
The relationship between alternative measures of social spending and poverty rates

Koen Caminada (corresponding author)

Economics Department, Leiden University, PO Box 9520, 2300 RA Leiden, The Netherlands

Kees Goudswaard

Economics Department, Leiden University, PO Box 9520, 2300 RA Leiden, The Netherlands

Abstract

This paper analyzes the relationship between social expenditure and relative income poverty. A vast literature claims that high social effort goes along with low poverty levels across countries. Social expenditure ratios are generally used as a proxy for social effort. However, this indicator is far from perfect. We analyze the familiar claim capturing also private social expenditure and the impact of the tax system on social effort, using OECD methodology. This gives a much better measure of what is really devoted to social spending. We performed several tests with the most recent data.

We still find quite a strong negative relationship between the level of gross public social expenditure and poverty, but after also controlling for the impact of taxes on the social expenditure ratios, the linkage between social effort and poverty levels across countries becomes much weaker or insignificant. Thus, the familiar claim must be toned down.

Keywords: Poverty, Social expenditures, Welfare states

Acknowledgments

We thank John Beirne, Ross Gittell, Bob Haveman, Lane Kenworthy, Henk Nijboer, Tim Smeeding, Ben van Velthoven, Olaf van Vliet, Cok Vrooman and Barbara Wolfe for useful comments on earlier versions of this paper. This study is part of the research program 'Reforming Social Security': www.hsz.leidenuniv.nl. Financial support of Stichting Instituut GAK is gratefully acknowledged. The usual disclaimer applies.

1. Introduction

The poverty problem is striking, also in highly-developed welfare states. According to the most common standards used in international poverty analyses, on average roughly one in ten households live in relative poverty in OECD countries (cf. Behrendt, 2002; Smeeding, 2005; OECD, 2008). The European Union especially encourages Member States to combat poverty (Atkinson, 2002; Caminada & Goudswaard, 2009). In the EU people are said to be at risk of income poverty if their incomes are below 60 per cent of the median disposable income of households in their country, after adjusting for household size. Based on this EU-agreed definition, the proportion of the EU25-population who were at risk of poverty in 2009 is 16 percent.

The differences in poverty levels among countries are large. A common explanation for these differences is the diversity of welfare states. A vast literature claims that high social effort goes along with low poverty levels across countries. The overall result of quantitative studies seems to be that there is strong negative correlation between poverty and social expenditures across countries over the last 25 years (Behrendt, 2002). For example, the European Commission (2009, p. 27) states that across the EU, the countries with the lowest poverty rates are clearly those who spend most on social benefits. Smeeding claims in several papers (2006, p. 80; and 2005, p. 974) that higher levels of government spending as in Scandinavia and Northern Europe and more careful

targeting of government transfers on the poor as in Canada, Sweden and Finland produce lower poverty rates. Nolan and Marx (2009, pp. 329-330) state that “there is a strong relationship at country level between the level of social spending and the incidence of poverty” – “arguably one of the most robust findings in comparative poverty research”. The strong cross-country association between high welfare state effort and low poverty would suggest that increasing spending in currently low-effort countries would lead to a downward convergence in poverty outcomes.

One of the problems with this research, however, is that there may be a number of factors that have an impact on poverty. These factors may affect the relationship between social spending and poverty in empirical studies. Because of this, Caminada, Goudswaard & Koster (2012) developed a multivariate framework. They included relevant demographic and economic variables in the analysis. Still, they found a strong negative relationship between the level of social expenditure and poverty. Thus, this approach confirmed the earlier findings.

Another problem with this research is how welfare state effort should be measured. Most studies use social expenditure ratios as proxy for social effort. However, there are several problems with social expenditure as an indicator for differences in social effort across countries (Esping-Andersen & Myles, 2009). The OECD has developed indicators that aim to measure what part of an economy’s domestic production recipients of social benefits really draw on (Adema, 2001). This requires capturing private social benefits, which are close substitutes to public programs, and the impact of the tax system, because differences in taxation have an impact on expenditure statistics.

In this paper we will investigate whether the familiar claim, that higher social effort goes along with lower poverty, also holds if adjusted indicators for social expenditure are used. The paper builds on the work by Adema (2001 and 2010). We perform a cross-country analysis of the relationship between poverty rates and social effort, as measured by social expenditure ratios. Both EU15 countries and non-EU15 countries are taken into account to investigate whether both groups of countries generate (dis)similar results with their social expenditure systems. We correct social expenditure ratios for the impact of the tax system and for private social arrangements.

The paper is organized as follows. Section 2 presents the research design. We discuss the issues regarding the measurement of poverty incidence and present an overview of poverty rates in developed welfare states. Next, we discuss the measurement of social effort, and specifically the impact of private arrangements and tax features on social effort. Section 3 investigates the relationship between welfare state effort and poverty rates across countries in several steps. We address the question whether there is a correlation between the size of the welfare state as measured by corrected social expenditure ratios and the incidence of poverty. Section 4 discusses the robustness of the relationship between poverty rates and social expenditures across countries. Section 5 concludes.

2. Research design

The main question we address is whether there is a significant correlation between the size of the welfare state and the incidence of poverty across countries when social expenditure ratios are adjusted for the impact of the tax system and for private social arrangements. Are high social expenditure ratios associated with low poverty rates? Our research design starts with the data to be used, because poverty rates and social expenditure rates can be collected from several sources. Next, we discuss how to measure social effort and the effect of social expenditures on poverty rates in a cross-national perspective.

2.1 Measuring poverty incidence

There are three common ways of setting the poverty line: an absolute standard, a relative standard, and a subjective standard. The U.S. poverty threshold is based on an absolute poverty standard, which remains fixed over time in real terms. The EU-agreed relative poverty line is set as a fixed percentage of the median income in each country, which may change over time if median income changes in real terms. The subjective poverty line is based on respondents’ answers to questions regarding what they consider an adequate standard of living. Following international standards, we use the relative rather than the absolute or subjective approach in measuring income poverty. This means, we define those households that have an equivalent disposable income below a certain threshold representing the level of well-being of the population in a specific country as being poor. In most comparative studies the poverty threshold has been set at 50 percent of median equivalent

disposable income, but we also employ the EU-agreed definition of poverty with a threshold at 60 percent. It should be noted that there has been little professional consensus among researchers with regard to the theoretical superiority of a particular way of measuring poverty (Haveman, 2008). The aim of this paper is not to review definitional issues that arise in assessing the extent of, and change in, poverty in Western industrialized countries. We simply refer to a vast literature on the sensitivity of measured results to the choice of income definitions, poverty lines, appropriate equivalence scales, and other elements that may affect results in comparative poverty research.¹

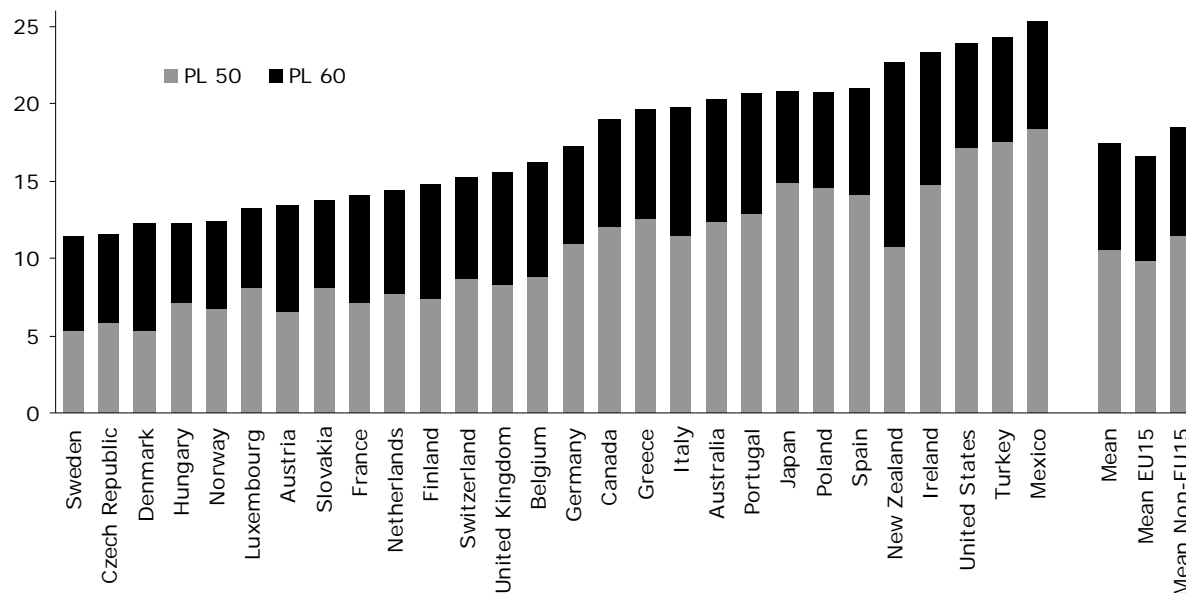
In this paper, we will use OECD poverty data around the year 2003-2005 based on the OECD study (2008) entitled 'Growing unequal? Income distribution and poverty in OECD countries'. But we will also perform a sensitivity analysis using data from the Luxembourg Income Study (LIS).

2.2 Poverty rates: some descriptive statistics

In spite of differences in the measurement of poverty and the databases used, most studies have consistently found that there is a large difference in poverty rates among welfare states. This is confirmed by Figure 1, which shows poverty rates for 28 industrialized nations, based on OECD-data. A considerable share of the population lives in relative income poverty in all industrialized welfare states, yet with a large variation of poverty rates and structure across countries. All countries in this sample display poverty rates in a range of 11.4 to 25.3 percent of the household population if the poverty line is set at 60 percent of median equivalent household income. But it turns out that, in all countries reviewed, a significant share of the population is clustered between the 50 and 60 percent thresholds. This explains why poverty statistics with a threshold of 50 percent are much lower compared to the official EU-indicator.

Scandinavian and Benelux countries have the lowest poverty rates, followed by Continental European countries. Most Anglo Saxon welfare states have relatively higher poverty rates, with the exception of the United Kingdom. Among them, the level of poverty is highest in the United States. On average poverty rates for EU15 countries (mean 16.6 percent) are lower compared to poverty rates for non-EU15 countries (mean 18.5 percent) when we apply a poverty line of 60 percent of median equivalent household income.

Figure 1. Percent poverty for total population in 28 countries around 2003-2005



Notes:

- Poverty rates are measured as the proportion of individuals with equivalized disposable income less than 50, and 60 percent of the median income of the entire population.
- EU15 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom.
- Non-EU15 countries: Australia, Canada, Czech Republic, Hungary, Japan, Mexico, New Zealand, Norway, Poland, Slovak Republic, Switzerland, Turkey, and the United States.

Source: OECD (2008)

2.3 Measuring social effort

To investigate the linkage between social effort and poverty, we employ several social expenditure ratios from the most recent OECD Social Expenditure Database (SOCX, 2011). This database contains aggregate and disaggregated data on social expenditures. The main social policy areas included are old age, survivors, family, health and other social programs. Both cash benefits and benefits in kind are included. It should be noted that social expenditure indicators at the aggregate level have several limitations (Kühner, 2007). Changes in expenditure ratios may not be caused by policy changes, but simply by the number of beneficiaries as a result of an ageing population or changes in unemployment levels due to cyclical factors.

In this paper we focus on another issue. In most existing studies, social expenditure only includes public arrangements. However, social effort is not restricted to the public domain: all kinds of private social arrangements can be close substitutes to public programs. It is necessary to take into account the role of private programs in ensuring adequate protection in addition to those provided by public systems. Some private social programs may also redistribute resources towards low-income groups, thus helping to reduce the poverty risk.

In addition, the tax system is relevant for social effort. The impact of the tax system on the social effort is threefold. In some countries cash benefits are taxable as a rule, in other countries they are not. In the former countries net social effort is less than suggested by gross spending indicators. Indirect taxation of consumption by benefit recipients is another factor that may blur the picture. When indirect taxes are higher, benefit recipients have less effective purchasing power. And thirdly, the tax system can be used for social purposes. Tax deductions (e.g. family tax allowances) replace direct expenditures in some cases. The Earned Income Tax

Credit in the United States is a good example of a tax break, which has the features of a social protection program.

Adema (2001) has developed indicators that aim at measuring the share of an economy's domestic production recipients of social benefits really draw on, net total social expenditure.² This requires capturing private social benefits and the impact of tax systems on social effort.

Adema, Fron & Ladaique (2011, p. 90) define social expenditures as "the provision by public and private institutions of benefits to, and financial contributions targeted at, households and individuals in order to provide support during circumstances which adversely affect their welfare, provided that the provision of the benefits and financial contributions constitutes neither a direct payment for a particular good or service nor an individual contract or transfer". Since only benefits provided by institutions are included in the social expenditure definition, transfers between households - albeit of a social nature - are not in the social domain. Social benefits include cash benefits (e.g. pensions, income support during maternity leave, and social assistance payments), social services (e.g. childcare, care for the elderly and disabled) and tax breaks with a social purpose (e.g. tax expenditures towards families with children, or favourable tax treatment of contributions to private health plans).

In the OECD definition there are two main criteria which have to be simultaneously satisfied for an expenditure item to be classified as social: 1) the benefits have to be intended to address one or more social purposes; and 2) programs regulating the provision of benefits have to involve either inter-personal redistribution, or compulsory participation.

The distinction between public and private social protection is made on the basis of whoever controls the relevant financial flows; public institutions or private bodies.

Within the group of private social benefits, two broad categories can be distinguished: mandatory and voluntary private social expenditure. Mandatory private social expenditure is social support stipulated by legislation but operated through the private sector, e.g. direct sickness payments by employers to their absent employees as legislated by public authorities, or benefits accruing from mandatory contributions to private insurance funds. In some countries public disability benefits (and sometimes unemployment benefits) can be supplemented by private benefits with mandatory contributions, agreed upon in collective negotiations between employers and employees.

Voluntary private social expenditure concerns benefits accruing from privately operated programs that involve the redistribution of resources across households and include benefits provided by NGOs, and benefit accruing from tax advantaged individual plans and collective (often employment-related) support arrangements, such as for example, pensions, and, in the US, employment-related health plans.

Table 1 summarizes which expenditures are social and which are not.

Table 1. Categorization of benefits with a social purpose ^{a, b}

	Public		Private	
	Mandatory	Voluntary	Mandatory	Voluntary
Redistribution	Means-tested benefits, social insurance benefits	Voluntary participation in public insurance programs. Self-employed 'opting in' to obtain insurance coverage.	Employer-provided sickness benefits, benefits accruing from mandatory contributions, to e.g. pension or disability insurance.	Tax-advantaged benefits, e.g. individual retirement accounts, occupational pensions, employer-provided health plans
No redistribution	Benefits from government managed individual saving schemes		Non tax-advantaged actuarially fair pension benefits	Exclusively private: Benefits accruing from insurance plans bought at market prices given individual preferences.

Notes:

a By definition transfers between individuals, even when of a social nature, are not considered to be within the social domain.

b The shaded cells reflect benefits that are not classified as social.

Source: Adema Fron & Ladaique (2011, p. 94)

Table 2 shows gross and net social expenditure as a percentage of GDP for 2007. Most social support is publicly provided. In most countries the share of public social benefits in total social expenditures exceeds 85 percent. However, the role of private social arrangements of varying nature in providing close substitutes to public social protection expenditure is considerable in some OECD countries. In Canada, the Netherlands, Switzerland, and the United Kingdom, the share of private social expenditure is more than 20 percent, while in the USA this share is almost 40 percent. Anglo-Saxon welfare states (especially the United States) rely more heavily on private social arrangements as far as pensions, health care and other programs are concerned (Super, 2008). Moreover, in all countries other than Austria and Ireland private social expenditures have risen in the period 1985-2007 – in some countries rather rapidly. There may be various explanations for this increase in private social expenditure (Caminada & Goudswaard, 2005). Lower public protection may induce private social arrangements of a different nature. But a shift from public to private provision of social protection can also be an explicit policy objective, to alleviate public budgets, or to strengthen incentives in the system (Super, 2008).

Accounting for taxes substantially reduces the average expenditure ratio (compare columns 3 with 5 or columns 2 with and 4). Especially the Nordic countries, Benelux countries and Austria put high tax levies on social benefits and ensuing consumption.

Perhaps surprisingly, the net expenditure ratio of the USA is higher than the OECD average. This can be explained by the high private expenditures on health care in the US. Anyway, accounting for private social expenditures and for the impact of the tax system is important for judging the social effort and the level of social protection in countries.

Table 2. Gross and net social expenditure % GDP, 2007

	Gross public (2)	Net public (3)	Gross total (4)	Net total (5)	Share private expenditure (6) = $\frac{((4)-(2))}{(4)} * 100$
Australia	16.0	16.0	19.8	18.7	19
Austria	26.4	21.7	28.2	23.0	6
Belgium	26.3	23.3	31.1	27.1	15
Canada	16.9	17.3	22.2	21.4	24
Czech Republic	18.8	17.2	19.2	17.5	2
Denmark	26.1	20.1	28.7	21.4	9
Finland	24.9	20.0	26.0	20.7	4
France	28.4	25.7	31.3	28.3	9
Germany	25.2	23.5	28.0	25.1	10
Greece	21.3	n.a.	22.9	n.a.	7
Hungary	22.9	n.a.	23.1	n.a.	1
Ireland	16.3	14.7	17.8	15.8	8
Italy	24.9	21.1	27.0	22.8	8
Japan	18.7	18.2	22.3	21.6	16
Luxembourg	20.6	16.8	21.6	17.4	4
Mexico	7.2	8.1	7.4	8.1	3
Netherlands	20.1	17.7	27.0	22.3	26
New Zealand	18.4	16.1	18.8	16.5	2
Norway	20.8	17.1	22.8	18.3	9
Poland	20.0	16.3	20.0	16.3	0
Portugal	22.2	20.2	23.9	21.7	7
Slovakia	15.7	14.3	16.7	15.1	6
Spain	21.6	19.3	22.1	19.5	2
Sweden	27.3	21.9	30.2	23.6	10
Switzerland	18.5	n.a.	26.8	n.a.	31
Turkey	10.5	9.7	10.5	9.7	0
United Kingdom	20.5	19.4	26.3	23.7	22
United States	16.2	17.3	26.7	25.6	39
Mean	20.5	18.1	23.2	20.1	12
N (= 28)	28	25	28	25	
Mean EU15	23.5	20.4	26.1	22.3	10
N EU15 (= 15)	15	14	15	14	
Mean Non-EU15	17.0	15.2	19.7	17.2	13
N Non-EU15 (= 13)	13	11	13	11	

Source: SOCX (2011)

2.4 Tests on the linkages between social protection and poverty

Private social benefits may be important for our analysis. In so far they contain an element of redistribution, they may also have an impact on poverty levels. For example, private but mandatory pensions (in the second pillar) may have an effect on poverty incidence among the elderly. However, the impact of private social benefits is

likely to be smaller than the impact of public social transfers (Goudswaard & Caminada, 2010). Most private social programs are employment-related social benefits mostly re-allocate income between the (formerly) employed population. Means tested public transfers on the other hand are, almost by definition, better targeted to the poor (Caminada & Goudswaard, 2010). And for example public pension programs, often have flat rate benefits, which cause a stronger redistribution towards lower income groups. In addition, tax advantages towards private pension and health plans are more likely to benefit the rich. In general, we do expect that private social schemes will generate less antipoverty effects than public programs.

We perform a cross-country analysis of the relationship between (public and private) social expenditures and poverty rates (see also Adema, 2010). The material presented is only descriptive and does *not* explain poverty levels. Two seminal books edited by Kakwani and Silber (2007 and 2008) present the panorama of the many dimensions of poverty from various disciplines. A fully-fledged model should be developed to assess the relative performance of several factors that may explain poverty. Caminada, Goudswaard and Koster (2012) employed multiple regressions on the relationship between poverty rates and social expenditures, and other commonsense control variables as the ratio of the elderly population (for old age pensions), the unemployment rate (for the business cycle), and GDP per capita, in order to capture the impact of demographic and economic factors. The results suggest that these demographic and economic factors are relevant as well, but (gross public) social spending seems to be the driving force behind differences in poverty levels across countries. Ideally, we would have followed a multivariate approach in this paper as well. Unfortunately, this is not possible due to a lack of data. The data for net total social expenditure are only available for a limited number of years. On the other hand, the earlier research mentioned indicates that the results of the multivariate analysis do not differ very much from a bivariate approach, as far as the relationship between social expenditure and poverty is concerned.

Another important point to keep in mind is that we only analyze the impact of social expenditures on income poverty, while several other strategies can be chosen to alleviate poverty. In fact, several EU member states are increasingly emphasizing strategies to facilitate labor force participation of lower income groups (European Commission 2008, p. 101). This may also be an effective strategy to tackle poverty.

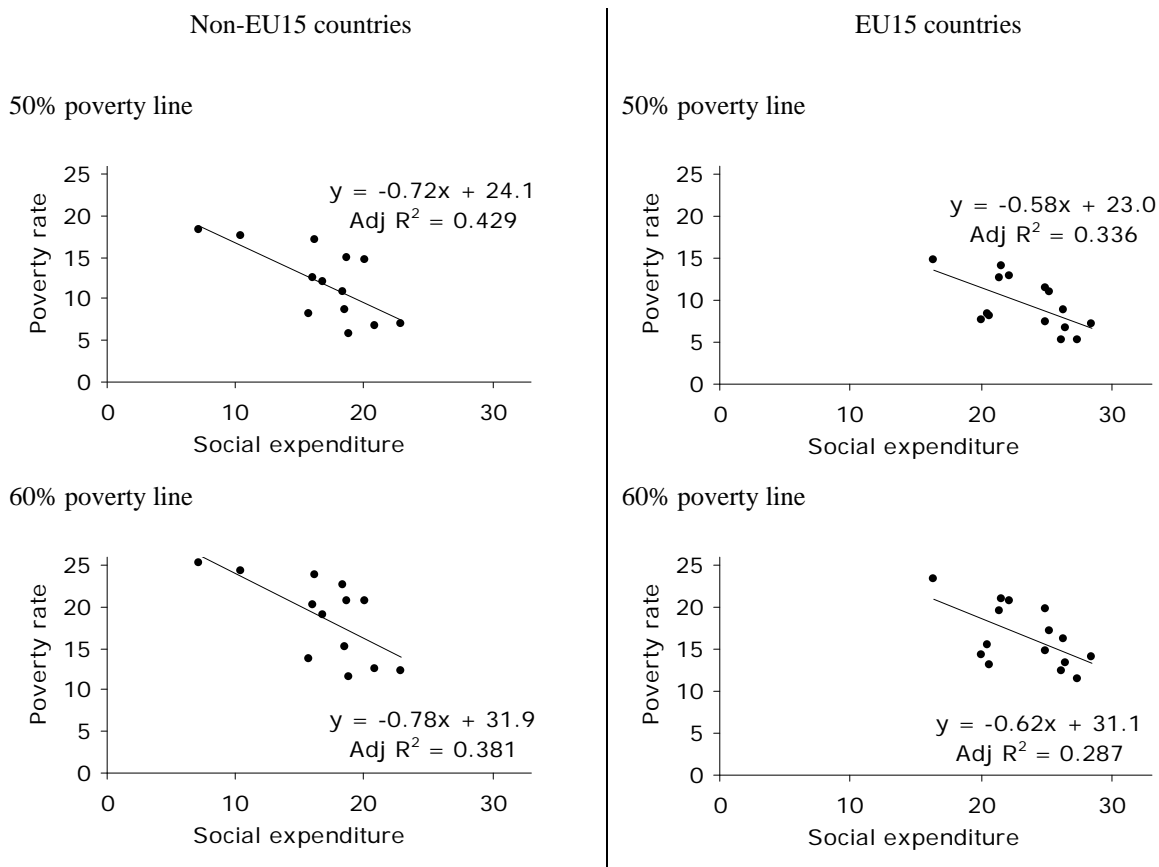
3. Welfare state effort and the alleviation of poverty: an empirical analysis

3.1 Linkages between poverty rates and gross social spending

As mentioned earlier, quantitative studies have found a strong negative relationship between poverty rates and the level of social expenditure over the last 25 years; this finding has now been well established in empirical studies.³ In other words, countries with a higher level of welfare expenditure are likely to have lower poverty rates.

Figure 2 illustrates that there is indeed a strong significant correlation between the level of *gross public* social expenditure as a percentage of GDP in 2007 and poverty rates across countries around the years 2003-2005 ($p < .023$). Countries with higher *gross public* social expenditure ratios in 2007 tend to have lower poverty rates than countries with lower expenditure ratios. However, we find a correlation which is less strong in EU15 countries compared to non-EU15 countries.

Figure 2. Linkage between gross public social expenditure and OECD poverty rates across 28 countries, around 2003-2007



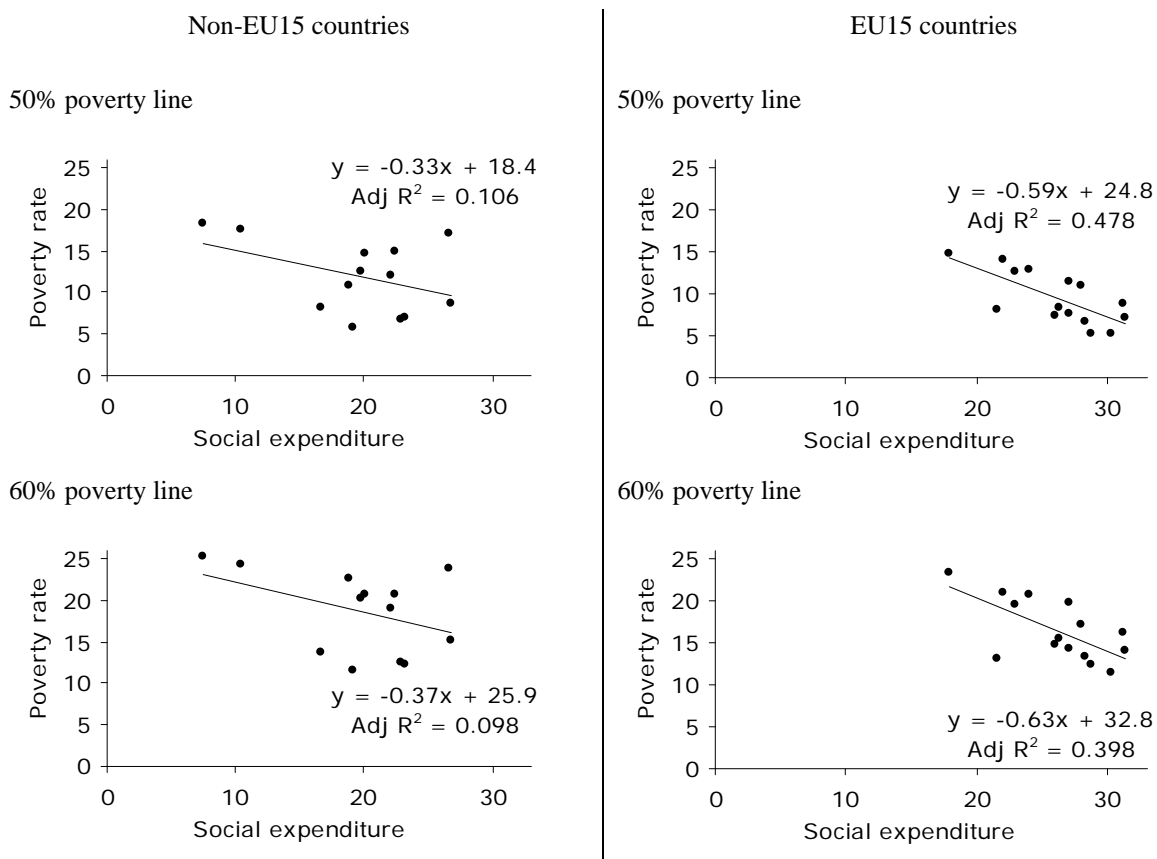
Sources: OECD (2008), SOCX (2011), and own calculations

3.2 The impact of private social expenditure

The conventional view that extensive social-welfare programs reduce poverty may be influenced by ignoring the impact of private social arrangements. In the former we have argued that we expect poverty to be relatively high (low) in countries where the share of private arrangement in the total social benefits is relatively high (low).

In Figure 3, we have included private social arrangements in our social expenditure indicator for 2007, using OECD data. Again, we apply the 50-, and 60-percent-of-median-income poverty thresholds.

Figure 3. Linkage between gross total social expenditure and OECD poverty rates across 28 countries, around 2003-2007



Sources: OECD (2008), SOCX (2011), and own calculations

The results alter considerably if private social expenditures are included. For non-EU15 countries in our sample, we do not find evidence for a negative correlation between the level of *gross total* social spending and the incidence of poverty ($p > .14$): Adjusted R^2 ranges from .10 to .11, depending on the poverty line applied. Since there is no clear and strong negative link, more social spending does not offer an easy route to less poverty within these countries. In contrast, for the group of EU15 countries, we find a significant fit ($p < .01$): Adjusted R^2 ranges from .47 to .57, depending on the poverty line applied. Cross country data show evidence that private social expenditure does seem to matter as far as poverty alleviation in EU15 is concerned (higher adjusted correlation coefficients R^2 compared to the *gross public* social expenditure ratio in Figure 2). Apparently, private social arrangements have more redistributive impact in EU15 than in other OECD countries. An explanation may lie in government mandating of private pensions in several EU countries, which results in near-universal inclusion among employees (Esping-Andersen & Myles, 2009). As a consequence, also lower income groups receive private pensions.

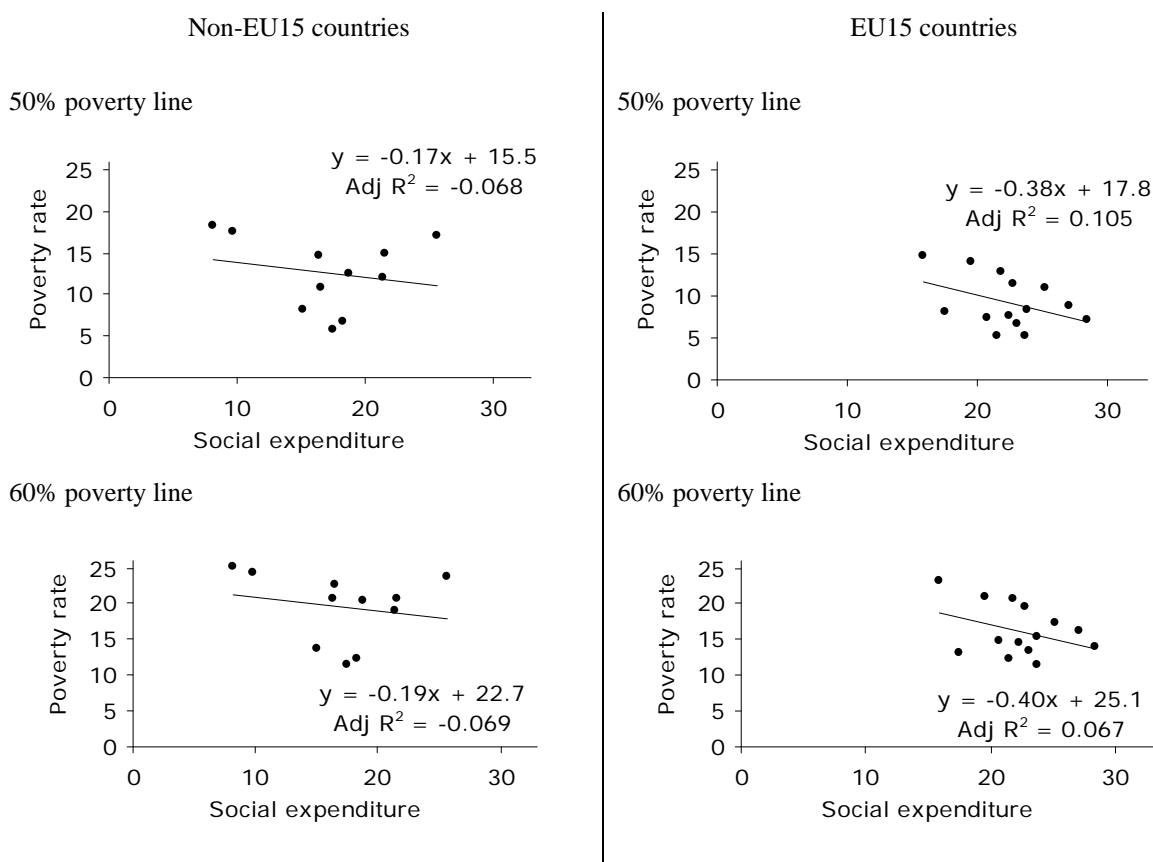
3.3 The impact of the tax system

Another problem with social expenditure as an indicator for differences in social protection across countries is related to ignoring the impact of the tax system. In Figure 4, we have corrected the expenditure ratios for the impact of the tax system, using the OECD data mentioned earlier.⁴ We have linked the poverty rates around 2003-2005 to *net total* social expenditures of 2007. At one moment in time, the linkage effect of *net total* social expenditure ratios and poverty rates across countries turns out to be less strong compared to the effect of *gross total* spending (much lower adjusted correlation coefficients R^2 in all cases). Moreover, if social expenditures are

corrected for the impact of tax systems, we do not find a significant correlation for the EU15 countries and the non-EU15 countries separately. For all countries together, we do find a fit, but a much weaker fit than without the correction for the impact of the tax system. The linkage between the two variables turns out to be hardly significant for the EU-agreed upon poverty line of 60 percent ($p=.04$).

We conclude that the conventional view that welfare spending goes along with less poverty must at least be mitigated (cf. Esping-Andersen & Myles, 2009, p. 644). The linkage between the two variables becomes weak or insignificant if the social expenditure data are corrected for relevant tax features, which gives a more realistic picture.

Figure 4. Linkage between net total social expenditure and OECD poverty rates across 25 countries, around 2003-2007



Sources: OECD (2008), SOCX (2011), and own calculations

3.4 Summing-up

Table 3 summarizes our results. It shows the adjusted correlation coefficients and significance of all linkages between social expenditure and poverty rates across countries around 2003-2007. We find pretty good fits for gross *public* social expenditures, both for non-EU15 and EU15 countries. The inclusion of *private* social expenditure alters the picture. Still, we find a significant negative relationship between gross public and private spending and poverty rates for all countries, but not for non-EU15 countries separately. In contrast, including private social benefits helps to reduce poverty levels in EU15 countries. Furthermore, the impact of the tax systems is important. We do not find a significant linkage for non-EU15 countries and EU15 countries separately. So, the linkage between *net total* social expenditure and poverty levels is much weaker than in case the traditional indicator *gross public* social spending is used (cf. Adema, 2010). We find ample evidence for a strong relationship between (high) net total social expenditure and (low) poverty across countries.

Table 3. Regression analysis for OECD poverty rates and gross and net social spending, around 2003-2007

		Non-EU15			EU-15			All 28 countries		
		Int.	X ₁	Adj R ²	Int.	X ₁	Adj R ²	Int.	X ₁	Adj R ²
PL 50	Gross public social expenditure	24.1**	-0.720**	0.429	23.0**	-0.576*	0.336	21.4**	-0.532**	0.441
		(6.07)	(-3.17)		(4.78)	(-2.85)		(9.04)	(-4.72)	
PL 60		31.9**	-0.783*	0.381	31.1**	-0.623*	0.287	28.6**	-0.545**	0.361
		(6.76)	(-2.89)		(5.42)	(-2.58)		(10.06)	(-4.03)	
PL 50	Gross total social expenditure	18.4**	-0.330	0.106	24.8**	0.587**	0.478	20.0**	-0.407**	0.329
			(4.23)	(-1.56)		(5.94)	(-3.72)		(7.78)	(-3.78)
PL 60		25.9**	-0.369	0.098	32.8**	0.626**	0.398	27.2**	-0.420**	0.272
		(5.21)	(-1.52)		(6.36)	(-3.20)		(9.05)	(-3.33)	
PL 50	Net total social expenditure ^a	15.5*	-0.171	-0.068	17.8**	-0.383	0.105	18.0**	-0.367*	0.162
			(3.07)	(-0.60)		(3.26)	(-1.59)		(5.66)	(-2.38)
PL 60		22.7**	-0.188	-0.069	25.1**	-0.399	0.067	25.2**	-0.373*	0.130
		(4.03)	(-0.59)		(3.88)	(-1.39)		(6.99)	(-2.14)	

Notes:

^a Net social expenditures are not available for Greece, Hungary, and Switzerland.

- Dependent variable: OECD poverty rate (poverty line 40, 50 or 60 percent of median income).
- N = 28. OLS-regression; standardized regression coefficients are reported; t-statistics in parentheses.
 ** Significant at the 0.01 level; * significant at the 0.05 level. Adj R² refers to the adjusted correlation coefficient.
- Selected countries: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and United States.

Source: OECD (2008), SOCX (2011), and own calculations

4. Discussion

To test for robustness of the relationship between poverty rates and social expenditures across countries, we employed several sensitivity analyses. First, we performed the same analysis with poverty data from the Luxembourg Income Studies (LIS 2011) in stead of OECD (2008). The results are almost the same. For example, when we run the regressions using LIS-poverty data, we do not find any significant fit with the net social expenditure variable ($p > .115$), independent of the poverty line applied.

To test for (in)stability over the business cycle, we linked poverty rates and several gross social expenditure indicators for a few moments in time for all countries where all relevant data items are available (around 1985, around 1995, and around 2005). Our findings are rather steady over time for several gross social expenditure ratios. Unfortunately, net social expenditure data are not available as time-series.

Our paper separates EU-15 countries from the other thirteen non-EU15 countries. This non-EU15 control group is open to debate. Separating rich countries from postsocialist and poor ones is an option as well. Moreover, one could argue that the weak downward sloping line for the non-EU15 countries appears to be the result of outliers with rather low net total social expenditure and rather high poverty (Mexico and Turkey). Also the United States is an outlier, because of high private health expenditure. Although we are generally opposed to the idea of

excluding outliers, we have done an sensitivity analysis for a selection of 20 affluent countries.⁵ Our findings are rather similar. In that case we (again) find pretty good fits for gross *public* social expenditures, and the inclusion of *private* social expenditure weakens the correlation. Still, we find a significant negative relationship between gross public and private spending and poverty rates for those 20 countries. We do not find a significant fit with the net social expenditure variable ($p > .291$), independent of the poverty line applied.

One could argue that it is a bit tricky to include the elderly population in studies of this kind, because the causes for poverty in this group may be different compared with the working age population. One solution would be to exclude pensioners and old age pensions schemes (public and private) from the analysis, or alternatively to focus the analysis especially on poverty among the elderly. Unfortunately, there are no data available in SOXC on net total social expenditure for the elderly and the working age population separately.

Another point open to debate is that social expenditures include services (benefits in kind), and the value of services is not included in income measures on which poverty rate calculations are based. However, these kind of conceptual or methodological problems frequently arise in comparative analysis using aggregate data of social spending. If we want to look at the correlation between social spending variables and poverty rates, we would want a poverty measure that incorporates the effects of the factors that have been added to (or subtracted from) the social spending measure. However, data on such poverty measures are not available on a cross-country basis. But it is possible to do the analysis excluding health expenditure, the most important service item. Indeed, international comparison of social spending is rather sensitive with respect to expenditures related to health care programs. Thus, we run the regressions excluding health expenditure from gross social expenditure. Unfortunately, there are no data available in SOXC on net total social expenditure excluding health. So, we can only make the first step in the correction of the expenditure measure (from gross public expenditure to gross total expenditure). Table 4 shows the result of this analysis. Two points should be mentioned. Firstly, if health expenditure is excluded, the fits are better, especially for non-EU15 countries. The main reason is that the United States is an outlier with relatively high social expenditures for (private) health programs. Secondly, if private social expenditure is included, the correlation between social spending other than health and poverty rates becomes weaker for non-EU15 countries, but stronger for EU15 countries. This confirms our earlier finding that in the EU, private social programs seem to matter as far as poverty reduction is concerned.

Table 4. Regression analysis for OECD poverty rates and gross public and total social spending excluding health, around 2003-2007

		Non-EU15			EU-15			All 28 countries		
		Int.	X ₁	Adj R ²	Int.	X ₁	Adj R ²	Int.	X ₁	Adj R ²
PL 50	Gross public social expenditure	21.4** (6.88)	-0.838** (-3.21)	0.437	20.6** (5.42)	-0.664* (-2.99)	0.362	19.6** (10.13)	-0.627** (-4.86)	0.456
	PL 60 excluding health	29.8** (8.52)	-0.976* (-3.33)	0.457	28.5** (6.21)	-0.712* (-2.66)	0.303	27.0** (11.86)	-0.663** (-4.36)	0.400
PL 50	Gross total social expenditure	19.8** (5.74)	-0.595* (-2.42)	0.287	23.1** (7.31)	0.713** (-4.39)	0.566	19.8** (10.02)	-0.563** (-4.87)	0.457
	PL 60 excluding health	28.2** (7.32)	-0.711* (-2.59)	0.323	30.9** (7.66)	0.755** (-3.64)	0.466	27.4** (11.76)	-0.599** (-4.42)	0.407

Notes: see below table 3.

Source: OECD (2008), SOCX (2011), and own calculations

5. Conclusion

Poverty alleviation is an important objective of social policies, especially in the EU. Several policy instruments can be used to tackle poverty. This paper analyzes the relationship between social expenditures and poverty. A vast literature claims that high social effort goes along with low poverty levels across countries. Social expenditure ratios are generally used as a proxy for social effort. However, this indicator is far from perfect. In this paper we analyze whether the familiar claim still holds, if also private social expenditure and the impact of the tax system on social effort are captured. We used OECD methodology for these corrections and performed several tests with the most recent data.

We still find quite a strong negative relationship between the level of gross public social expenditure and poverty among EU and also among other OECD countries around 2003-2007. After including private social expenditure, this relationship becomes stronger for EU15 countries, but weaker for non-EU15 countries. This suggests that in the EU15 private social spending matters as far as poverty reduction is concerned. A tentative explanation for this finding is that in the EU more people in lower income groups are covered by private mandatory pension plans (Van Vliet, Been, Caminada & Goudswaard, 2012). But further research is needed to explain this difference between EU15 countries and other countries.

After controlling for the impact of taxes on the social expenditure ratios, the linkage between social effort and poverty levels across countries becomes weaker for both subgroups of countries. Since net total social expenditure give a much better measure of what really is devoted to social spending (Adema, 2001), our results imply that the familiar claim that higher social expenditure goes along with lower poverty levels must be toned down, at least across the countries examined.

We believe that our comparison of the impact of several social expenditure ratios on poverty levels emphasizes that a more accurate measurement of social effort matters for comparative welfare state research and for policy makers who want to reduce poverty.

Notes

- 1 Among others, see Atkinson (1987), Förster (1993), Behrendt (2000), Gottschalk & Smeeding (1997 and 2000), Hagenaaers & Vos (1987), Marcus & Danziger (2000), Atkinson & Brandolini (2001), Förster & Pearson (2002), Smeeding (2005 and 2006), Förster & Mira d'Ercole (2005), OECD (2008).
- 2 See also Adema & Ladaique (2009), and Adema, Fron & Ladaique (2011).
- 3 See also Kenworthy (1999), Kangas & Palme (2000), Kim (2000), Sainsbury & Morissens (2002), Cantillon, Marx & Van den Bosch (2003), Behrendt (2002), Förster & Pearson (2002), Brady (2004), Scruggs & Allen (2005), Smeeding (2005 and 2006), Förster & Mira d'Ercole (2005), and Pestieau (2006, pp. 16-17).
- 4 Excluding Greece, Hungary, and Switzerland; SOCX (2011) does not report data of *net* social expenditures for these countries. It should be noted that our results are not affected by excluding these three countries. We re-ran all regression analyses for only 25 instead of all 28 countries. All results are the same with or without Greece, Hungary, and Switzerland.
- 5 Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, the United Kingdom, and the United States.

References

- Adema, W. (2001). Net social expenditure: 2nd edition. *Labour Market and Social Policy - Occasional Papers*, No. 52, Paris: OECD.
- Adema, W. & Ladaïque, M. (2009). How expensive is the welfare state? Gross and net indicators in the OECD Social Expenditure Database (SOCX). *OECD Social, Employment and Migration Working Paper*, No. 92, Paris: OECD.
- Adema, W. (2010). The welfare state across selected OECD countries: how much does it really cost and how good is it in reducing poverty? In B. Reynolds, S. Healy & M. Collins (Eds.), *The Future of the Welfare State*, Dublin: Social Justice Ireland, 20-50.
- Adema, W., Fron, P. & Ladaïque, M. (2011). Is the European welfare state really more expensive? *OECD Social, Employment and Migration Working Papers*, No. 124, Paris: OECD.
- Atkinson, A.B. (1987). On the measurement of poverty. *Econometrica*, 55(4), 749-764.
- Atkinson, T. (2002). Social inclusion and the European Union. *Journal of Common Market Studies*, 40(4), 625-643.
- Atkinson, A.B. & Brandolini, A. (2001). Promise and pitfalls in the use of secondary data-sets: income inequality in OECD countries as a case study. *Journal of Economic Literature*, 39(3), 771-800.
- Behrendt, Ch. (2000). Is there income poverty in Western Europe? Methodological pitfalls in the measurement of poverty in a comparative perspective. *Luxembourg Income Study Working Paper Series*, No. 258, Luxembourg.
- Behrendt, Ch. (2002). Holes in the safety net? Social security and the alleviation of poverty in a comparative perspective. In R. Sigg & Chr. Behrendt (Eds.), *Social Security in the Global Village*, International Social Security Series, Volume 8, New Brunswick / London: Transaction Publishers, 333-358.
- Brady, D. (2004). The welfare state and relative poverty in rich western democracies, 1967-1997. *Luxembourg Income Study Working Paper Series*, No. 390, Luxembourg.
- Brandolini, A. & Smeeding, T.M. (2008). Inequality: international evidence. In S.N. Durlauf & L.E. Blume (Eds.), *The New Palgrave Dictionary of Economics*, Basingstoke: Palgrave Macmillan, 1013-1021.
- Caminada, K. & Goudswaard, K.P. (2005). Are public and private social expenditures complementary? *International Advances in Economic Research*, 11(2), 175-189.
- Caminada, K. & Goudswaard, K. (2009). Effectiveness of poverty reduction in the EU: a descriptive analysis. *Poverty & Public Policy*, 1(2, Article 5), 1-51.
- Caminada, K. & Goudswaard, K.P. (2010). How well is social expenditure targeted to the poor? In P. Saunders & R. Sainsbury (Eds.), *Social Security, Poverty and Social Exclusion in Rich and Poorer Countries*, International Studies on Social Security, volume 16, Morsel, Belgium: Intersentia, 97-112.
- Caminada, K., Goudswaard, K.P & Koster, F. (2012). Social income transfers and poverty alleviation in OECD countries. *International Journal of Social Welfare*, 21(2), 115-126. <http://dx.doi.org/10.1111/j.1468-2397.2011.00815.x>.
- Cantillon, B., Marx, I. & Van den Bosch, K. (2003). The puzzle of egalitarianism: about the relationships between employment, wage inequality, social expenditures and poverty. *European Journal of Social Security*, 5(2), 108-127.
- Esping-Andersen, G. & Myles, J. (2009). Economic inequality and the welfare state. In W. Salverda, B. Nolan & T.M. Smeeding (Eds.), *The Oxford Handbook of Economic Inequality*, New York: Oxford University Press, 639-664.
- European Commission (2008). *Joint report on social protection and social inclusion 2008. Social inclusion, pensions, healthcare and long term care*. Luxembourg: Office for Official Publications of the European Communities.
- European Commission (2009). *Social protection and social inclusion 2008: EU indicators*. Commission Staff Working Document, Brussels: European Commission, Directorate-General for Employment, Social Affairs and Equal Opportunities.
- Förster, M. & Pearson, M. (2002). Income distribution and poverty in the OECD area: trends and driving forces. *OECD Economic Studies*, No. 34, 2002/1, Paris: OECD, 7-39.
- Förster, M. & Mira d'Ercole, M. (2005). Income distribution and poverty in OECD countries in the second half of the 1990s'. *OECD Social, Employment and Migration Working Papers*, No. 22, Paris.

- Gottschalk, P. & Smeeding, T.M. (1997). Cross-national comparisons of earnings and income inequality. *Journal of Economic Literature*, 35 (June), 633-687.
- Gottschalk, P. & Smeeding, T.M. (2000). Empirical evidence on income inequality in industrialized countries. In A.B. Atkinson & F. Bourguignon (Eds.), *Handbook of Income Distribution*, New York: Elsevier-North Holland Publishers, 261-308.
- Goudswaard, K.P. & Caminada, K. (2010). The redistributive effect of public and private social programs: a cross-country empirical analysis. *International Social Security Review*, 63(1), 1-19.
- Hagenaars, A. & Vos, K. de (1987). The definition and measurement of poverty. *The Journal of Human Resources*, 23 (2), 211-221.
- Haveman, R. (2008). What does it mean to be poor in a rich society? *Institute for Research on Poverty Discussion Paper*, No. 1356-08, Madison.
- Kakwani, N. & Silber, J. (Eds.) (2007). *The many dimensions of poverty*. New York: Palgrave Macmillan.
- Kakwani, N. & Silber, J. (Eds.) (2008). *Quantitative approaches to multidimensional poverty measurement*. New York: Palgrave Macmillan.
- Kangas, O. & Palme, J. (2000). Does social policy matter? Poverty cycles in OECD countries. *International Journal of Health Services*, 30(2), 335-352.
- Kenworthy, L. (1999). Do social welfare policies reduce poverty? A cross-national assessment. *Social Forces*, 77(3), 1119-1139.
- Kim, H. (2000). Anti-poverty effectiveness of taxes and income transfers in welfare states. *International Social Security Review*, 53 (4), 105-129.
- Kühner, S. (2007). Country-level comparisons of welfare state change measures: another facet of the dependent variable problem within the comparative analysis of the welfare state? *Journal of European Social Policy*, 17(1), 5-18.
- LIS (2011). *LIS key figures on poverty*. Luxembourg, <http://www.lisproject.org>, last accessed 14 October 2011.
- Marcus, J. & Danziger, S. (2000). Income poverty in advanced countries. In A.B. Atkinson & F. Bourguignon (Eds.), *Handbook of Income Distribution*, New York: Elsevier-North Holland Publishers, 309-378.
- Nolan, B. & Marx, I. (2009). Economic inequality, poverty, and social exclusion. In W. Salverda, B. Nolan & T.M. Smeeding (Eds.), *The Oxford Handbook of Economic Inequality*, New York: Oxford University Press, 315-341.
- OECD (2008). *Growing unequal? Income distribution and poverty in OECD countries*. Paris: OECD (OECD Poverty Rates, www.oecd.org/els/social/inequality/GU, last accessed 14 October 2011).
- Pestieau, P. (2006). *The welfare state in the European Union: economic and social perspectives*. Oxford: University Press.
- Sainsbury, D. & Morissens, A. (2002). European anti-poverty policies in the 1990s: toward a common safety net. *Luxembourg Income Study Working Paper Series*, No. 307, Luxembourg.
- Scruggs, L. & Allan, J.P. (2006). The material consequences of welfare states: benefit generosity and absolute poverty in 16 OECD countries. *Comparative Political Studies*, 39, 880-904.
- Smeeding, T.M. (2005). Public policy, economic inequality, and poverty: the United States in comparative perspective. *Social Science Quarterly*, 86 (supplement), 955-983.
- Smeeding, T. (2006). Poor people in rich nations: the United States in comparative perspective. *Journal of Economic Perspectives*, 20 (1), 69-90.
- SOCX (2011). *Social expenditure database*. www.oecd.org/els/social/expenditure, last accessed 14 October 2011.
- Super, D.A. (2008). Privatization, policy paralysis, and the poor. *California Law Review*, 96, 393-469.
- Van Vliet, O., Been, J., Caminada, K. & Goudswaard, K. (2012). Pension reform and income inequality among older people in 15 European countries. *International Journal of Social Welfare*, forthcoming.