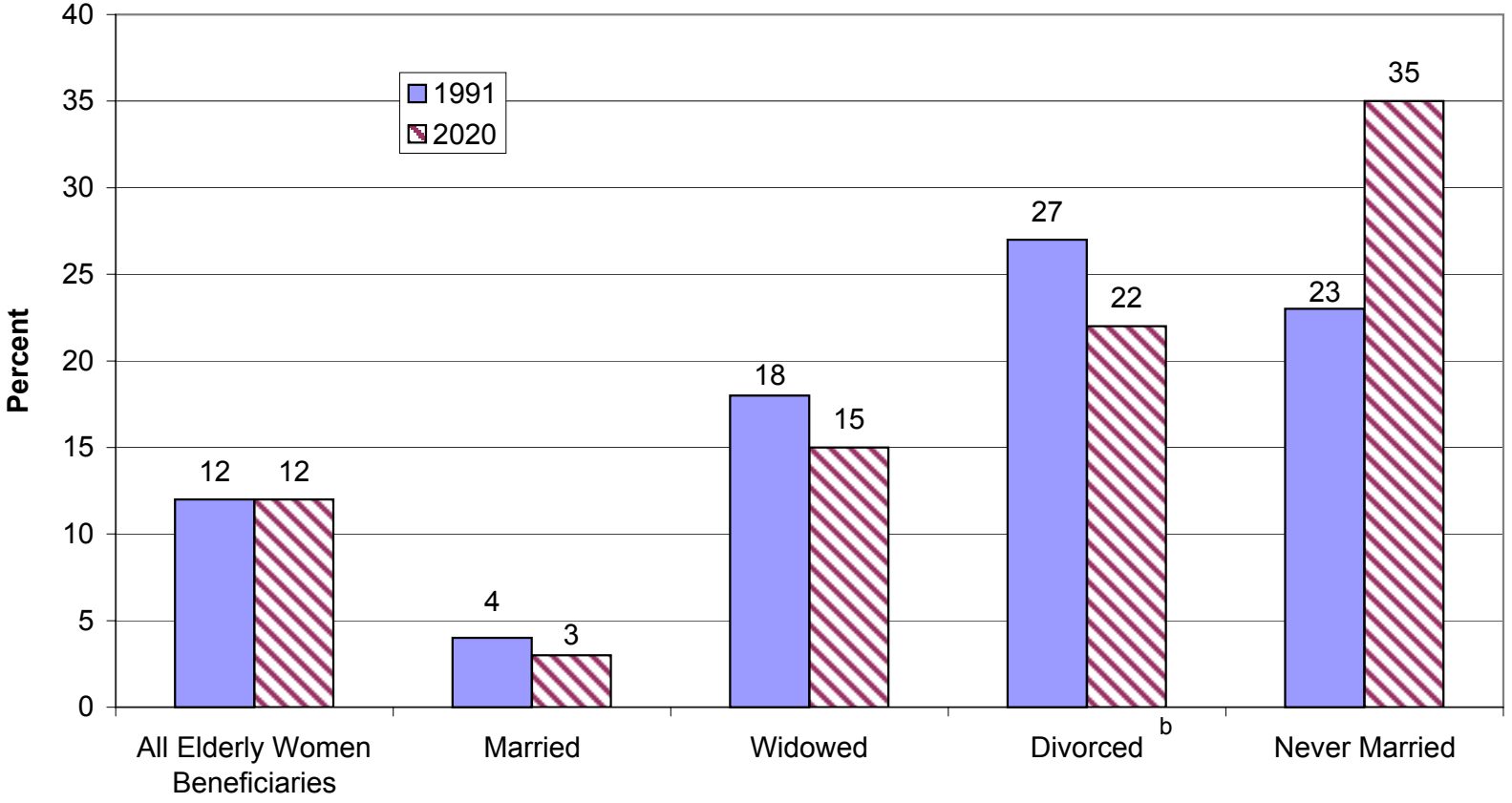


Source: Luxembourg Income Study and Burkhauser and Smeeding (1994); Smeeding (1998).

[a] Minimum benefits as published by the Organization for Economic Cooperation and Development (OECD) were compared with adjusted median income after adjusting for national price changes using LIS data for the first period. In the second period the values were derived directly from the LIS data.

[b] Income is adjusted using the simple equivalence scale that counts the first person as 1.0 and all other persons as 0.5 regardless of age. Elderly heads are 65 and over.

Figure 3.
Poverty Rates of Elderly Women Social Security Beneficiaries by Marital Status, 1991 and 2020[a]



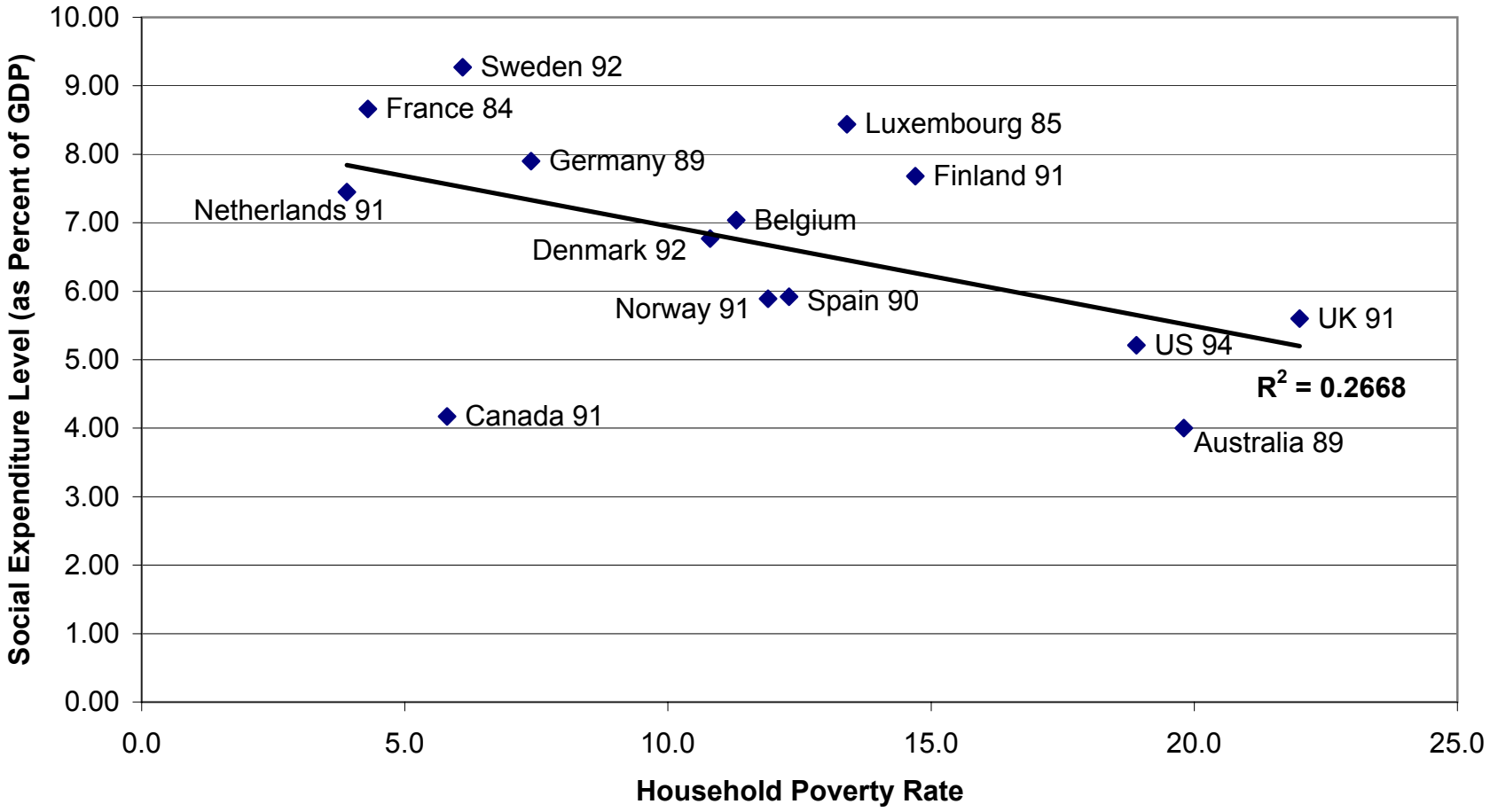
1990	(100.0)	(48)	(42)	(6)	(4)
2020	(100.0)	(44)	(31)	(19)	(6)

Source: Smeeding (1999); Butrica, Cohen and Iams (1999); Iams and Butrica (1999).
Notes:

[a] Poverty rates are based on the official U.S. poverty line and gross money income levels. See U.S. Bureau of the Census (1998) for methodology. By 2021, 98 percent of all US elder women will be covered by Social Security.

[b] "Divorced" includes separated and divorced women.

Figure A-1. Income Maintenance Spending and Elder Household Poverty



Source: Cash social expenditures on the elderly from OECD (1999); poverty rates for households with head age 65 and over from Table 2.

Figure A-2
LIS DATABASE LIST: Country and Year[1]

Country[2]	Historical	Wave I	Wave II	Wave III	Wave IV	Wave V
Australia		**AS81**	**AS85**	**AS89**	**AS94**	
Austria			OS87		OS95*	
Belgium			**BE85**	**BE88/BE92**	**BE97***	
Canada	**CN71/75**	**CN81**	**CN87**	**CN91**	**CN94/97/98**	
Czech Republic				CZ92	CZ96	
Denmark			**DK87**	**DK92**	**DK95/97**	
Finland			**FI87**	**FI91**	**FI95**	
France[3]		**FR79/FR81**	**FR84A/84B**	**FR89**	**FR94**	
Germany[4]	**GE73/78**	**GE81**	**GE83/84**	**GE89**	**GE94**	
Hungary				HU91	HU94	HU99*
Ireland			IR87		IR95*/97*	
Israel		IS79	IS86	IS92	IS97	
Italy			IT86	IT91	IT95	
Luxembourg			**LX85**	**LX91**	**LX94**	
Mexico			MX94	MX89/92	MX94/96/98	MX00*
Netherlands			**NL83/86*/87**	**NL91**	**NL94**	
Norway		**NW79**	**NW86**	**NW91**	**NW95**	
Poland			PL86	PL92	PL95	PL99
R.O.C.-Taiwan		RC81	RC86	RC91	RC95	
Russia				RL92	RL95	
Slovak Republic				SV92	SV96*	
Spain		**SP80**		**SP90**		
Sweden	**SW67/75**	**SW81**	**SW87**	**SW92**	**SW95**	
Switzerland		CH82		CH92		CH00*
United Kingdom	**UK69/74**	**UK79**	**UK86**	**UK91**	**UK94/95**	**UK99**
United States	**US69/74**	**US79**	**US86**	**US91**	**US94/97**	**US00***
					State fule: 199567	

[1] Year given is reference year, not necessarily the year that the data were collected. Codes within the cells are the LIS database country/year abbreviations.

[2] We are also in negotiation with Greece, Korea, South Africa, and New Zealand.

[3] France has an income survey (1979, 1984) and a budget survey (1984, 1989, 1994).

[4] Germany has three different databases: an income and expenditure survey (1973, 1978, 1983); a transfer income survey (1981); and three cross-sections from the Socio-Economic Panel Study (GSOEP) (1984,1989,1994).

* Anticipated that this will be available during 2002.

Note: See http://www.lisproject.org for more information.

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