The redistributive impact of public and private social expenditure

Goudswaard, Kees and Caminada, Koen

Department of Economics, Leiden University

2008

The redistributive impact of public and private social expenditure *

Kees Goudswaard

Leiden Law School
Economics Department, Leiden University
P.O. Box 9520, 2300 RA, The Netherlands
Phone: ++31 71 527 7756
URL: www.hsz.leidenuniv.nl
E-mail: k.p.goudswaard@law.leidenuniv.nl

Koen Caminada

Leiden Law School
Economics Department, Leiden University
P.O. Box 9520, 2300 RA, The Netherlands
Phone: ++31 71 527 7756
URL: www.hsz.leidenuniv.nl
E-mail: c.l.j.caminada@law.leidenuniv.nl

Abstract

Most analyses of social protection are focussed on public arrangements. However, social effort is not restricted to the public domain; all kinds of private arrangements can be substitutes to public programs. In fact, in several countries there has been a shift from public towards private social arrangements. OECD-data indicate that accounting for private social benefits has an equalising effect on levels of social effort across a number of countries. This suggests that public and private social expenditures are complementary to some extent. But their distributional effects differ. In all OECD countries, the social protection system causes a more equal distribution of incomes. Indeed, using cross-country data, we find a negative relationship between *public* social expenditures and income inequality and a positive relationship between public social expenditure and income redistribution. But we do not find a significant positive relationship between *private* social expenditures and income inequality or income redistribution. Consequently, changes in the public/private-mix in the provision of social protection may affect the redistributive impact of the welfare state.

1 Introduction

The welfare state aims to reduce income inequality between individuals. People differ in their talent, socio-economic background and opportunities. The market process then results in large differences in income levels. Governments achieve interpersonal redistribution of market incomes through taxes and social benefits (cash benefits and benefits in kind). In recent years considerable progress has been made in empirical research on the impact of social protection systems on income inequality. But most analyses of social protection are focussed on public arrangements. However, social effort is not restricted to the public domain; all kinds of private arrangements can be substitutes to public programs. The OECD has recently done a comprehensive study on public and private social expenditure (Adema, 2001; Adema and Ledaique, 2005). They define private programs as 'social' when they serve a social purpose, are subject to government intervention and contain an element of interpersonal redistribution. The data gathered by the OECD show that such private social arrangements have a substantial size in many countries. In fact, in several countries welfare state reforms have caused a shift from public towards private social expenditures. Our question is whether such a shift from public to private social arrangements affects the redistributive impact of the welfare state. Theoretically, it is plausible that public and private arrangements in social protection systems have dissimilar distributional effects. In this paper, we will empirically investigate the relationship, if any, between cross-country differences in public and private social expenditure and the distribution of income in a number of wealthy nations. To that end, we will use more recent data on private social expenditure than in earlier work (Caminada and Goudswaard, 2005). We analyse the effects of accounting for private social benefits on social protection statistics, and link both public social spending and private social spending to indicators of income inequality and income redistribution. Our purpose is to present a simple and intuitive analysis which elaborates on previous work. The aim of the paper is *not* to explain the household income distribution across countries, nor will we discuss the direction of the causality of the relationship between cross-country differences in income inequality and the levels of social spending. Such an analysis should be based on a theory which would have to address several cross-national differences explaining the household income distribution (*cf*. Gottschalk and Smeeding, 1997). Such a comprehensive approach is far beyond the scope of this paper.

This contribution is structured as follows. Section 2 summarises empirical results of the level of income inequality and income redistribution through the welfare state across countries. In section 3 we discuss the nature of private social expenditures and show recent data on these expenditures. In section 4 we perform several empirical analyses on public and private social expenditures, and the distribution of income. Section 5 concludes.

2 Empirical evidence on income inequality and income redistribution

The best cross-nationally comparable collection of income data is the Luxembourg Income Study (LIS). LIS was created specifically to improve consistency across countries. The LIS data are a collection of micro data-sets obtained from a range of income surveys in various countries. The advantage of these data is that extensive efforts have been made by country specialists to make information on income and household characteristics as comparable as possible across a large number of countries. The approach adopted by LIS overcomes most, but not all, of the problems of making comparisons across countries that plagued earlier studies (Smeeding, 2002).

This section summarises the evidence on cross national comparisons of income inequality over 29 nations based on empirical evidence from LIS (Mahler and Jesuit, 2006). Levels of inequality can be shown in several ways, e.g. by Lorenz curves, specific points on the percentile distribution (P10 or P90), decile ratios (P90/P10), and Gini coefficients or many other summary statistics of inequality. All (summary) statistics of inequality can be used to rank income inequality in OECD countries, but they do not always tell the same story. The obvious advantage of the presentation of inequality by summary statistics is its ability to summarise several nations in one picture.

Figure 1 shows the most often used summary measure of the income distribution - the Gini coefficient of equivalized disposable income. The Gini coefficient lies between 0 (no inequality and 1 (maximum inequality). The figure indicates that a wide range of inequality of disposable income exists across developed nations, with the nation with the highest inequality coefficient (Mexico) over twice as high as the nation with the lowest coefficient (Denmark). In another study (Caminada and Goudswaard, 2001) we have shown that income inequality has risen since the early 1980's in the majority of the OECD countries, although it is wrong to think in terms of a world-wide trend (Atkinson, 2000).

Figure 1: Gini index of equivalized disposable income
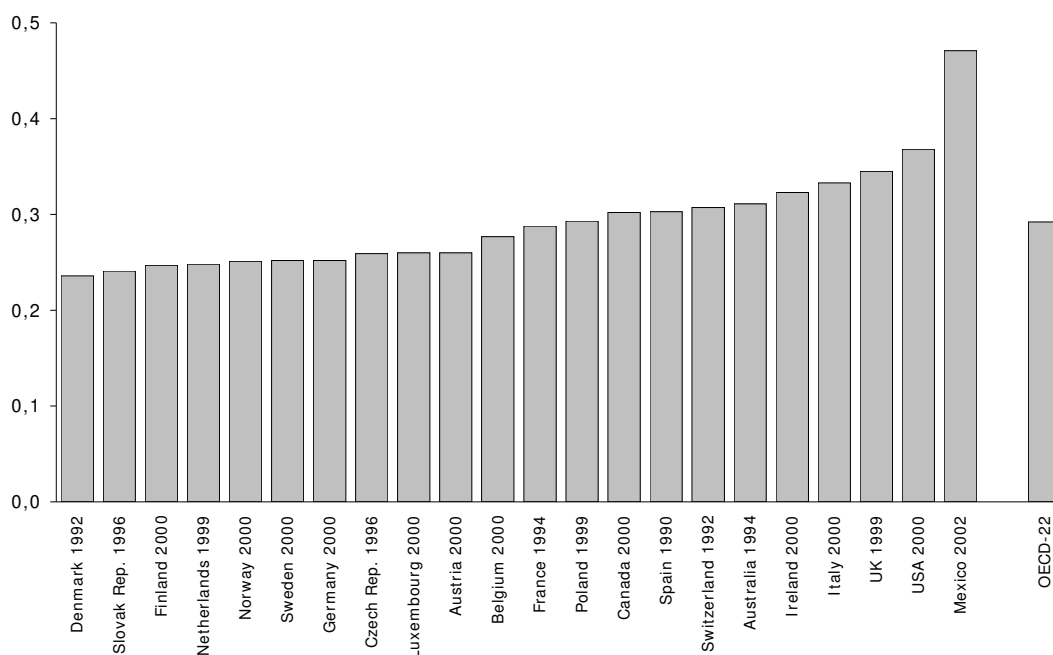
Source: Brandolini and Smeeding (2005); data to be found at www.lisproject.org/

But what is the impact of welfare states on inequality? Smeeding (2002) showed that social policies, wage distributions, time worked, social and labour market institutions and demographic differences all have some influence on why there are large differences in inequality among rich nations at any point in time. However, in this paper we focus on social protection systems only.
Most nations have designed systems of social protection to shield their citizens against the risk of a fall in economic status due to unemployment, divorce, disability, retirement, and death of a spouse. But these social protection systems also aim to reduce inequality between individuals and households. The substantial differences in income inequality across welfare democracies are well documented (e.g. Förster, 2000; Atkinson et al, 1995; Gottschalk and Smeeding, 1997; Förster and d'Ercole 2005). These differences are often attributed to social policies. Förster's empirical analyses showed that in most developed countries, between one third and 45 percent of all public transfers goes to the lower incomes. Korpi and Palme (1998), for example, showed that welfare states with generous social insurance programs redistribute economic resources more effectively and have a more equal distribution of incomes than welfare states with less generous insurance schemes. In general, tax/transfer systems as a whole reduce market-income inequality in all OECD countries.

Usually the impact of social policy on the distributions of income is calculated in line with the work of Musgrave, Case and Leonard (1974), i.e. statutory or budget incidence analysis. That is,

important issues of tax/transfer shifting and behavioural responses are ignored.[1] The measure of the redistributive impact of social protection on inequality is straightforwardly based on formulas developed by Kakwani (1986) and Ringen (1991):

Redistribution by government = (primary income – disposable income) / (primary income) x 100.

Figure 2 shows the reduction in inequality caused by social protection, where primary income inequality is given by a summary statistic of pre-tax, pre-transfer market incomes and disposable income inequality is given by the same summary statistic of disposable equivalent incomes. The figure shows the Gini income inequality before and after taxes/transfers and the inequality reduction coefficient in 22 countries around the year 2000. Taxes and transfers reduce the Gini by on average 26 percent. For example Sweden, Denmark and Germany achieve a greater redistribution of economic resources (more than 40 percent) compared to Canada, Spain, Switzerland and the United States. It turns out that the latter countries are in fact those with the least equality, while Sweden, Denmark, and Norway are countries with a rather low degree of income inequality.

Figure 2: Gini indices of market income and equivalized disposable income
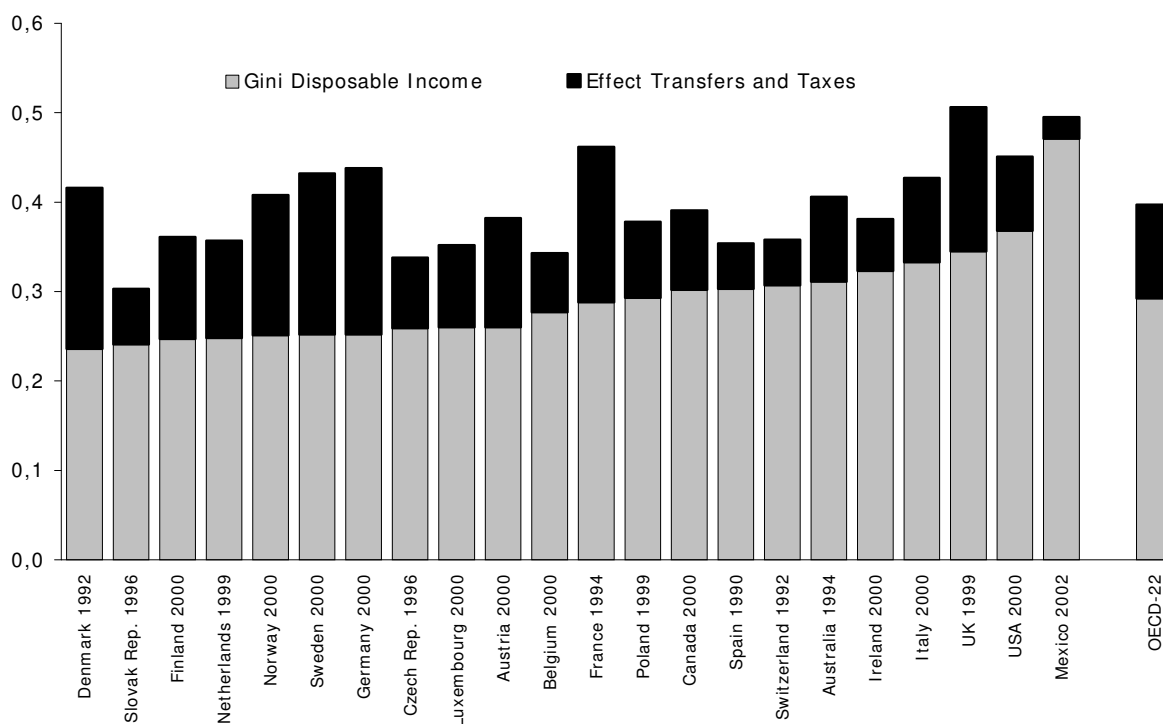
Source: Brandolini and Smeeding (2005); data to be found at www.lisproject.org/

However, the results in Figure 2 do not show the redistributive impact of separate parts of social protection systems. Recent literature suggests that the determination of the relationship between social expenditures and inequality should be carried out on a disaggregated basis (see Swabisch et al, 2003). Ferrarini and Nelson (2002) showed that only a limited number of studies have attempted to specify the link between specific social transfer programs and income inequality. Thereby, the knowledge about the institutional structures that produce certain distributive outcomes is limited. Especially earlier studies that decompose inequality into specific transfers do not pay sufficient

---

1   See for a critical survey of efforts to measure budget incidence by Smolensky et al. (1987). However, models that include e.g. behavioral links are beyond the scope of existing empirical work (Gottschalk and Smeeding, 1998, p. 3). Therefore, researchers have restricted themselves largely to accounting exercises which decompose changes in overall inequality into a set of components.

attention to the problem of taxation of social insurance. To gain a deeper understanding of the redistributive mechanisms of the welfare state it is necessary to disaggregate the social transfer system into program specific components. Recent LIS data (Mahler and Jesuit, 2006) show a rough disaggregation for a number of countries. Table 1 indicates that on average 24 percent of the redistributive impact of the welfare state can be attributed to taxes and 76 percent to transfers. However, the differences between countries are quite large: in the US 40 percent of redistribution comes from taxes, while in Switzerland taxes account for only 2 percent of total redistribution and transfers for 98 percent. At the program level, pensions have by far the strongest redistributive impact. More than half of the redistributive impact of social transfers comes from pensions. Unemployment programs do not contribute very substantially to income redistribution, while other programs (disability, health insurance, and social assistance) account on average for 30 percent of total redistribution in the countries presented in Table 1.

Table 1: Gini indices of private sector and disposable incomes and fiscal redistribution

Country	Gini private income	Gini index disposable income	Fiscal Redistribution	From taxes	From transfers	From pensions	From unemp.	From other
Australia 2003	0.460	0.312	32.2%	32%	68%	22%	5%	41%
Belgium 1997	0.481	0.250	48.0%	32%	68%	46%	10%	12%
Canada 2000	0.429	0.315	26.6%	35%	65%	33%	5%	26%
Denmark 2004	0.419	0.228	45.6%	22%	78%	35%	8%	36%
Finland 2004	0.463	0.252	45.6%	22%	78%	43%	6%	29%
France 1994	0.485	0.288	40.6%	9%	91%	59%	8%	24%
Germany 2000	0.473	0.275	41.9%	25%	75%	53%	5%	17%
Ireland 1987	0.500	0.328	34.4%	26%	74%	12%	10%	52%
Netherlands 1999	0.372	0.231	37.9%	31%	69%	36%	2%	30%
Norway 2000	0.403	0.251	37.7%	26%	74%	37%	3%	35%
Sweden 2000	0.447	0.252	43.6%	19%	81%	39%	10%	32%
Switzerland 2002	0.392	0.274	30.1%	2%	98%	81%	4%	14%
UK 1999	0.498	0.343	31.1%	20%	80%	27%	1%	52%
USA 2004	0.481	0.372	22.7%	40%	60%	33%	2%	25%
Mean	0.450	0.284	37.0%	24%	76%	40%	6%	30%

Source: LIS data based on Mahler and Jesuit (2006); updated data are available at:
http://www.lisproject.org/publications/fiscalredistdata/fiscred.htm; and own calculations

3 Private social expenditures

The OECD defines 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' (OECD 2007, p. 6). 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).

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 2 summarizes which expenditures are social and which are not.

Table 2 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: OECD, Social Expenditure database (2007)

Table 3 shows public and private social expenditure as a percentage of GDP, for the most recent data year 2003. 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 arrangements of varying nature in providing close substitutes to public social protection expenditure is considerable in some OECD countries. In the Netherlands, Switzerland, the United Kingdom and Korea, the share of private social expenditure is more than 25 percent, while in the US this share is almost 40 percent. In most countries private voluntary expenditure are dominant, but there are exceptions: mainly in Switzerland mandatory private expenditures are very high. Figure 3 shows that in a number of countries private social expenditures have risen quite rapidly over the years.

There may be various explanations for this increase in private social expenditure in various countries. Lower public protection may induce private social arrangements of 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. For example, the

privatisation of the sickness benefit program in the Netherlands was directed at increasing the incentives for employers to reduce the number of beneficiaries. Policy makers may also want to realize efficiency gains through a shift from public to private provision, because private providers have stronger incentives to reduce costs. Anyway, accounting for private social expenditures is important for judging the social effort and the level of social protection in countries.

Table 3: Public and private social expenditure, % GDP, 2003

	Public expenditure	Private mandatory	Private voluntary	Private expenditure	Total expenditure	Share private
	(2)	(3)	(4)	(5)=(3)+(4)	(6)=(2)+(5)	(5)/(6)*100
Australia	17.9	1.2	3.2	4.5	22.4	20%
Austria	26.1	0.9	1.2	2.1	28.1	7%
Belgium	26.5	0.0	3.9	3.9	30.4	13%
Canada	17.3	0.0	5.4	5.4	22.7	24%
Czech Republic	21.1	0.2	0.1	0.4	21.5	2%
Denmark	27.6	0.2	2.3	2.5	30.1	8%
Finland	22.5	3.5	1.2	4.6	27.1	17%
France	28.7	0.4	2.3	2.7	31.4	8%
Germany	27.3	1.2	1.8	3.0	30.2	10%
Greece	21.3	0.0	2.4	2.4	23.7	10%
Iceland	18.7	5.1	0.0	5.1	23.8	22%
Ireland	15.9	0.0	0.5	0.5	16.4	3%
Italy	24.2	1.8	0.5	2.3	26.4	9%
Japan	17.7	0.7	2.6	3.3	21.0	16%
Korea	5.7	2.2	0.2	2.4	8.1	29%
Luxembourg	22.2	2.6	0.1	2.7	24.9	11%
Mexico	6.8	0.0	0.2	0.2	7.0	3%
Netherlands	20.7	0.7	7.0	7.7	28.3	27%
New Zealand	18.0	0.0	0.5	0.5	18.5	2%
Norway	25.1	1.6	1.0	2.6	27.7	9%
Poland	22.9	0.0	0.0	0.0	23.0	0%
Portugal	23.5	0.4	1.1	1.5	25.0	6%
Slovak Republic	17.3	0.2	1.1	1.3	18.6	7%
Spain	20.3	0.0	0.3	0.3	20.6	2%
Sweden	31.3	0.6	2.4	3.0	34.3	9%
Switzerland	20.5	7.2	1.1	8.3	28.8	29%
United Kingdom	20.6	0.8	6.0	6.8	27.4	25%
United States	16.2	0.4	9.7	10.0	26.2	38%
Mean	20.9	1.1	2.1	3.2	24.1	13%

Source: OECD. *Social Expenditure database 1980-2003* (www.oecd.org/els/social/expenditure); download February 26th, 2008; and own calculations.

Figure 3: Change in public and private social expenditure 1980-2003, %-points of GDP
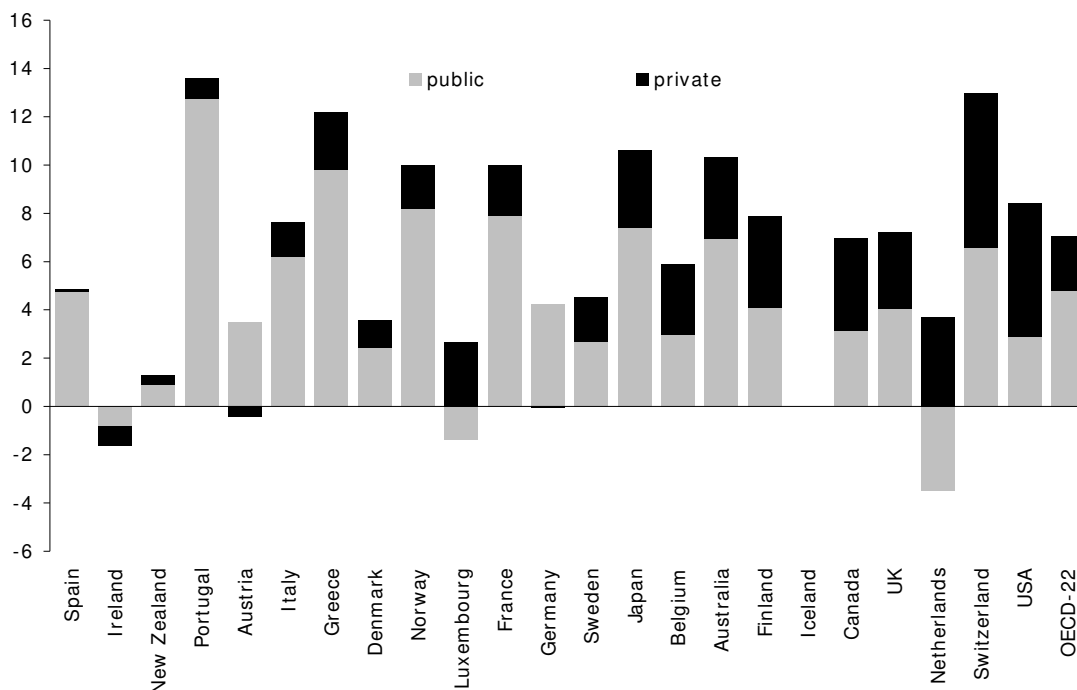
Note: Countries are ranked in order of their level of private social expenditure in 2003. Note that not all countries of Table 3 are plotted in Figure 3, because 1980-data is not available for all countries.

Source: OECD *Social Expenditure database 1980-2003* (www.oecd.org/els/social/expenditure); download February 26th, 2008; and own calculations.

But what about the redistributive impact of private social arrangements? It is plausible that the redistributive effects of transfers are weaker in countries where programs mostly rely on earnings-related schemes compared to countries with mostly (public) means-tested provisions of transfers. Private insurance schemes are actuarially fair as a rule. Most private insurances are not earnings-related. Individual private pension insurances, for example, have a defined contribution character, and therefore do not contain any elements of (ex ante) income redistribution. Private schemes can also have earnings-related benefits. It is sometimes argued that earnings-related social insurance benefits only reproduce inequalities in market income and therefore do not redistribute economic resources between income segments, in case benefits are perfectly earnings-related and the risk of being in receipt of benefit is equally distributed in the population. So, in that case a higher share of private social protection will not have any (partial) effect on the distribution of income. However, private earnings-related schemes may not be actuarially fair and may contain elements of solidarity. This is often the case when (supplementary) private schemes are negotiated by social partners in collective labour contracts. These schemes are mandatory for (a group of) workers. Defined benefit pension schemes, for example, generally redistribute resources both within generations (for instance through redistributive elements such as thresholds or ceilings) and across generations (risk sharing, back service). Defined benefit systems for early retirement tend to redistribute to members who leave before the official retirement age from those who stay. In fact, as we mentioned in the former section, private *social* programs by definition contain elements of interpersonal redistribution.

Also, tax advantages (to households or to employers) can be used to stimulate the provision of private benefits. This is often the case in supplementary pension programs, where contributions are tax exempt. The fiscal advantages related to, for example, supplementary private pension plans are positively related to income levels in most countries. In general, as Ferrarini and Nelson (2002, pp. 14-15) showed, social insurance is less equalising after taxation in all countries.

In general, we do expect that private schemes will generate less income redistribution than public programs, although at this stage the distributional impact of taking account for private social schemes in a cross-country analysis is not fully clear. Private arrangements will likely have less redistributional effects compared to public programs. In addition, it is plausible that mainly higher income groups will make use of private social schemes (Casey and Yamada, 2002). Considering also that private schemes often have favourable tax treatment (deductibility of contributions), which benefits the rich, it is possible that private social expenditure has a positive effect on income inequality. In other words, we expect income inequality to be relatively high (low) in countries where the share of private arrangement in the total social benefits is relatively high (low).

4 The link between public/private social protection and income inequality

We performed various cross-county analyses of the relationship between public and private social expenditures and the income distribution.[2] Obviously, this analysis is not very sophisticated. The material presented here is only descriptive and does not explain the household income distribution. Such an analysis should ideally be based on a theory, which would have to address at least the following cross-national differences (cf. Gottschalk and Smeeding, 2000, p. 263): differences in labour markets that affect earnings of individual household members; difference in sources of capital and in returns to capital; demographic differences, such as the ageing of the population and growth of single parent households, which affect both family needs and labour market decisions; and differences across countries in tax and transfers policies that not only affect family income directly, but also may affect work and investment decisions. Such a comprehensive approach is far beyond the scope of this paper.

In Figure 4 (panel a), we have plotted the average level of *public* social expenditure as percentage of GDP and the average level of the Gini coefficient of disposable income for countries, where both data-items are available. Both averages are represented by the cross of both axes: 21.8 percent for *public* expenditures, and 0.292 for the Gini. Several countries show levels in social transfers above this average. Other countries combine a below-average level of *public* social expenditure with an above-average level in inequality.

We find a pretty good fit of a logarithmic OLS-regression with the level of the Gini and the level of *public* social spending as a percentage of GDP (a similar regression is done by Gouyette and Pestieau, 1999); see Table 4. Using public expenditure as dependent variable produces the expected negative sign, while the coefficient is statistically significant. In other words, we find a quite strong negative relationship between public social expenditures and income inequality. Obviously, public social security transfers are well-targeted towards the poor.

The picture alters when we take *private* social security expenditures into account in our analysis; see Figure 4 panel b. A negative relationship between *private* social expenditures and inequality can not be found; indeed the relationship is slightly positive. This is confirmed by a simple regression analysis reported in Table 4. The estimated coefficient of *private* expenditure-variable is positive, but not statistically significant. These are indications that support our hypothesis that public and private arrangements in social protection do have opposite distributional effects. This positive (rather than a negative) sign may reflect that higher income groups find it easier to opt in to private social programs.

---

2   We include 22 countries in our data set on the basis of data availability on both income (re)distribution measures and private social expenditure measures: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Mexico, the Netherlands, Norway, Poland, Slovak Republic, Spain, Sweden, Switzerland, the United Kingdom, and the United States. See the Appendix for details.

Figure 4: *Public* and *private* social expenditure and Gini index of equivalized disposable income
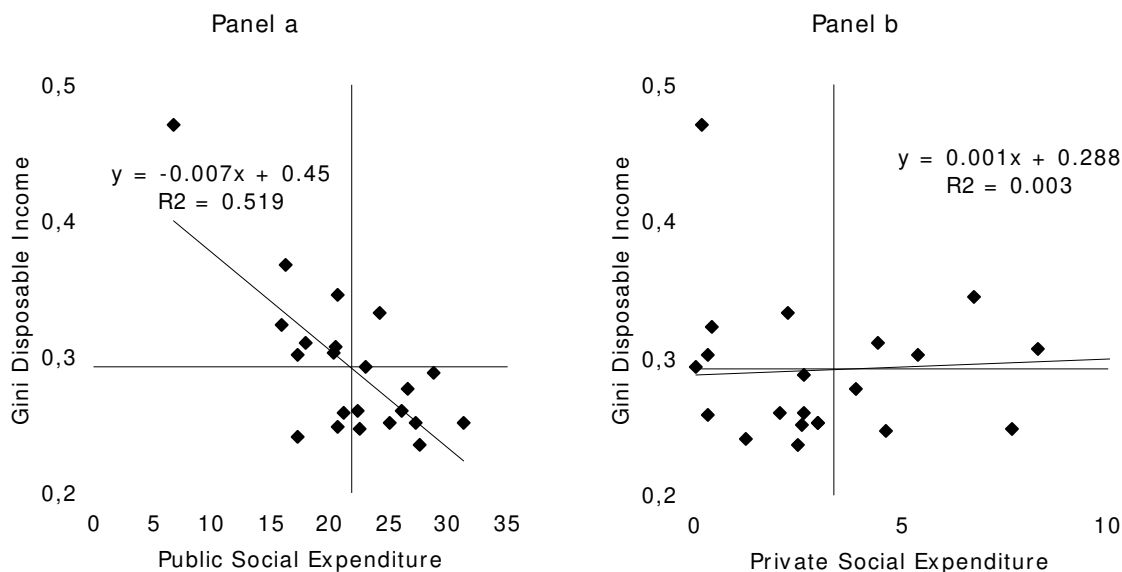

Table 4: Impact of *public* and *private* social expenditure on income inequality around 2003

Dependent variable		Intercept	Total expenditure	Public expenditure	Private expenditure	Adj. R2
Gini index net disposable income	(1)	-0.085 (-0.71)	-0.329 (-3.81)**			0.391
	(2)	-0.011 (-0.10)		-0.401 (-5.10)**		0.543
	(3)	-0.006 -(0.06)		-0.405 (-4.80)**	0.003 (0.17)	0.520
	(4)	-0.534 (-30.95)**			-0.024 (-0.90)	-0.009

Notes: Logarithmic OLS-regression; t-statistics in parentheses.
** Significant at the 0.01 level; * significant at 0.05 level

Source: OECD (2007), LIS-data based on Brandolini and Smeeding (2005), and own calculations

Note that *private* arrangements mitigate the impact of *public* social effort on income inequality to some extent, although the estimated coefficient of the *total* expenditure-variable is still negative and significant. In an earlier paper with less recent data we found that, as a result of the divergent effects of public social expenditure versus private social expenditure, the relationship between total social expenditures and income inequality across 16 wealthy countries appeared to be statistically trivial (Caminada and Goudswaard, 2005).[3]

We performed a similar analysis of the relationship between *public* and *private* social expenditures with the reduction in income inequality caused by income transfers (income redistribution from taxes and social benefits as defined in section 2). In Figure 5 panel a the expected relationship is shown: countries with a higher level of public social expenditure have more income redistribution or more reduction of the Gini. Panel b shows that there is no obvious relationship between private social expenditures and income redistribution. This is confirmed by the regression results in Table 5.

---

3   Moreover, we performed another analysis as well and we find similar results in case *net* rather than *gross* social expenditures are taken into our empirical analysis. However, data on *net* public and *net* private social expenditures are not (yet) available for Luxembourg, Poland and Switzerland. See the Appendix for details.

Figure 5: *Public* and *private* social expenditure and the redistribution of income
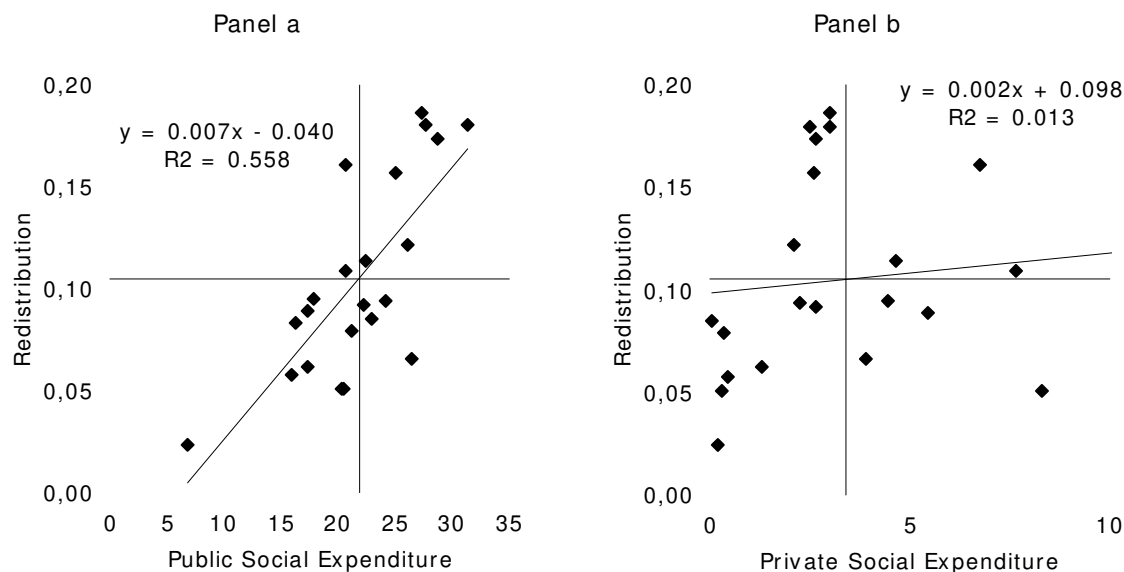
Panel a   Panel b

Table 5: Impact of *public* and *private* social expenditure on income redistribution around 2003

Dependent variable		Intercept	Total expenditure	Public expenditure	Private expenditure	adj. R2
Redistribution: ($Gini_{pre}$ – $Gini_{post}$)	(1)	-2.734 (-9.17)**	1.234 (5.75)**			0.604
	(2)	-2.738 (-9.17)**		1.295 (5.76)**		0.605
	(3)	-2.620 (-8.81)**		1.188 (5.23)**	0.081 (1.59)	0.633
	(4)	-1.073 (-22.03)**			0.159 (2.16)*	0.149

Notes: Logarithmic OLS-regression; t-statistics in parentheses.
           ** Significant at the 0.01 level; * significant at 0.05 level
           - Gini index of market (pre-government private sector) income: $Gini_{pre}$
           - Gini index net disposable (post-government) income: $Gini_{post}$

Source: OECD (2007), LIS-data based on Brandolini and Smeeding (2005), and own calculations

5 Conclusions

Most analyses of social protection are focussed on public arrangements. But social effort is not restricted to the public domain; all kinds of private arrangements can be close substitutes to public programs. In fact, OECD-data indicate that in several countries there has been a shift from public towards private social arrangements. Private arrangements are considered as 'social' when they serve a social purpose and when there is some kind of government involvement. Examples are supplementary employment-based and tax advantaged pension plans and private health insurance plans with legal stipulations. In this contribution we analysed the distributional effects of public and private social arrangements. Income redistribution is one of the important objectives of the welfare state. In all OECD countries, the social protection system causes a more equal distribution of incomes. Taxes and transfers reduce the Gini coefficient by roughly 20 to 50 percent in OECD countries. Public pensions have the strongest redistributive impact. Based on cross-country regressions, we find a negative relationship between *public* social expenditures and income inequality.

However, we expect that private schemes will generate less redistribution from rich to poor. And indeed, we do not find a statistically significant relationship between *private* social expenditures and income inequality and income redistribution. Consequently, changes in the public/private mix in the provision of social protection may affect the redistributive impact of the welfare state. Accounting for private social arrangements matters as far as the distributional impact of the social protection system is concerned.

References

Adema, W. (2001), '*Net* Social Expenditure: 2nd edition', *Labour Market and Social Policy - Occasional Papers* 52, Paris: OECD.

Adema, W., and M. Ledaique (2005), 'Net social expenditure. 2005 edition', *OECD Social Employment and Migration Working Paper* 29, Paris: OECD.

Atkinson, A.B. (2000), 'The Changing Distribution of Income: Evidence and Explanation,' *German Economic Review* 1 (1), pp. 3-18.

Atkinson, A.B., L. Rainwater, and T.M. Smeeding (1995), 'Income Distribution in OECD Countries: Evidence from the Luxembourg Income Study', *OECD Social Policy Studies* 18, Paris: OECD.

Brandolini, A., and T.M. Smeeding (2005), 'Inequality Patterns in Western Democracies: Cross-Country Differences and Time Changes', mimeo to be found at www.lisproject.org/workshop.htm.

Caminada, K., and K.P. Goudswaard (2001), 'International Trends in Income Inequality and Social Policy,' *International Tax and Public Finance* 8 (4), pp. 395-415.

Caminada. K., and K.P. Goudswaard (2005), 'Are public and private social expenditures complementary?', *International Advances in Economic Research* 11 (2), pp. 175-189.

Casey, B.H., and A. Yamada (2002), 'The Public-Private Mix of Retirement Income in Nine OECD Countries: Some Evidence from Micro-data and an Exploration of its Implications', *Luxembourg Income Study Working Paper Series* 311, Luxembourg: LIS.

Ferrarini, T., and K. Nelson (2002), 'The Impact of Taxation on the Equalising Effect of Social Insurance to Income Inequality: A Comparative Analysis of Ten Welfare States', *Luxembourg Income Study Working Paper Series* 327, Luxembourg: LIS.

Förster, M. (2000), 'Trend and Driving Factors in Income Distribution and Poverty in the OECDF Area', *Labour Market and Social Policy Occasional Papers* 42, Paris: OECD.

Förster, M., and M.M. d'Ercole (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: OECD.

Gottschalk, P., and T.M. Smeeding (1997), 'Cross-National Comparisons of Earnings and Income Inequality,' *Journal of Economic Literature* 35 (June), pp. 633-687.

Gottschalk, P., and T.M. Smeeding (2000), 'Empirical Evidence on Income Inequality in Industrialized Countries,' in: A.B. Atkinson and F. Bourgignon (eds.), *Handbook of Income Distribution*, New York: Elsevier-North Holland Publishers, vol. 1, pp. 262-307.

Gouyette, C., and P. Pestieau (1999), 'Efficiency of the Welfare State,' *Kyklos* 52 (4), pp. 537-553.

Kakwani, N.C. (1986), *Analyzing Redistribution Policies*, Cambridge: Cambridge University Press.

Korpi, W., and J. Palme (1998), 'The Paradox of Redistribution and Strategies of Equality: Welfare Institutions, Inequality and Poverty in the Western Countries,' *American Sociological Review* 63 (5), pp. 661-687.

Luxembourg Income Study, LIS-website www.lisproject.org.

Mahler, V.A., and D.K. Jesuit (2006), 'Fiscal Redistribution in the Developed Countries: New Insights from the Luxembourg Income Study', *Socio-Economic Review* 4, pp. 483-511 (see also their LIS Working Paper 392; Data of their research project is available at http://www.lisproject.org/publications/fiscalredistdata/fiscred.htm.

Musgrave, R.A., K.E. Case, and H.B. Leonard (1974), 'The Distribution of Fiscal Burdens and Benefits,' *Public Finance Quarterly* 2 (July), pp. 259-311.

OECD (2007), *Social Expenditure database 1980-2003* (www.oecd.org/els/social/expenditure); download February 26th, 2008.

Ringen, S. (1991), 'Households, standard of living and inequality,' *Review of Income and Wealth* 37 (1), pp. 1-13.

Smeeding, T. (2002), 'Globalization, Inequality and the Rich Countries of the G-20: Evidence from the Luxembourg Income Study (LIS)', *Luxembourg Income Study Working Paper Series* 320, Luxembourg: LIS.

Smolensky, E., W. Hoyt, and S. Danziger (1985), 'A Critical Survey of Efforts to Measure Budget Incidence,' in: H.M. van de Kar and B.L. Wolfe (eds.), *The Relevance of Public Finance for Policy-Making*, Proceedings IIFP Congress 1985, Detroit, pp. 165-179.

Swabisch, J., T. Smeeding, and L. Osberg (2003), 'Income Distribution and Social Expenditures: A Cross-National Perspective', *Luxembourg Income Study Working Paper Series* 350, Luxembourg: LIS.

Appendix: Data and correlation tests across countries

Our research hypothesis is that the level of public social expenditure and income inequality across countries are negatively correlated, while private social expenditure may have a non-negative redistributional effect. To analyze this hypothesis we include 22 countries in our data set on the basis of data availability on both Income (Re)Distribution measures and Private Social Expenditure measures (gross and/or net). For 19 countries all data items are available. For another three countries - Luxembourg, Poland and Switzerland - only data of net social expenditure are missing (although data on gross private social expenditure is available), so we put these countries also in our data set. As a result we have performed regression analyses with two data sets containing 22 respectively 19 OECD-countries.

Data set 1	Inequality of market income and net disposable income					Gross public and private social expenditure, % GDP, 2003						
	Gini market income	Gini disposable income	Effect taxes and transfers	Redistribution measure	Most recent data year	Public	Private mandatory	Private voluntary	Private	Total	Share private	Most recent data year
Australia	0.406	0.311	0.095	23.4%	1994	17.9	1.2	3.2	4.5	22.4	20%	2003
Austria	0.382	0.260	0.122	31.9%	2000	26.1	0.9	1.2	2.1	28.1	7%	2003
Belgium	0.343	0.277	0.066	19.2%	2000	26.5	0.0	3.9	3.9	30.4	13%	2003
Canada	0.391	0.302	0.089	22.8%	2000	17.3	0.0	5.4	5.4	22.7	24%	2003
Czech Republic	0.338	0.259	0.079	23.4%	1996	21.1	0.2	0.1	0.4	21.5	2%	2003
Denmark	0.416	0.236	0.180	43.3%	1992	27.6	0.2	2.3	2.5	30.1	8%	2003
Finland	0.361	0.247	0.114	31.6%	2000	22.5	3.5	1.2	4.6	27.1	17%	2003
France	0.462	0.288	0.174	37.7%	1994	28.7	0.4	2.3	2.7	31.4	8%	2003
Germany	0.438	0.252	0.186	42.5%	2000	27.3	1.2	1.8	3.0	30.2	10%	2003
Ireland	0.381	0.323	0.058	15.2%	2000	15.9	0.0	0.5	0.5	16.4	3%	2003
Italy	0.427	0.333	0.094	22.0%	2000	24.2	1.8	0.5	2.3	26.4	9%	2003
Luxembourg	0.352	0.260	0.092	26.1%	2000	22.2	2.6	0.1	2.7	24.9	11%	2003
Mexico	0.495	0.471	0.024	4.8%	2002	6.8	0.0	0.2	0.2	7.0	3%	2003
Netherlands	0.357	0.248	0.109	30.5%	1999	20.7	0.7	7.0	7.7	28.3	27%	2003
Norway	0.408	0.251	0.157	38.5%	2000	25.1	1.6	1.0	2.6	27.7	9%	2003
Poland	0.378	0.293	0.085	22.5%	1999	22.9	0.0	0.0	0.0	23.0	0%	2003
Slovak Republic	0.303	0.241	0.062	20.5%	1996	17.3	0.2	1.1	1.3	18.6	7%	2003
Spain	0.354	0.303	0.051	14.4%	1990	20.3	0.0	0.3	0.3	20.6	2%	2003
Sweden	0.432	0.252	0.180	41.7%	2000	31.3	0.6	2.4	3.0	34.3	9%	2003
Switzerland	0.358	0.307	0.051	14.2%	1992	20.5	7.2	1.1	8.3	28.8	29%	2003
United Kingdom	0.506	0.345	0.161	31.8%	1999	20.6	0.8	6.0	6.8	27.4	25%	2003
United States	0.451	0.368	0.083	18.4%	2000	16.2	0.4	9.7	10.0	26.2	38%	2003
Number of countries	22	22	22	22		22	22	22	22	22	22	
Average	0.397	0.292	0.105	26.2%		21.8	1.1	2.3	3.4	25.2	12.7%	

Source: OECD (2007, www.oecd.org/els/social/expenditure), LIS-data based on Brandolini and Smeeding (2005, www.lisproject.org/workshop.htm; and own calculations

Data set 2	Inequality of market income and net disposable income						Net public and private social expenditure, % GDP, 2003						
	Gini Market Income	Gini Disposable Income	Effect taxes and transfers	Redistribution Measure	Most recent data year		Public	Private mandatory	Private voluntary	Private	Total	Share private	Most recent data year
Australia	0.406	0.311	0.095	23.4%	1994		17.2	1.0	2.7	3.7	20.9	18%	2003
Austria	0.382	0.260	0.122	31.9%	2000		20.6	0.5	1.0	1.5	22.2	7%	2003
Belgium	0.343	0.277	0.066	19.2%	2000		22.9	0.0	3.1	3.1	26.0	12%	2003
Canada	0.391	0.302	0.089	22.8%	2000		17.2	0.0	4.3	4.3	21.4	20%	2003
Czech Republic	0.338	0.259	0.079	23.4%	1996		19.5	0.2	0.1	0.3	19.8	2%	2003
Denmark	0.416	0.236	0.180	43.3%	1992		20.3	0.1	1.2	1.2	21.6	6%	2003
Finland	0.361	0.247	0.114	31.6%	2000		17.7	2.1	0.7	2.9	20.6	14%	2003
France	0.462	0.288	0.174	37.7%	1994		25.5	0.3	2.2	2.5	28.0	9%	2003
Germany	0.438	0.252	0.186	42.5%	2000		25.8	0.6	1.6	2.2	28.0	8%	2003
Ireland	0.381	0.323	0.058	15.2%	2000		14.0	0.0	0.5	0.5	14.4	3%	2003
Italy	0.427	0.333	0.094	22.0%	2000		20.6	1.4	0.4	1.9	22.5	8%	2003
Mexico	0.495	0.471	0.024	4.8%	2002		7.6	0.0	0.2	0.2	7.7	2%	2003
Netherlands	0.357	0.248	0.109	30.5%	1999		17.9	0.4	5.1	5.6	23.5	24%	2003
Norway	0.408	0.251	0.157	38.5%	2000		20.2	0.9	0.6	1.5	21.7	7%	2003
Slovak Republic	0.303	0.241	0.062	20.5%	1996		16.1	0.2	0.9	1.1	17.2	6%	2003
Spain	0.354	0.303	0.051	14.4%	1990		17.6	0.0	0.3	0.3	18.0	2%	2003
Sweden	0.432	0.252	0.180	41.7%	2000		24.3	0.3	1.5	1.8	26.1	7%	2003
United Kingdom	0.506	0.345	0.161	31.8%	1999		19.3	0.6	4.8	5.4	24.7	22%	2003
United States	0.451	0.368	0.083	18.4%	2000		17.3	0.4	8.9	9.2	26.5	35%	2003
Number of countries	19	19	19	19			19	19	19	19	19	19	
Average	0.403	0.293	0.110	27.0%			19.0	0.5	2.1	2.6	21.6	11.1%	

Source: OECD (2007, www.oecd.org/els/social/expenditure), LIS-data based on Brandolini and Smeeding (2005, www.lisproject.org/workshop.htm; and own calculations

Correlation tests: Linkage between LIS income distribution measures and gross and net social expenditure among countries around 2000-2003

Dependent variable	Gross social expenditure (data set 1)					Net social expenditure (data set 2)				
	Intercept	Total	Public	Private	adj. R2	Intercept	Total	Public	Private	adj. R2
Gini index net disposable income: Gini $_{post}$	-0.085 (-0.71)	-0.329 (-3.81)**			0.391	-0.112 (-0.68)	-0.324 (-2.61)*			0.245
	-0.011 (-0.10)		-0.401 (-5.10)**		0.543	0.022 (0.15)		-0.444 (-3.71)**		0.414
	-0.006 (-0.06)		-0.405 (-4.80)**	0.003 (0.17)	0.520	0.094 (0.55)		-0.507 (-3.72)**	0.033 (0.97)	0.412
	-0.534 (-30.95)**			-0.024 (-0.90)	-0.009	-0.534 (-26.42)**			-0.027 (-0.68)	-0.031
Redistribution: (Gini $_{pre}$ – Gini $_{post}$)	-2.734 (-9.17)**	1.234 (5.75)**			0.604	-2.944 (-8.54)**	1.464 (5.63)**			0.630
	-2.738 (-9.17)**		1.295 (5.76)**		0.605	-3.074 (-8.70)**		1.628 (5.86)**		0.649
	-2.620 (-8.81)**		1.188 (5.23)**	0.081 (1.59)	0.633	-2.835 (-7.44)**		1.420 (4.64)**	0.111 (1.43)	0.670
	-1.073 (-22.03)**			0.159 (2.16)*	0.149	-1.075 (-21.11)**			0.281 (2.78)*	0.272
Relative redistribution: (Gini $_{pre}$ – Gini $_{post}$)/ Gini $_{pre}$	-2.380 (-9.51)**	1.270 (7.05)**			0.699	-2.545 (-8.05)**	1.464 (6.14)**			0.671
	-2.424 (-10.26)**		1.363 (7.66)**		0.733	-2.732 (-9.13)**		1.673 (7.11)**		0.733
	-2.331 (-9.89)**		1.279 (7.11)**	0.063 (1.57)	0.751	-2.572 (-7.78)**		1.534 (5.78)**	0.074 (1.11)	0.737
	-0.665 (-14.07)**			0.148 (2.07)	0.135	-0.671 (-13.24)**			0.258 (2.57)*	0.237

Note: Logarithmic OLS-regression; t-statistics in parentheses. ** Social expenditure variable significant at 0.01 level; * Social expenditure variable significant at 0.05 level.

Source: OECD (2007, www.oecd.org/els/social/expenditure), LIS-data based on Brandolini and Smeeding (2005, www.lisproject.org/workshop.htm; and own calculations

Research Memorandum Department of Economics

2008.04   Kees Goudswaard and Koen Caminada
           The redistributive impact of public and private social expenditure.

2008.03   Karen M. Anderson and Michael Kaeding
           Pension systems in the European Union: Variable patterns of influence in Italy, the Netherlands
           and Belgium.

2008.02   Maroesjka Versantvoort
           Time use during the life course in USA, Norway and the Netherlands: a HAPC-analysis.

2008.01   Maroesjka Versantvoort
           Studying time use variations in 18 countries applying a life course perspective.

2007.06   Olaf van Vliet and Michael Kaeding
           Globalisation, European Integration and Social Protection – Patterns of Change or Continuity?

2007.05   Ben van Velthoven
           Kosten-batenanalyse van criminaliteitsbeleid. Over de methodiek in het algemeen en
           Nederlandse toepassingen in het bijzonder.

2007.04   Ben van Velthoven
           Rechtseconomie tussen instrumentaliteit en normativiteit.

2007.03   Guido Suurmond
           Compliance to fire safety regulation. The effects of the enforcement strategy.

2007.02   Maroesjka Versantvoort
           Een schets van de sociaal-economische effecten van verlof en de beleidsmatige dilemma's die
           daaruit volgen.

2007.01   Henk Nijboer
           A Social Europe: Political Utopia or Efficient Economics? An assessment from a public
           economic approach.

2006.04   Aldo Spanjer
           European gas regulation: A change of focus.

2006.03   Joop de Kort and Rilka Dragneva
           Russia's Role in Fostering the CIS Trade Regime.

2006.02   Ben van Velthoven
           Incassoproblemen in het licht van de rechtspraak.

2006.01   Jurjen Kamphorst en Ben van Velthoven
           De tweede feitelijke instantie in de belastingrechtspraak.

2005.03   Koen Caminada and Kees Goudswaard
           Budgetary costs of tax facilities for pension savings: an empirical analysis.

2005.02   Henk Vording en Allard Lubbers
           How to limit the budgetary impact of the European Court's tax decisions?

2005.01   Guido Suurmond en Ben van Velthoven
           Een beginselplicht tot handhaving: liever regels dan discretionaire vrijheid.

2004.04   Ben van Velthoven en Marijke ter Voert
           Paths to Justice in the Netherlands. Looking for signs of social exclusion.

2004.03   Guido Suurmond
           Brandveiligheid in de horeca. Een economische analyse van de handhaving in een
           representatieve gemeente.

2004.02   Kees Goudswaard, Koen Caminada en Henk Vording
           Naar een transparanter loonstrookje?

2004.01 Koen Caminada and Kees Goudswaard
Are public and private social expenditures complementary?

2003.01 Joop de Kort
De mythe van de globalisering. Mondialisering, regionalisering of gewoon internationale economie?

2002.04 Koen Caminada en Kees Goudswaard
Inkomensgevolgen van veranderingen in de arbeidsongeschiktheidsregelingen en het nabestaandenpensioen.

2002.03 Kees Goudswaard
Houdbare solidariteit.

2002.02 Ben van Velthoven
Civiele en administratieve rechtspleging in Nederland 1951-2000; deel 1: tijdreeksanalyse.

2002.01 Ben van Velthoven
Civiele en administratieve rechtspleging in Nederland 1951-2000; deel 2: tijdreeksdata.

2001.03 Koen Caminada and Kees Goudswaard
International Trends in Income Inequality and Social Policy.

2001.02 Peter Cornelisse and Kees Goudswaard
On the Convergence of Social Protection Systems in the European Union.

2001.01 Ben van Velthoven
De rechtsbijstandsubsidie onderzocht. En hoe nu verder?

2000.01 Koen Caminada
Pensioenopbouw via de derde pijler. Ontwikkeling, omvang en verdeling van premies lijfrenten volgens de Inkomensstatistiek.

1999.03 Koen Caminada and Kees Goudswaard
Social Policy and Income Distribution. An Empirical Analysis for the Netherlands.

1999.02 Koen Caminada
Aftrekpost eigen woning: wie profiteert in welke mate? Ontwikkeling, omvang en verdeling van de hypotheekrenteaftrek en de bijtelling fiscale huurwaarde.

1999.01 Ben van Velthoven and Peter van Wijck
Legal cost insurance under risk-neutrality.

1998.02 Koen Caminada and Kees Goudswaard
Inkomensherverdeling door sociale zekerheid: de verdeling van uitkeringen en premieheffing in 1990 en 1995.

1998.01 Cees van Beers
Biased Estimates of Economic Integration Effects in the Trade Flow Equation.

1997.04 Koen Caminada and Kees Goudswaard
Distributional effects of a flat tax: an empirical analysis for the Netherlands.

1997.03 Ernst Verwaal
Compliance costs of intra-community business transactions. Magnitude, determinants and policy implications.

1997.02 Julia Lane, Jules Theeuwes and David Stevens
High and low earnings jobs: the fortunes of employers and workers.

1997.01 Marcel Kerkhofs and Maarten Lindeboom
Age related health dynamics and changes in labour and market status.

1996.07 Henk Vording
The case for equivalent taxation of social security benefits in Europe.

1996.06 Kees Goudswaard and Henk Vording
Is harmonisation of income transfer policies in the European Union feasible?

1996.05 Cees van Beers and Jeroen C.J.M. van den Bergh
The impact of environmental policy on trade flows: an empirical analysis.

1996.04 P.W. van Wijck en B.C.J. van Velthoven
Een economische analyse van het Amerikaanse en het continentale systeem van proceskostentoerekening.

1996.03   Arjan Heyma
           Retirement and choice constraints: a dynamic programming approach.

1996.02   B.C.J. van Velthoven en P.W. van Wijck

           De economie van civiele geschillen; rechtsbijstand versus no cure no pay.

1996.01   Jan Kees Winters
           Unemployment in many-to-one matching models.

1995.05   Maarten Lindeboom and Marcel Kerkhofs
           Time patterns of work and sickness absence. Unobserved effects in a multi-state duration model.

1995.04   Koen Caminada en Kees Goudswaard
           De endogene ontwikkeling van de belastingdruk: een macro-analyse voor de periode 1960-1994.

1995.03   Henk Vording and Kees Goudswaard
           Legal indexation of social security benefits: an international comparison of systems and their effects.

1995.02   Cees van Beers and Guido Biessen
           Trade potential and structure of foreign trade: the case of Hungary and Poland.

1995.01   Isolde Woittiez and Jules Theeuwes
           Well-being and labour market status.

1994.10   K.P. Goudswaard
           Naar een beheersing van de Antilliaanse overheidsschuld.

1994.09   Kees P. Goudswaard, Philip R. de Jong and Victor Halberstadt
           The realpolitik of social assistance: The Dutch experience in international comparison.

1994.08   Ben van Velthoven
           De economie van misdaad en straf, een overzicht en evaluatie van de literatuur.

1994.07   Jules Theeuwes en Ben van Velthoven
           De ontwikkeling van de criminaliteit in Nederland, 1950-1990: een economische analyse.

1994.06   Gerard J. van den Berg and Maarten Lindeboom
           Durations in panel data subject to attrition: a note on estimation in the case of a stock sample.

1994.05   Marcel Kerkhofs and Maarten Lindeboom
           Subjective health measures and state dependent reporting errors.

1994.04   Gerard J. van den Berg and Maarten Lindeboom
           Attrition in panel data and the estimation of dynamic labor market models.

1994.03   Wim Groot
           Wage and productivity effects of enterprise-related training.

1994.02   Wim Groot
           Type specific returns to enterprise-related training.

1994.01   Marcel Kerkhofs
           A Quadratic model of home production decisions.