
Financial Resources and Retirement in Nine OECD
Countries: The Role of the Tax System

Gordon Keenay and Edward Whitehouse

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FINANCIAL RESOURCES AND RETIREMENT IN NINE OECD COUNTRIES: THE ROLE OF THE
TAX SYSTEM

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SUMMARY

Most countries give income-tax concessions to older people relative to people of working age. Some treat pension income more favourably than earnings, and most do not levy social security contributions on older people. These policies mean that the direct tax burden of older people is lower than that carried by people of working age. At an income equivalent to economy-wide average earnings, for example, the average tax burden (in the nine countries studied) is ten percentage points lower for pensioners than it is for workers. Therefore differences in taxes between pensioners and workers are an important way in which governments support people during their retirement. This is measured by the effect on net replacement rates: the value of pension benefits for a full-career worker relative to earnings when in work. On average, one fifth of the net replacement rate for a worker on average earnings is due to tax differentials rather than the pension system.

This paper provides the first cross-country analysis of the personal tax treatment of older people. Its results will be of interest to analysts of retirement-income systems. The value of direct-tax concessions and their pattern with income varies substantially between the countries studied. The cost of these concessions to the public purse can be large: they are important to fiscal policy as well as old-age support. The results also underpin the analysis of retirement and savings incentives. For example, studies of the taxation of private pensions have typically assumed that individuals face the same effective tax rate during retirement as they do when working. These models can provide more realistic tax rates.

It is important that policy-makers avoid comparing the rates and structure of retirement benefits across countries without also considering the effect on older people of systems of personal income tax and social security contributions.

RÉSUMÉ

La plupart des pays font des concessions d'impôt sur le revenu pour les personnes âgées par rapport aux personnes en activité. Certains pays sont plus favorables aux revenus des pensions de retraite qu'aux gains d'activité. La plupart ne prélèvent pas de contributions de sécurité sociale aux personnes âgées. Ces politiques signifient que le poids de l'impôt direct sur les personnes âgées est plus bas que celui porté par les actifs. A échelle de l'économie d'un pays, et pour un revenu équivalent aux gains d'activité moyens par exemple, le poids moyen de l'imposition (pour les neuf pays étudiés) est de 10% de moins pour les retraités par rapport aux actifs. Ainsi les différences d'imposition entre retraités et actifs sont révélatrices du soutien important des gouvernements aux personnes retraitées. Ceci est mesuré par les effets sur les taux de substitution nets : la valeur des revenus de pension pour un actif ayant cotisé toute sa carrière par rapport à ses revenus d'activité. En moyenne, 1/5ème du taux net de substitution pour un actif aux revenus moyens est dû à des différentiels de taxe plutôt qu'au système de pension.

Ce document fournit la première analyse par pays du traitement de l'impôt individuel sur les personnes âgées. Ces résultats seront intéressants pour les analystes des systèmes de revenus de retraite. La valeur des concessions sur l'impôt direct et leur modèle de revenu varie substantiellement selon les pays étudiés. Le coût de ces concessions en direction du trésor public peut être vaste : elles sont importantes autant pour la politique fiscale que pour le soutien financier aux personnes âgées. Ces résultats étayent également l'analyse des mesures en faveur des retraites et de l'épargne. Par exemple, des études sur l'imposition des pensions de retraite privées ont typiquement admis que les individus font face au même taux d'imposition effectif durant leur retraite qu'au long de leur vie professionnelle. Ces modèles peuvent fournir des taux d'imposition plus réalistes.

Il est important que les décideurs politiques évitent de comparer les taux et structures des prestations de retraite à travers les différents pays sans prendre également en considération l'effet sur les personnes âgées des systèmes d'imposition sur le revenu personnel et les contributions de sécurité sociale.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	3
SUMMARY	4
RÉSUMÉ	5
INTRODUCTION	10
1. Methodology	11
1.1 Earnings and incomes	11
1.2 Coverage of the analysis	11
1.3 Calculations	12
1.4 Interpreting the results	13
2. Cross-country summary of tax treatment of older people	13
3. Empirical results: average effective tax rates on workers and pensioners	15
4. Empirical results: marginal effective tax rates on workers and pensioners.....	20
5. Empirical results: gross and net replacement rates.....	22
6. Summary and conclusions	24
ANNEX A. COUNTRY SYSTEMS	27
A.1. Canada	27
A.1.1. Personal income tax	27
Basic relief	27
Tax allowances and tax credits for older people	27
Reliefs for pension income	27
Tax schedule	28
State and local income taxes	28
A.1.2. Social security contributions	28
Employee contributions	28
Employer contributions.....	28
Contributions for older people	28
A.2. Finland	29
A.2.1. Personal income tax	29
Basic relief	29
Tax allowances and tax credits for older people	29
Reliefs for pension income	29
Work-related expenses	29
Tax schedule	29
State and local income taxes	29
A.2.2. Social security contributions	30
Employee contributions	30
Employer contributions.....	30
Contributions for older people	30

A.3.	Germany.....	30
A.3.1.	Personal income tax	30
	Basic reliefs.....	30
	Tax allowances and tax credits for older people.....	30
	Reliefs for pension income	30
	Income tax calculation	31
	Reliefs for social security contributions.....	31
	Reliefs for work-related expenses.....	31
A.3.2.	Social security contributions.....	31
	Employee contributions	31
	Employer contributions.....	31
	Contributions for older people	31
A.4.	Italy	32
A.4.1.	Personal income tax	32
	Basic reliefs.....	32
	Tax allowances and tax credits for older people.....	32
	Reliefs for pension income	32
	Rate schedule	32
A.4.2.	Social security contributions.....	32
	Employee contributions	32
	Employer contributions.....	32
	Contributions for older people	33
A.5.	Japan	33
A.5.1.	Personal income tax	33
	Basic relief	33
	Tax allowances and tax credits for older people.....	33
	Reliefs for pension income	33
	Employment income deduction	33
	Tax schedule	33
	State and local income taxes	34
A.5.2.	Social security contributions.....	34
	Employee contributions	34
	Employer contributions.....	34
	Contributions for older people	34
A.6.	Netherlands	34
A.6.1.	Personal income tax	34
	Basic relief	34
	Work-related expenses.....	35
	Tax allowances and tax credits for older people.....	35
	Reliefs for pension income	35
	Tax schedule	35
A.6.2.	Social security contributions.....	35
	Employee contributions	35
	Employer contributions.....	36
	Contributions for older people	36
A.7.	Sweden.....	36
A.7.1.	Personal income tax	36
	Basic reliefs.....	36
	Tax allowances and tax credits for older people.....	36
	Reliefs for pension income	36
	Tax schedule	37

Local income taxes.....	37
A.7.2. Social security contributions.....	37
Employee contributions	37
Employer contributions.....	37
Contributions for older people	37
A.8. United Kingdom	37
A.8.1. Personal income tax	37
Basic relief	37
Tax allowances and tax credits for older people	38
Reliefs for pension income	38
Tax schedule	38
A.8.2. Social security contributions.....	38
Employees' contributions	38
Employers' contributions.....	38
Contributions for older people	38
A.9. United States	39
A.9.1. Personal income tax	39
Basic reliefs.....	39
Tax allowances and tax credits for older people	39
Reliefs for pension income	39
Tax schedule	39
State and local income taxes	40
A.9.2. Social security contributions.....	40
Employee contributions	40
Employer contributions.....	40
Contributions for older people	40
REFERENCES	41

TABLE OF TABLES AND FIGURES

Table 1. Earnings of the average production worker, 1999.....	11
Table 2. Categories of concession available to pensioners.....	14
Table 3. Summary of concessions to older people in personal income tax systems	15
Figure 1. Taxes paid by pensioners and workers:.....	17
Table 4. Taxes paid by pensioners and workers: Average effective tax rate including personal income tax and social security contributions	19
Figure 2. Marginal effective tax rates on pensioners and workers	21
Figure 3. Gross and net replacement rates:.....	23
Figure 4. Summary: difference in average effective tax rates between workers and pensioners by gross income level, percentage points	25
Table 5. Tax expenditures: estimates of revenues foregone from particular income tax concessions to older people	26
Table 6. Personal income tax schedule, Canada, 1999.....	28
Table 7. Personal income tax schedule, Finland, 1999	29
Table 8. Personal income tax schedule: Italy, 1999	32
Table 9. Personal income tax schedule: Japan, 1999	34
Table 10. Personal income tax schedule: Netherlands, 1999	35
Table 11. Personal income tax schedule: Sweden, 1999.....	37
Table 12. Personal income tax schedule: United Kingdom, 1999.....	38
Table 13. Personal income tax schedule: United States, 1999	39

INTRODUCTION

1. Most OECD Member countries offer concessions to older people in their personal income tax systems relative to the tax treatment of people of working age. Some treat certain types of pension income more favourably than other income sources. In addition, most countries do not levy social security contributions on older people. Others levy such charges at lower rates on pensioners than on people of working age. Together, these policies imply that the direct tax burden faced by older people is lower than that carried by people of working age. Tax differentials are therefore an important means by which governments support people during their retirement. The personal tax system also has a substantial effect on retirement incentives.

2. This paper is issued as background to the report *Ageing and Income: Financial Resources and Retirement in Nine OECD Countries* (OECD, 2001b). Two parts of that report — which provides a detailed assessment of nine Member countries' retirement-income systems — build on the results presented here:

- First, the calculations of pension entitlements under today's pension rules of hypothetical individuals at different earnings levels. These results, in conjunction with analysis of income distribution statistics, are used to understand better the differences between the different countries' retirement-income systems. (Chapter 3.)
- Secondly, calculations of incentives to retire at different ages provided by the pension system. These are measured both by the value of the pension benefit at a different age and by the change in pension wealth from working an additional year. (Annex II.)

3. In both of these cases, it is essential to calculate incomes in and out of work net of taxes and social security contributions.

4. Nevertheless, our results have important implications in their own right. The value of direct tax concessions to older people and their pattern with income varies substantially between OECD Member countries. The cost of these concessions to the public purse can be substantial. This has important implications for cross-country comparisons of retirement-income systems.

5. The rest of the paper is structured as follows. We begin with a brief overview of the methodology followed by a cross-country summary of the main features of direct tax systems relevant to older people. (A detailed country-by-country analysis of tax and social security contribution systems is provided in Annex A.) The next three sections set out the empirical results. A final section summarises and concludes.

1. Methodology¹

6. The results focus on two groups of people: employees of working age and older people drawing public pensions.

1.1 Earnings and incomes

7. In each case, annual incomes are set at given fractions of the average gross wage earnings of adult, full-time production workers in the manufacturing sector.² This means that earnings data are derived from a minority of employees in each country. An obvious drawback is that the earnings of an average production worker will be at different positions in the overall income distribution in different countries. However, it has proved difficult in practice to obtain a broader measure that is consistent between countries.

8. The resulting measures of earnings are shown in Table 1 in both national currency and in United States dollars.³ Earnings have been translated into dollars using OECD purchasing power parities, which calculate the cost of a common basket of goods in each country.⁴

Table 1. Earnings of the average production worker, 1999

	<i>Earnings of average production worker</i>	
	<i>National currency</i>	<i>US\$ at PPP</i>
Canada	34 700	30 000
Finland	146 400	24 200
Germany	60 900	30 300
Italy	38 906 100	24 000
Japan	4 217 400	25 900
Netherlands	59 500	28 700
Sweden	220 600	22 900
United Kingdom	17 800	27 100
United States	30 000	30 000

Note: all values rounded to the nearest 100 for clarity

Source: OECD (2001a)

1.2 Coverage of the analysis

9. The results cover personal income tax and employee and employer social security contributions payable on wage earnings and pension income. For people of working age, it is assumed that the whole of

1 OECD (2001a), Section III gives more details on the methodology.

2 The sample covers manual workers and shop-floor based supervisors. Non-manual workers are excluded except in the Netherlands. Incomes generally exclude the value of fringe benefits, such as provision of food, housing or clothing by the employer free of charge or below market price.

3 The sources and methodology for the calculation of earnings data are given in OECD (2001a), Section III.B.

4 Market exchange rates, of course, fluctuate wildly, and can generate very misleading results.

income comes from earnings. Thus, the calculations exclude fringe benefits and capital income (such as dividends and interest).⁵

10. For pensioners, it is assumed that the whole of income derives from the public pension. In some countries, the maximum public (and/or mandatory private) pension income lies below the highest income level covered in the calculations, equivalent to average economy-wide earnings. In such cases, we have assumed that additional income is fully taxable.⁶ Some countries apply reliefs that vary by age; our basic assumption is that the pensioner is age 65.

11. Income tax due on capital income and non-wage labour income, some direct taxes (such as net wealth tax and corporate income tax) and all indirect taxes are not covered. However, all central-, state- and local-government personal income taxes are included.

12. Compulsory social security contributions paid to general government are treated as a tax (see OECD, 2001c for a more detailed discussion of the definition of a 'tax'). Social security contributions can give rise to a benefit entitlement, which can also be related to the amount of contributions made. Nevertheless, even in these cases, at least some of the contribution is in effect a tax, because the net present value of benefits received does not equal the value of contributions made.

13. Finally, all the results relate to the position of a single person. For the comparisons of older people with people of working age, we have taken a single person without children.⁷

1.3. Calculations

14. The computation of the tax position of people of working age uses the 'tax equations' developed by the OECD's Working Party on Tax Policy Analysis and Tax Statistics. These algorithms are used to show the tax and benefit position of eight example family types of working age. The tax equations are described and the results set out in the report *Taxing Wages* (OECD, 2001a). A sister publication — *Benefit Systems and Work Incentives*⁸ — looks at the tax and benefit treatment of different family types both in and out of work. The analysis is also based on the tax equations. Together, these two OECD reports provide a detailed picture of the tax and benefit position of people of working age.

15. This paper extends the analysis of tax positions to people of pension age by adapting the tax equations to include the additional concessions granted to older people. The results are based on the

5 At these income levels, such income is generally insignificant. The main exception is the United States, where over 60% of working-age people with earnings around those of the average production worker have income from these sources, which accounts, on average, for 5% of their incomes.

6 In most cases, private pension income is fully taxable. However, Canada offers a small tax credit for private pension income. Also, the state income tax in Detroit, Michigan (which we model here) exempts some private pension income. The calculations do not cover these concessions.

7 Many countries, of course, provide generous support to families with children, as set out in the main part of this report. However, there are many methodological obstacles to comparing the fiscal position of families of different sizes: for example, comparing a pensioner couple with a working age couple with children. Our results might, therefore, tend to exaggerate the fiscal advantage enjoyed by older people relative to people of working age in countries with generous support for children.

8 OECD (1999). This report is produced jointly by the Working Party on Tax Policy Analysis and Tax Statistics of the Committee on Fiscal Affairs and the Working Party on Social Policy of the Employment, Labour and Social Affairs Committee.

parameters of the tax system as they were in 1999 (the latest year for which the tax equations for people of working age were available).

1.4. *Interpreting the results*

16. The incomes of older people tend, on average, to be below those of people of working age.⁹ Direct tax systems are progressive. Individuals are therefore likely to face a lower direct tax burden in retirement than they do when working. The analysis here is ‘horizontal’ in the sense that it compares people of working age and people of pension age with the same income. The general progressivity of the income tax system plays an important role in redistributing income to older people, as it does to lower-income people in general. Our aim in the first two empirical sections, however, is to isolate the effect of specific concessions directed at older people from the general structure of the tax system. Hence the focus on people in different circumstances with the same income. In section 5, we combine the results on the tax position of older people with calculations of the pension entitlement for full-career workers at different levels of earnings. These show the impact of the general progressivity of the tax system along with the effect of specific concessions aimed at older people.

17. The simple approach of comparing the tax and benefit position of example individuals provides many useful insights on the effect of governments on their citizens. Nonetheless, the results here need to be considered alongside other data. For example, OECD (2001c) provides more comprehensive information on the aggregate tax burden in the economy — including, for example, indirect taxes, corporate income taxes, property taxes *etc.* — which are not covered here. Also, a complete analysis of the effect of government on the economy would need to take account of the effect of publicly provided goods and services, such as health and education.¹⁰

18. The results set out the formal incidence of taxes. The final, economic incidence of taxes may of course be rather different, particularly for people of working age. For example, the tax burden might be shifted over time from employers onto employees and *vice versa* by adjustments to gross wages.

2. **Cross-country summary of tax treatment of older people**

19. Table 2 summarises the main types of concession granted to older people in the nine countries’ personal income tax and social security contribution systems. It is important to note that this list focuses on the reliefs granted directly to pensioners. Although the Table reports any concessions to income streams from private pensions, it excludes, for example, reliefs granted to lump-sum withdrawals from personal or occupational pension plans. Furthermore, other aspects of the tax treatment of private pensions — including the treatment of contributions and investment returns at the fund level — are not considered here.¹¹

20. The relevant features of direct tax systems are divided into three types:

9 See Disney and Whitehouse (2001), OECD (2001b), Yamada (2001) and Yamada and Casey (2001).

10 See Disney and Whitehouse (2001), Steckmest (1996), Whiteford and Kennedy (1995) and Smeeding *et al.* (1995) on valuing such in-kind benefits.

11 Such tax concessions are an important source of state support for retirement incomes, particularly in Canada, the United Kingdom and the United States among the countries studied here: see OECD (1994) and Whitehouse (1999). Nevertheless, our focus is on retirement incomes and not on how they were built.

- Tax allowances and tax credits that are age-based, which exceed those available to taxpayers of working age. In many cases, these concessions are targeted on those with modest incomes by being withdrawn as income increases.
- Reliefs for some or all of pension income received. Several countries exempt or partially exempt pensions paid from public sources from the personal income tax. And, in some cases, there is a preferential tax treatment for modest pensions paid from private-sector schemes.
- Social security contributions are typically levied only on wage income and not on pension benefits (although they are, in some countries, levied on investment income). However, three countries charge contributions on pension income in respect of health insurance benefits and one, for survivors' pensions. In all cases, social security contributions have a substantial impact on the comparison between net incomes of pensioners and people of working age.

Table 2. Categories of concession available to pensioners

	<i>Canada</i>	<i>Finland</i>	<i>Germany</i>	<i>Italy</i>	<i>Japan</i>	<i>Nether-lands</i>	<i>Sweden</i>	<i>United Kingdom</i>	<i>United States</i>
Increased tax allowances or tax credits	✓	✓		✓	✓	✓	✓	✓	✓
Relief or partial relief for pension income from:									
public schemes	✓		✓						✓
private schemes	✓		✓	✓					
Social security contributions on pension income	zero	low	low	zero	zero	low	zero	zero	zero

Note: the information for the United States refers to the Federal income tax. See below for information on state-level income taxes

21. Annex A provides comprehensive coverage of the main parameters of direct tax systems relevant to people of both working and pension age. Table 3 extracts from this the main concessions granted to the elderly in countries' personal income tax systems.

Table 3. Summary of concessions to older people in personal income tax systems

<i>Country</i>	<i>Concession</i>	<i>Parameters</i>
Canada	Age credit	Credit of 16% to maximum of nearly \$3 600 Withdrawn at 15% rate between approximately \$27 000 and \$51 000
	Private pension/annuity income	Credit of 16% on first \$1 000
	Guaranteed income supplement	No tax on this income-tested benefit
Finland	Age deduction: local income tax	Allowances of around FM34 000 for a single person and around FM29 000 for each partner in a couple
	Age deduction: central government income tax	Allowance of FM23 000 Both allowances withdrawn at 70% by amount which pension exceeds the deduction
Germany	Private pension income	40% of benefit not taxable up to ceilings (DM6 000 for occupational plans, DM3 700 for personal schemes)
	Public pension income	Age-varying proportion of public benefit not taxable: e.g., only 32% taxable at age 60, 27% at age 65 and 21% at age 70
Italy	Age credit	Extra L120 000 if only pension income and it does not exceed L18m
	Private pension income	12.5% of occupational pension benefits not taxable; 40% with personal pension
Japan	Deductibility of income from public pension and tax-qualified retirement plans	100% deduction of first ¥1m for over 65s, 25% up to ¥3.6m, 15% up to ¥7.2m and 5% thereafter; minimum deduction of ¥1.4m
	Old-age tax deduction	¥0.5m additional deduction if total gross income under ¥10m
Netherlands	Age deduction	Additional allowance of around NLG500; increased to NLG2 200 for incomes under NLG57 000
	Pensioner deduction	Additional allowance for recipients of basic pension; worth NLG500 or NLG3 100 for low-income pensioners
Sweden	Age deduction	Varies between SKr8 700 and SKr56 000 depending on pension income
United Kingdom	Age deduction	Additional deduction between around £1 400 and £1 600 depending on age; withdrawn at 50% above <i>circa</i> £17 000
United States	Age deduction	Additional deduction of around \$1 000 for a single person
	Tax credit	Up to \$1 125; withdrawn once total income exceeds \$17 500 or untaxed public pension exceeds \$5 000
	Social security relief	Between 15% and 50% of social security income is not taxed, depending on total income

Note: values have been rounded for simplicity.

3. Empirical results: average effective tax rates on workers and pensioners

22. It is difficult from the parameters set out in Table 3 above to gauge the generosity of different countries' tax concessions granted to older people. This section therefore compares the impact of the personal income tax and social security contribution system on the incomes of pensioners and workers in the nine countries.

23. Figure 1 summarises the most important of the empirical results. The charts show the average effective tax rates on pensioners and workers, including the effect of the personal income tax and employee's social security contributions. Values of average tax rates at specific income levels are also given in Table 4.

24. In each chart, the solid black line shows the pensioner's total average effective tax rate. The sold grey line shows the same for the worker (including both income tax and social security contributions), while the dotted line separates out the worker's income tax liability as a percentage of total income. The charts run between income levels of 0.3 and two-and-a-half times the earnings of the average production worker in the relevant country.

25. It is immediately apparent from comparing countries in Figure 1 that there are vast differences between the overall generosity of the concessions offered to pensioners, the pattern of the concessions with income and the sources of the fiscal advantages that pensioners enjoy.

26. In **Italy**, for example, there is just a small additional income tax credit for older people. Workers are able to deduct their social security contributions from their income tax liability, which means that they face a lower average tax rate from the income tax. However, the overall tax burden on older people is typically five percentage points lower than that faced by workers at the same income level because of the effect of social security contributions.

27. **Canada, Finland and Sweden** have the most highly targeted set of concessions. In Canada, the age credit is withdrawn once income exceeds around three-quarters of economy-wide average earnings. The pensioner's tax burden moves rapidly towards that of workers over a relatively short income range. At the highest incomes, the difference in average tax rates is small because of the relatively low rate of social security contributions and the relatively low earnings ceiling.

28. There is a similar pattern in Sweden, although the withdrawal rate for the age credit is higher than in Canada (65%) and the ceiling is lower. Again, the difference in average effective tax rates at higher incomes is entirely due to social security contributions. (Indeed, the income tax burden is slightly higher for pensioners because workers are able to deduct social security contributions from their income tax liability.)

29. In Finland, the extra income tax allowance given to older people is withdrawn at a still higher rate than Sweden: 70%. Pensioners are liable to social security contributions. And workers in Finland receive a deduction for work-related expenses. Thus, in Finland, higher-income pensioners face an average tax rate very slightly higher than that faced by workers on the same income.

30. The patterns in the **Netherlands** and the **United Kingdom** are interesting because the gap between pensioners' and workers' overall average tax rates at first increases with incomes. This is mainly due to the effect of social security contribution floors.¹² As in Canada, however, a mix of the withdrawal of additional allowances from richer pensioners and the effect of social security contribution ceilings means that the difference between the tax burdens faced by older people and workers are smaller at higher income levels.

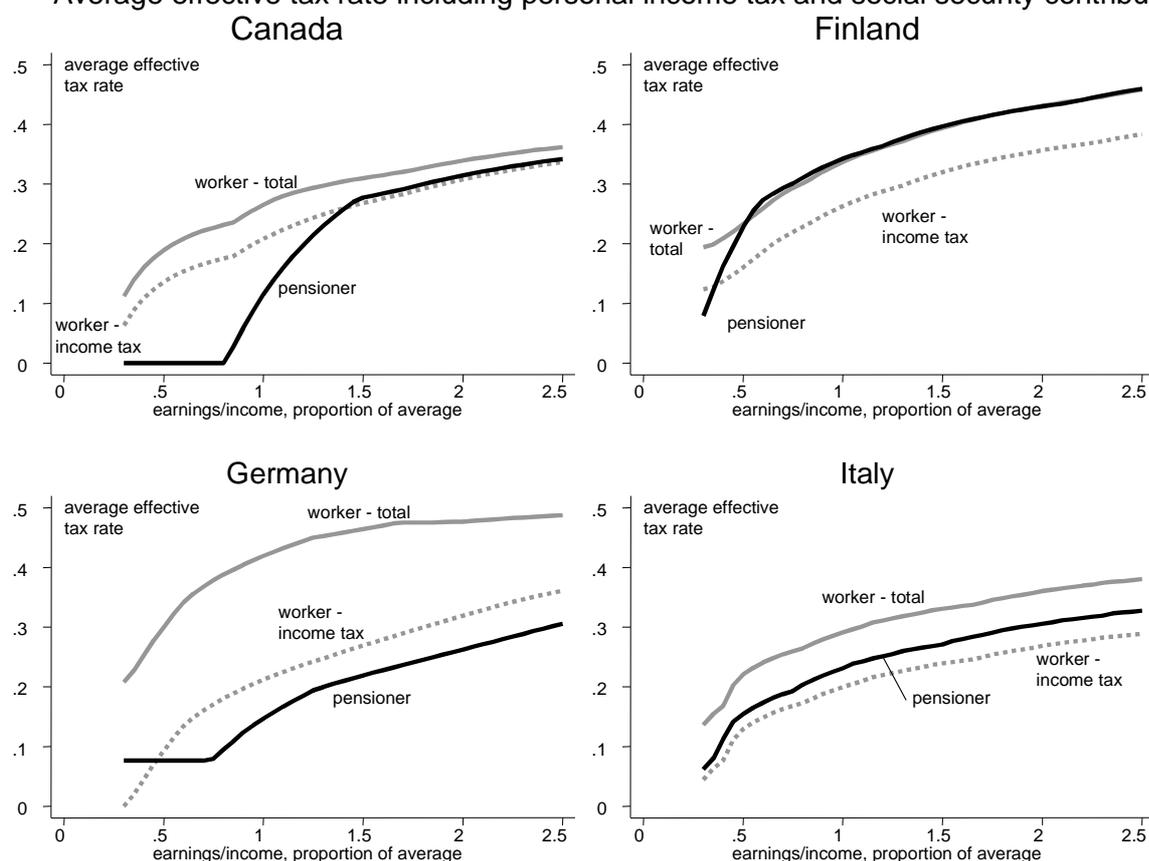
12 Note that the downward blips in average effective tax rates in the Netherlands result from the operation of the health-insurance system. Mandatory contributions are levied on incomes up to a ceiling of around average earnings. Above that level, however, people have to pay for their own health-insurance arrangements.

31. The difference between the tax position of pensioners and workers in **Germany** is more pronounced. Here, public and private pension incomes receive a favourable income-tax treatment. Pensions in payment are treated as a notional annuity, and only the notional interest is taxable, not the notional return of capital invested. At age 65, for example, just 27% of the value of the public pension is taxed. However, pensioners are liable for some social security contributions, mitigating the effect of this advantage. Nonetheless, the difference in tax burdens between workers and pensioners of the same income is largest in Germany over most of the income range.

32. The value of tax concessions to pensioners increases initially with income in **Japan**. The relative value of the tax allowance then declines and is mainly a result of social security contributions at higher income levels.

33. The pattern in the **United States** is one of a nearly constant difference between the tax position of pensioners and workers across the income range. Effective tax rates are typically 15 percentage points lower.¹³ Around half of this difference is due to concessions in the income tax and half because older people are not liable for social security contributions on their pension income.

Figure 1. **Taxes paid by pensioners and workers:**
Average effective tax rate including personal income tax and social security contributions



13 It should, however, be noted that people of working age also have relatively generous deductions in the United States — for mortgage interest, for example — that are not captured in this analysis. See the main part of this report for evidence on the scale of non-standard income tax reliefs received by people of working age.

Figure 1, continued

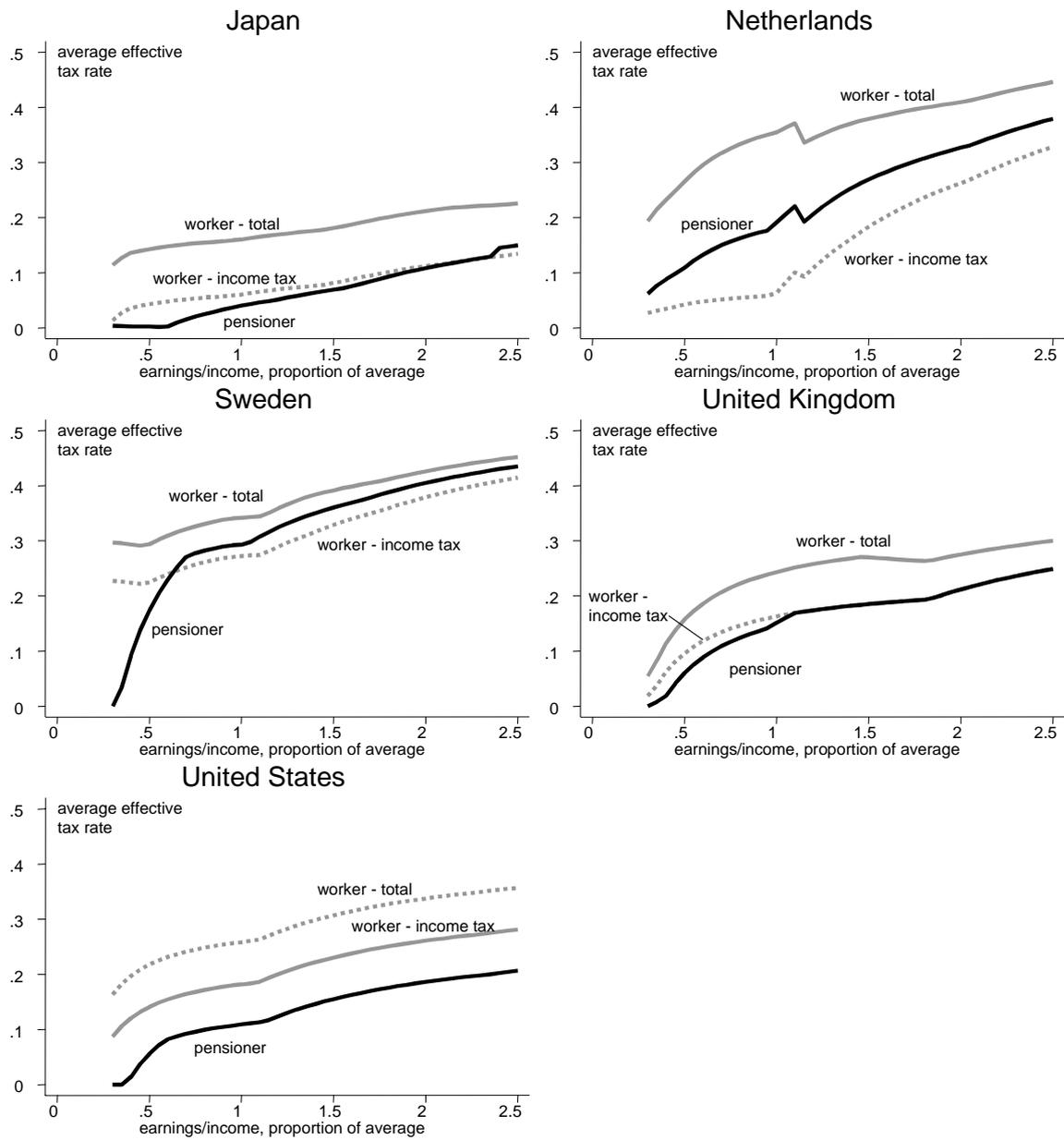


Table 4. Taxes paid by pensioners and workers:
Average effective tax rate including personal income tax and social security contributions
4a. Income of half of earnings of average production worker

	<i>Pensioner</i>			<i>Worker</i>		
	<i>Total</i>	<i>Income tax</i>	<i>Social security</i>	<i>Total</i>	<i>Income tax</i>	<i>Social security</i>
Canada	0.0	0.0	0.0	18.9	13.6	5.3
Finland	22.8	19.3	3.5	23.3	16.0	7.2
Germany	7.6	0.0	7.7	30.0	9.3	20.8
Italy	15.4	15.4	0.0	22.1	13.0	9.2
Japan	0.2	0.2	0.0	14.3	4.3	10.0
Netherlands	10.9	3.0	7.9	26.6	4.2	22.3
Sweden	17.5	17.5	0.0	29.4	22.4	7.0
United Kingdom	6.0	6.0	0.0	15.7	9.6	6.1
United States	5.6	5.6	0.0	21.8	14.1	7.7

4b. Income of three-quarters of earnings of average production worker

	<i>Pensioner</i>			<i>Worker</i>		
	<i>Total</i>	<i>Income tax</i>	<i>Social security</i>	<i>Total</i>	<i>Income tax</i>	<i>Social security</i>
Canada	0.0	0.0	0.0	22.7	17.1	5.6
Finland	30.1	26.2	3.9	29.3	22.0	7.3
Germany	7.9	0.3	7.7	37.8	17.1	20.8
Italy	19.3	19.3	0.0	26.0	16.8	9.2
Japan	2.0	2.0	0.0	15.3	5.3	10.0
Netherlands	15.6	4.4	11.2	32.5	5.3	27.2
Sweden	27.8	27.8	0.0	32.6	25.7	7.0
United Kingdom	11.7	11.7	0.0	21.5	14.1	7.4
United States	9.6	9.6	0.0	24.5	16.8	7.7

4c. Income of earnings of average production worker

	<i>Pensioner</i>			<i>Worker</i>		
	<i>Total</i>	<i>Income tax</i>	<i>Social security</i>	<i>Total</i>	<i>Income tax</i>	<i>Social security</i>
Canada	11.6	11.6	0.0	26.5	20.8	5.7
Finland	34.2	30.3	3.9	33.7	26.3	7.4
Germany	14.7	7.0	7.7	41.9	21.2	20.8
Italy	23.1	23.1	0.0	29.1	20.0	9.2
Japan	4.0	4.0	0.0	16.0	6.0	10.0
Netherlands	19.1	5.7	13.4	35.4	6.3	29.1
Sweden	29.3	29.3	0.0	34.2	27.2	7.0
United Kingdom	15.1	15.1	0.0	24.4	16.3	8.1
United States	10.9	10.9	0.0	25.8	18.2	7.7

4d. Income of twice earnings of average production worker

	<i>Pensioner</i>			<i>Worker</i>		
	<i>Total</i>	<i>Income tax</i>	<i>Social security</i>	<i>Total</i>	<i>Income tax</i>	<i>Social security</i>
Canada	31.5	31.5	0.0	33.9	30.8	3.1
Finland	43.0	39.1	3.9	43.1	35.7	7.4
Germany	26.2	21.4	4.8	47.7	31.9	15.8
Italy	30.6	30.6	0.0	36.1	26.9	9.2
Japan	10.8	10.8	0.0	21.2	11.2	10.0
Netherlands	32.7	25.8	6.9	40.9	26.2	14.7
Sweden	40.5	40.5	0.0	42.6	37.9	4.7
United Kingdom	21.2	21.2	0.0	27.5	21.2	6.3
United States	18.6	18.6	0.0	33.8	26.1	7.7

4. Empirical results: marginal effective tax rates on workers and pensioners

34. A second measure of the impact of tax systems on individuals is the marginal effective tax rate. Above, we presented average tax rates: the proportion of income paid in tax. The marginal tax rate is the proportion of a small addition to income that is due in tax.¹⁴ This measure is much easier to relate to the parameters of the tax system than the average effective tax rate.

35. There is an important methodological difficulty with analysing marginal effective tax rates on pensioners in addition to the general issues outlined elsewhere in this report. All nine countries provide some form of income-tested or means-tested support to older people. (Means-tested benefits depend on both income and assets, income-tested benefits are withdrawn against income alone.) The withdrawal of such support against other income sources increases effective marginal rates. However, we have chosen to model the structure of pension and other state benefits separately from the structure of the regime of tax and social security contributions. (The summary results in section 5 — and OECD, 2001*b* and Whitehouse, 2001 — present total pension incomes, including means- and income-tested benefits for people with different levels of earnings during their working lives.)

36. Figure 2 returns to the marginal effective tax rates, excluding the impact of withdrawal of the means- and income-tested benefits described above. In each chart, the black, solid line shows the marginal effective tax rate paid by a pensioner while the grey, dotted line shows the marginal tax rate on a worker. Again, these are shown for incomes between 0.3 and two-and-a-half-times the earnings of the average production worker.

37. The marginal effective tax rate can be easier to interpret than the average effective tax rate, since it can be related directly to the parameters of the tax system.

38. Taking the United Kingdom as an example, the three marginal rates of the income tax schedule — 10, 23 and 40% — can be seen at different income ranges. The 34.5% marginal rate on incomes between around 95 and 110% of average earnings results from the withdrawal of the additional age allowance in the income tax. Since the withdrawal rate is 50%, the total marginal effective tax rate is $23 \times 1.5 = 34.5\%$.

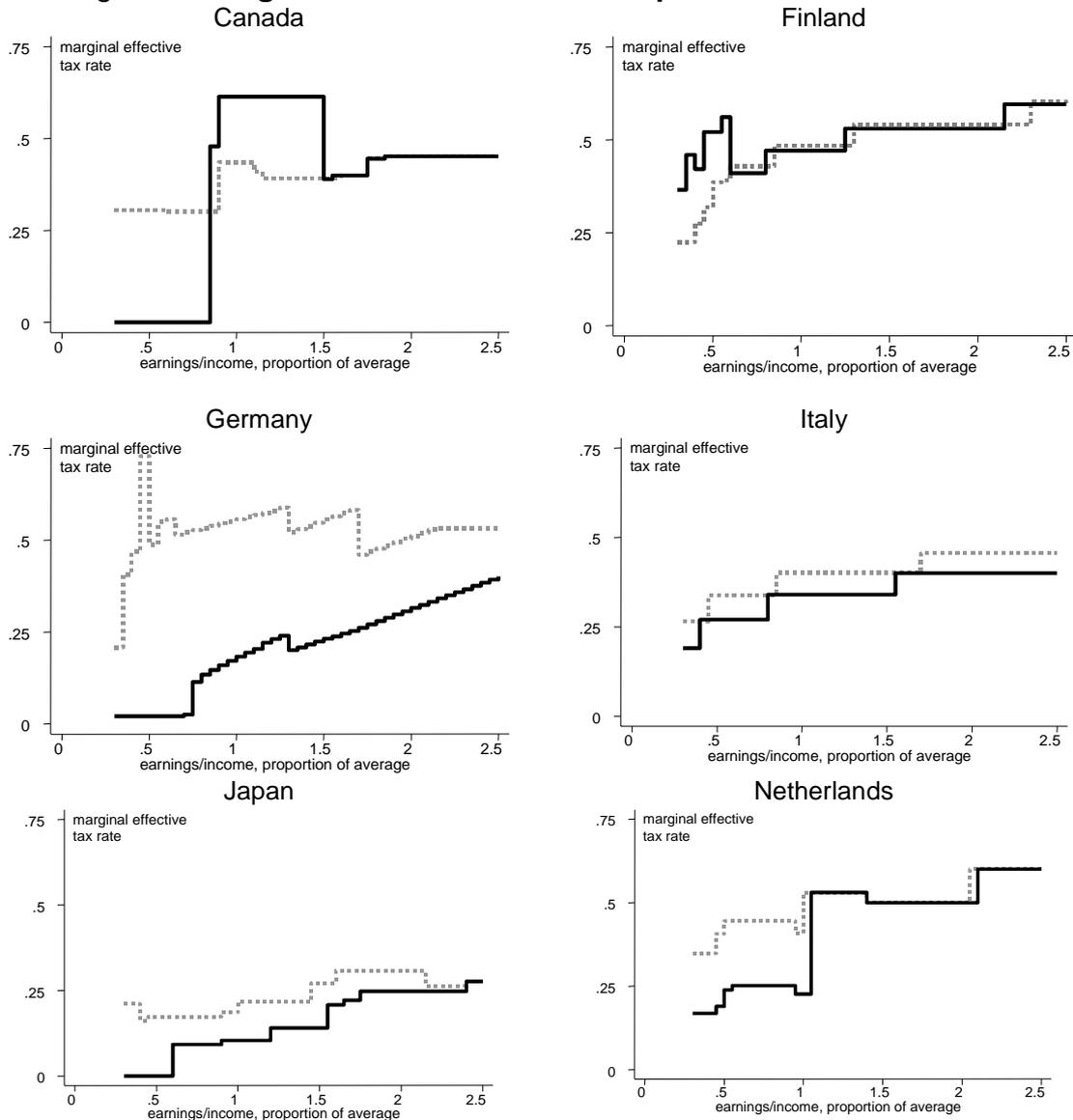
39. The lowest-income worker in the United Kingdom chart pays a total marginal rate of 20%: 10% income tax plus 10% social security contributions. Above the social security contribution ceiling — around one-and-three-quarters times average earnings — the overall marginal rate is at first 23% and then 40%,

14 These measures, their interpretation and their limitations are described in detail in OECD (1995, 1997 and 2001*a*).

reflecting the values of the income tax schedule. At incomes above the ceiling, the marginal rates of workers and pensioners coincide because the age allowance has been withdrawn and no further social security contributions are due.

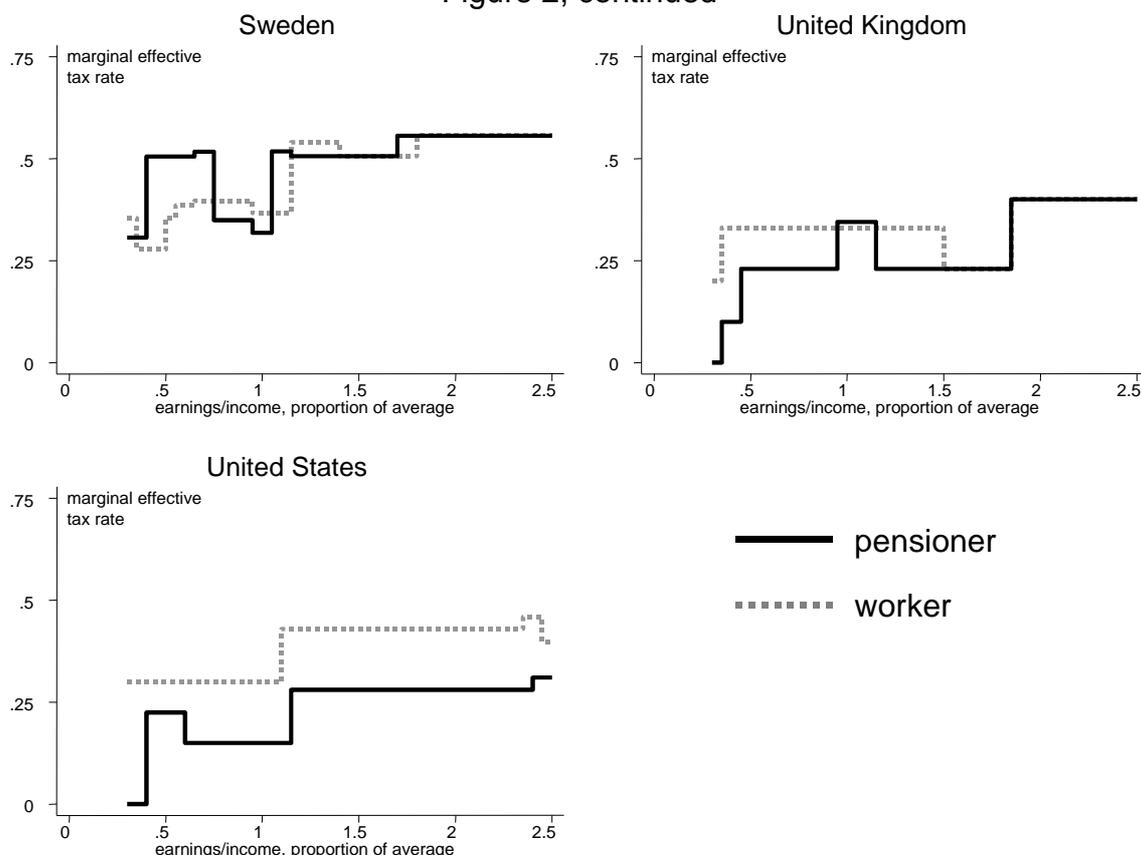
40. There are again differences in the pattern of marginal rate schedules between countries. In some, such as Germany, Italy, Japan and the United States, pensioners face a lower marginal rate across the income range.¹⁵ In Canada, Finland and Sweden, the withdrawal of extra basic reliefs from pensioners results in a relatively high marginal rate on low-to-middle income older people. In Canada, the Netherlands, Sweden and the United Kingdom, higher-income pensioners (with incomes above one-and-a-half to two times average earnings) face the same marginal rates as higher-income workers.

Figure 2. Marginal effective tax rates on pensioners and workers



15 Note that the high marginal rate on lower-income German workers reflects operation of the solidarity surcharge.

Figure 2, continued



5. Empirical results: gross and net replacement rates

41. The tax system has two main effects on pensioners' economic well being relative to the position when they were in work. First, as previously noted, income tax systems are progressive. In addition, gross replacement rates (that is, the ratio of gross pension income to gross income when in work) are less than 100% over most of the income range. Thus, the progressivity of the tax system ensures that people will face a smaller direct tax burden when retired than they did when in work. Secondly, there are concessions in income tax systems for older people and they typically do not pay social security contributions (or pay at a lower rate).

42. The results in the previous two sections isolated the second effect. In this section, we consider both effects together, by looking at the pension entitlements of workers relative to their incomes in work before and after tax. The results show, for full-career workers at different income levels, the value of the pension entitlement that they would receive under today's pension rules. The calculations all components of the retirement-income system, including basic, resource-tested and earnings-related schemes. They also include mandatory occupational and personal pensions where appropriate. The details of the calculations are set out in a companion paper (Whitehouse, 2001) and results were also presented in OECD (2001).

43. Figure 3 shows gross and net replacement rates, again between 0.3 and two-and-a-half times average earnings (although note that the y-axis has been capped at 100% of average earnings). The differences between the two are in most cases large. Indeed, the tax differential is often an important part of the overall net replacement rate.

Figure 3. Gross and net replacement rates:
 Projected pension entitlement as a proportion of individual earnings before and after
 income tax and social security contributions

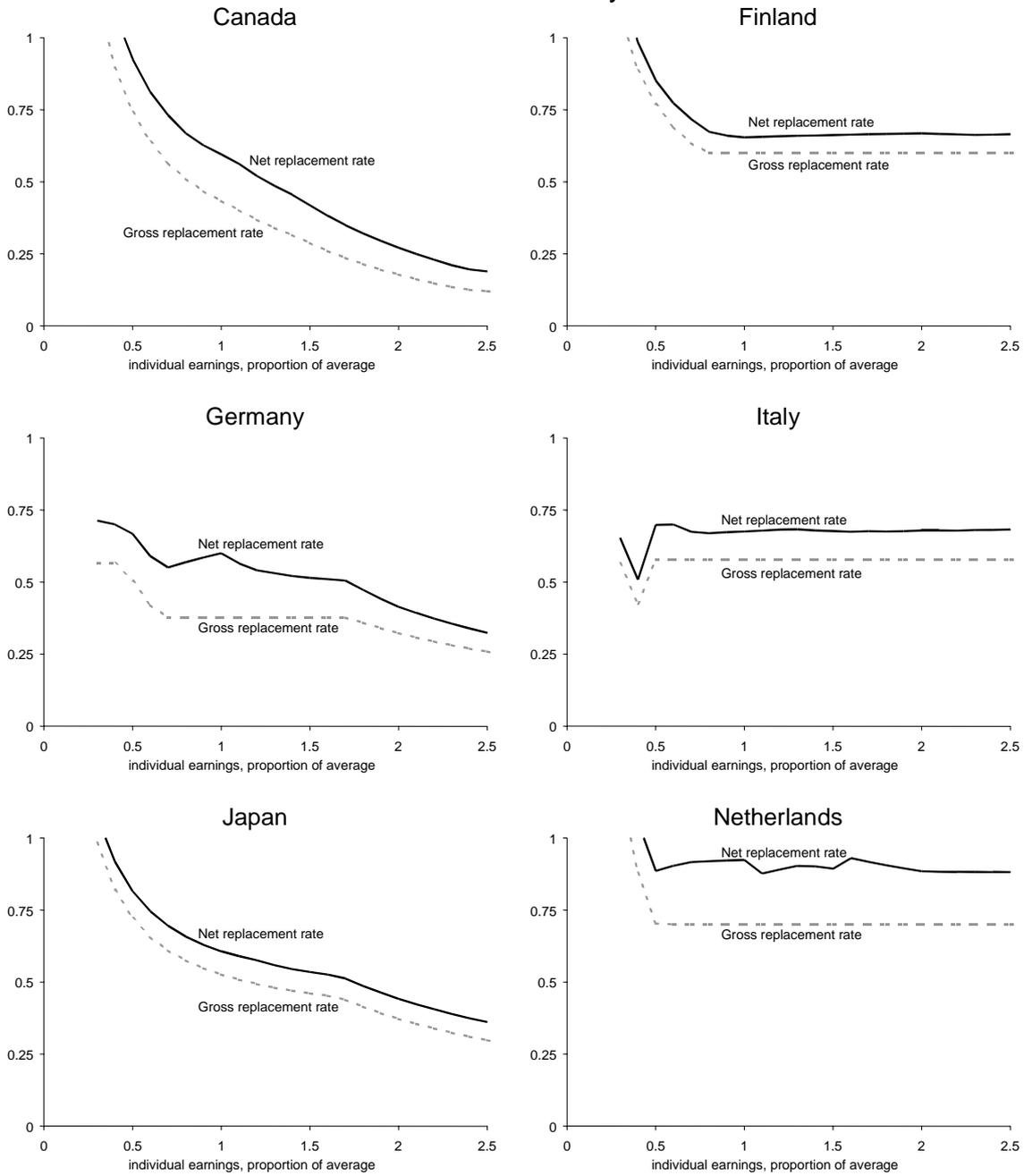
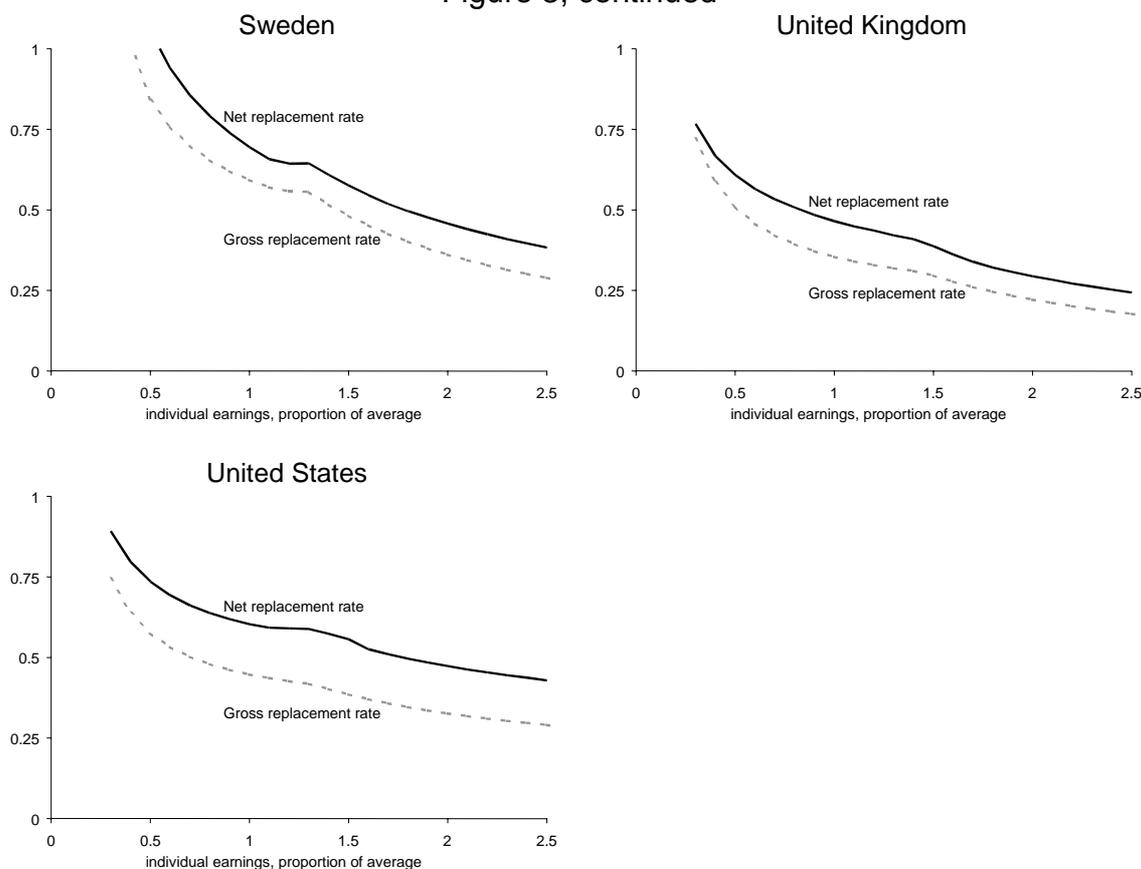


Figure 3, continued



6. Summary and conclusions

44. This paper has set out the detailed method for calculating the tax position of older people. It is a complement to existing OECD annual reports — *Taxing Wages* and *Benefits and Work Incentives* — which look at the tax and benefit position of people of working age. We have adopted a methodology as close as possible to these studies. The results have been used in the analysis of retirement-income systems in the report *Ageing and Income: Financial Resources and Retirement in Nine OECD Countries*. They are currently being employed in a more detailed follow-up study of retirement incentives in OECD Member countries. Nevertheless, the results have important implications in their own right.

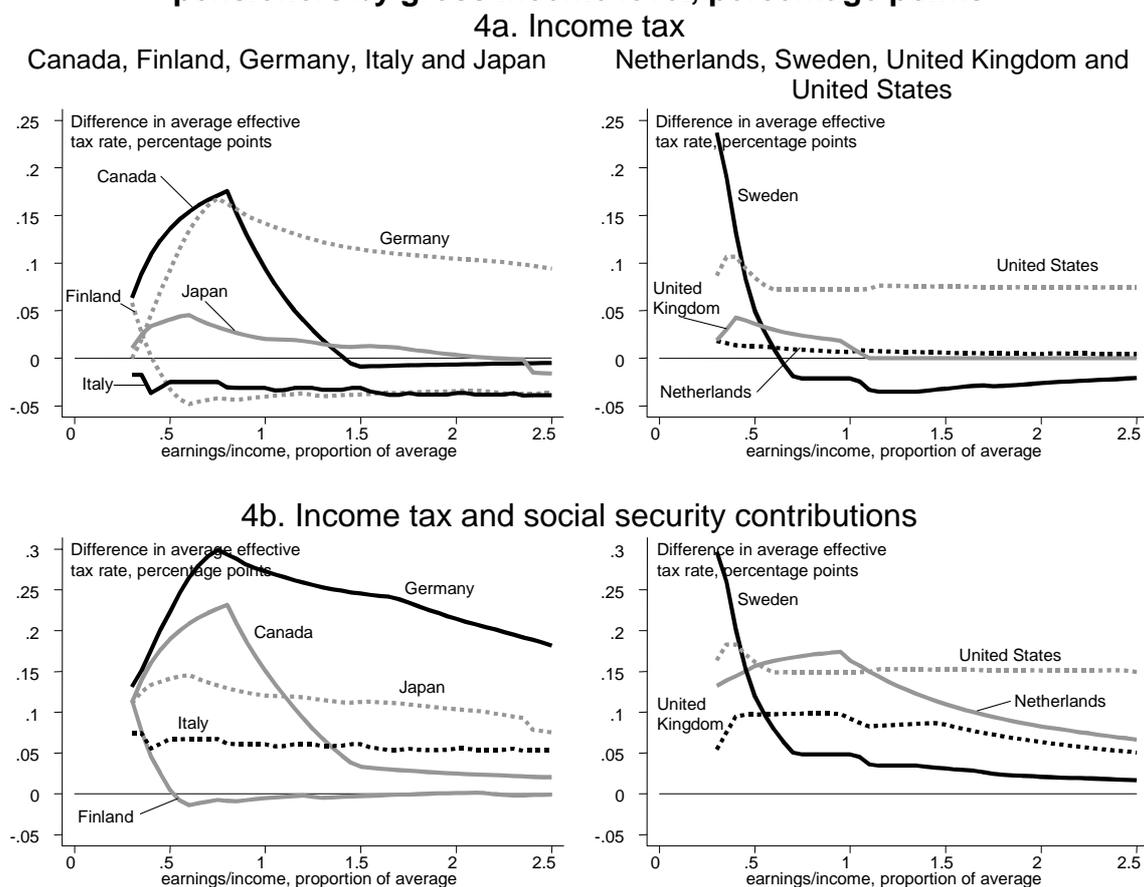
45. Most of the nine OECD countries analysed offer substantial concessions to older people through their income tax systems. Also, they either do not levy social security contributions on pensioners or levy them at lower rates.¹⁶

46. The charts in Figure 4, showing the difference in average effective tax rates between employees and pensioners with the same income level, summarise the main results of the paper. The first pair of charts focuses on the personal income tax alone, while the second covers both the personal income tax and social security contributions. All of the charts show the absolute difference in average effective tax rates in percentage points.

¹⁶ Naturally, in insurance-based social security systems, this reflects the fact that pensioners are not entitled to many benefits. Nonetheless, this affects comparisons of pensioners' incomes with those of workers.

47. The Figure confirms that there are significant differences between countries in the pattern of concessions for older people against income. Some countries offer highly targeted reliefs, which are substantially withdrawn from older people with higher incomes. Others offer concessions that are substantial right across the income range.

Figure 4. **Summary: difference in average effective tax rates between workers and pensioners by gross income level, percentage points**



48. Figure 4 shows that the scale of support offered to older people through the tax system is substantial in all of the nine countries studied.¹⁷ Tax expenditure accounts, extracts of which are provided in Table 5, illustrate the cost of these concessions. The Table shows government estimates of the revenues foregone from reliefs under the personal income tax system aimed at older people. However, it is important that these estimates are treated only as illustrative as there are many difficulties in their calculation and pitfalls in their interpretation.¹⁸

17 This is not the place for a detailed discussion of the policy implications. However, readers are referred to Forman (1995), Penner (2000) and Shoemaker (1995) on the United States and Morris (1981) and Dilnot *et al.* (1994), Section 3.6 on the United Kingdom.

18 On which see OECD (1984, 1996).

Table 5. Tax expenditures: estimates of revenues foregone from particular income tax concessions to older people

	<i>National currency (bn)</i>	<i>Percentage of total income tax revenues</i>
Canada (2000)		
Guaranteed income supplement	0.3	0.2
Age credit	1.5	1.0
Pension credit	0.4	0.3
Finland (1984)		
Exemption of national pension supplements	0.7	1.3
Pension income deduction	4.4	7.9
United Kingdom (1999-2000)		
Age allowance	1.3	1.7
United States (2000)		
Additional deduction	1.8	0.2
Social security: partially not taxed	18.0	2.0

Note: methodological differences mean that these estimates cannot be compared between countries. See OECD (1996) for an extensive analysis of such problems

Source: Canada, Department of Finance (1999); United Kingdom, HM Treasury (1999), Inland Revenue (1999); United States, Office of Management and Budget (2000); OECD (1996, 2000b)

49. It is important that policy-makers bear in mind the role of the tax system in providing retirement-income support. In particular, they should avoid considering the rates and structure of retirement benefits without also considering the effect on older people of systems of personal income tax and social security contributions. The methodology established in this paper can be used to fill in this potential gap in policy analysis.

ANNEX A. COUNTRY SYSTEMS

This Annex describes the relevant elements of the nine countries' direct tax systems in detail. Each country section is divided between the personal income tax and social security contributions. Under personal income tax, the description begins with basic reliefs, available to all taxpayers regardless of circumstances. Concessions aimed at older people are divided into standard tax reliefs — available to all taxpayers that satisfy eligibility rules — and non-standard reliefs, which depend on the value of particular forms of expenditure or sources of income. Thus, reliefs for older people are distinguished from reliefs for pension income. In some cases, there are reliefs for work-related expenses, relevant to the analysis of people of working age. Separate subsections show the income tax schedule and describe any state and local income taxes.

Since the analysis is confined to single taxpayers without children, we have not covered marital status and child tax reliefs. These, along with universal transfers paid to families with children, are described in OECD (2001a).

The description of social security contributions looks in turn at employee and employer contributions levied on people of working age. It ends with a note on the treatment of older people under social security contribution systems.

A.1. Canada

A.1.1. *Personal income tax*

Basic relief

Personal tax credit of C\$ 1 212.27.

Tax allowances and tax credits for older people

An age credit of 16% — to a maximum of C\$3 619 — is available if total income is C\$26 941 or less. This additional credit is reduced at a rate of 15% of income in excess of C\$26 941. It is thus exhausted when income reaches C\$51 608.

Reliefs for pension income

There is a credit of 17% of up to C\$1 000 of pension or annuity income. Only pension income other than that from the public schemes (old-age security, Canada Pension Plan and/or Québec Pension Plan) is eligible for this credit. Public pension benefits are taxable, with the exception of the income-tested component, the guaranteed income supplement.

Tax schedule

Table 6 gives the income-tax schedule.

**Table 6. Personal income tax schedule,
Canada, 1999**

<i>Lower limit of bracket (A\$)</i>	<i>Tax rate (%)</i>
0	17
29 590	26
59 180	29

State and local income taxes

All the provinces and territories (except Quebec) levy income tax as a proportion of the federal tax liability, varying between 44 and 69%. (The modelling uses a tax rate of 50.5%, which is the weighted average for nine provinces.) Quebec has its own income-tax statute.

A1.2. Social security contributions*Employee contributions*

Contributions of 3.5% of earnings up to a maximum contribution of C\$1 186.50 after a basic exemption of C\$3 500. The maximum contribution is reached at C\$39 000.

Unemployment insurance requires a contribution of 2.55% of earnings up to C\$750 per week. Unemployment insurance contributions give rise to a tax credit of 17% of the amount contributed.

Employer contributions

Employers contribute the same amount as employees for the Canada Pension Plan and 1.4 times the employee contribution for unemployment insurance. Three provinces levy payroll taxes for health (and, in one case, education). Employers also pay contributions for provincial work-injury schemes, where contribution rates vary by province and industry.

Contributions for older people

Social security contributions are not levied on pension income.

A.2. Finland

A.2.1. Personal income tax

Basic relief

Basic relief is provided through a zero-rate band in the income-tax schedule (see below).

Tax allowances and tax credits for older people

Pensioners can deduct from their income tax liability an amount based on the full national pension and the lowest taxable income in the tax schedule (FM 46 000 in 1998). The result is an allowance of FM 34 400 for a single person and FM 29 100 for each partner in a married couple for local income tax purposes. The allowance is FM 23 000 for everyone under the central government income tax. The additional allowance for older people is withdrawn at a rate of 70% of the amount by which the pension exceeds the full deduction. This means that there is no deduction once the pension is above FM 84 543 for a single person and FM 70 671 for each partner in a couple under the local income tax. The deduction under the central government income tax is exhausted once the pension exceeds FM 55 857.

Reliefs for pension income

No special reliefs are available.

Work-related expenses

Standard deduction for work-related expenses of 3% of earnings to a ceiling of FM 2 100.

Tax schedule

Table 7 gives the income-tax schedule.

**Table 7. Personal income tax schedule,
Finland, 1999**

<i>Lower limit of bracket (FM)</i>	<i>Tax rate (%)</i>
47 000	5.5
63 000	15.5
80 000	19.5
112 000	25.5
176 000	31.5
312 000	38

State and local income taxes

Local income tax is based on the same base as central government income tax. Municipal tax is levied at flat rates, varying between 16 and 19.75% in 1999 (average: around 17.6%).

There are two allowances in the local income tax. The earned income allowance is 20% of earnings above FM 15 000 to a maximum of FM 8 600. The amount of the allowance is reduced by 3% of income above FM 75 000. The basic allowance depends on taxable income remaining after other allowances. The maximum amount of FM 8 800 is reduced by 20% of income above that level.

A.2.2. Social security contributions

Employee contributions

Sickness insurance contributions of 1.5% of net taxable income under the municipal income tax.

Pension contribution of 4.7% and unemployment insurance contribution of 1.35% of gross earnings. Both levies are deductible under the income tax.

Employer contributions

Average of 26% of gross earnings.

Contributions for older people

Pensioners do not pay contributions on their pension income in respect of pension or unemployment insurance. However, the same sickness insurance contributions are levied on pensioners' incomes as on workers' plus an additional 2.7% on pension income.

A.3. Germany

A.3.1. Personal income tax

Basic reliefs

Income up to a statutory line is exempt from tax. This was around DM13 000 per person in 1999.

Tax allowances and tax credits for older people

There is no special relief for older people.

Reliefs for pension income

Public pension income is only partially taxed, with the taxable proportion varying with age. At age 65, only 27% of the pension is taxable. The share at other illustrative ages is as follows: 38% at 55, 32% at 60 and 21% at age 70. Private pension incomes are also only partially taxed: 40% of the benefit is taxable up to certain ceilings. These are DM6 000 for occupational pension plans and DM3 700 for personal pension schemes.

Income tax calculation

Tax is calculated using a formula, which is based on taxable income rounded down to the smallest amount divisible by 54.

The income tax liability is:

0 if taxable income \leq DM13 067
 $(350.35Y + 2\,390)Y$ for $DM13\,068 \leq$ taxable income \leq DM17 063
 $(101.31Z + 2\,670)Z + 1011$ for $DM17\,064 \leq$ taxable income \leq DM66 365
 $(151.93Q + 3\,669)Q + 16\,637$ for $DM66\,366 \leq$ taxable income \leq DM120 041
 $0.53X - 22\,886$ for taxable income above 120 042

where $Y = (\text{taxable income} - 13\,014)/10\,000$; $Z = (\text{taxable income} - 17\,010)/10\,000$ and $Q = (\text{taxable income} - 66\,312)/10\,000$.

Reliefs for social security contributions

Social security contributions are partially deductible up to ceilings. First, DM6 000 is deductible, less 16% of gross earnings (proxying employers' social security contributions). Secondly, remainder up to DM2 610 is deductible. Thirdly, half of the remainder is deductible up to DM1 305

Reliefs for work-related expenses

DM2 000 lump sum deductible.

A.3.2. Social security contributions*Employee contributions*

For pensions, 9.85% of earnings and 3.25% for unemployment to a ceiling of DM102 000. An average of 6.8% for sickness and 0.85% for long-term care to a ceiling of DM76 500.

Employer contributions

Same as employee.

Contributions for older people

Pensioners do not pay social security contributions on pension income in respect of unemployment and pension insurance. However, pensioners pay a similar charge to workers for sickness insurance. Also, there is a 0.85% levy on pensions to cover long-term care.

A.4. Italy

A.4.1. Personal income tax

Basic reliefs

The tax credit for workers varies between L50 000 and L1 580 000 in fifteen brackets depending inversely on income. (For example, the highest credit applies to incomes up to L9.1m while the lowest applies to incomes over L100m.)

Tax allowances and tax credits for older people

There is an extra credit of L120 000 for pensioners with income only from pensions and whose total income is no more than L18 000 000.

Reliefs for pension income

Private pension incomes are only partially taxable: 87.5% of benefits are taxable for occupational pension schemes and 60% for personal pension plans.

Rate schedule

Table 8 shows the rate schedule of the income tax. Note also that there was a 0.5% regional rate in addition.

**Table 8. Personal income tax schedule:
Italy, 1999**

<i>Lower limit of bracket (L mn)</i>	<i>Tax rate (%)</i>
0	18.5
15	26.5
30	33.5
60	39.5
135	45.5

A.4.2. Social security contributions

Employee contributions

The average rate is 9.19% of earnings. There is a ceiling of L40m.

Employer contributions

The average rate is 34.08% of earnings.

Contributions for older people

These are not levied on pension income. (However, there is a tiny charge of L20 a month to finance the National Institution for Italian Pensioners, the ONPI.)

A.5. Japan**A.5.1. Personal income tax***Basic relief*

Basic allowance of ¥380 000.

Tax allowances and tax credits for older people

There is an additional ¥500 000 deduction for over 65s if their income is less than ¥10 million in total.

Reliefs for pension income

There is a schedule of deductions for over 65s, beginning with 100% of the first ¥1 million of income from the public pension scheme (or from a particular type of private pension scheme: a tax-qualified retirement plan). This initial deduction is equivalent to nearly a quarter of average earnings. Next, 25% of income up to ¥3.6 million is deductible, followed by 15% of income up to ¥7.2 million and 5% thereafter. Finally, the deduction is subject to a minimum of ¥1.4 million.

Employment income deduction

This deduction varies according to a schedule. For example, workers with incomes up to ¥1.8 million can deduct up to 40 % of earnings from taxable income, with a minimum deduction of ¥650 000. For workers with incomes over ¥10 million, the deduction is ¥2.2 million plus 5% of earnings above ¥10 million.

Tax schedule

Table 9 shows the tax schedule. Taxpayers in the upper tax brackets are entitled to deduct the fixed amount in the final column. Also, there was a proportional deduction of 20% of total tax liability to a ceiling of ¥250 000 in 1999.

**Table 9. Personal income tax schedule:
Japan, 1999**

<i>Lower limit of bracket (¥ mn)</i>	<i>Tax rate (%)</i>	<i>Deductible amount (¥ mn)</i>
0	10	
3.3	20	0.33
9	30	1.47
18	37	4.17

State and local income taxes

Prefectures and municipalities levy a small *per capita* tax and an income tax levied on the same tax base as the national tax. The prefectural tax has two rates of 2% and 3% applying to different income ranges. The municipal tax has a schedule of 3%, 8% and 10%. There are flat-rate deductible amounts and proportional reductions similar to those in the central government income tax (see above).

A.5.2. Social security contributions

Employee contributions

For pensions, 8.675% and 4.25% of standard remuneration for sickness. Lower rates apply to bonuses. For unemployment insurance, 0.4% of total remuneration (including bonuses).

Employer contributions

Same rates and base as employee contributions for pensions and sickness plus 0.75% of total remuneration for unemployment insurance. For work injury, between 0.6% and 13.4% of total remuneration, varying by industry. For family allowances, 0.11% of standard remuneration.

Contributions for older people

Contributions are not levied on pension income.

A.6. Netherlands

A.6.1. Personal income tax

Basic relief

Basic allowance of NLG 8 799.

Work-related expenses

Work-related expenses are deemed to be 12% of earnings, with a minimum of NLG 258 and a maximum of NLG 3 174.

Tax allowances and tax credits for older people

There is a basic additional allowance for over 65s of NLG511. This allowance is increased to NLG2 152 for incomes of less than NLG56 974. There is an additional allowance for individuals 'who have a general old-age pension for a single person'. This is worth a further NLG511 (or NLG3 057 for incomes under NLG56 974). These allowances are additional to the basic personal allowance of NLG8 380 also granted to people of working age.

Pensioners receive a fixed deduction for additional expenses of NLG 1 055 instead of the deduction for work-related expenses available to people of working age.

Reliefs for pension income

No special reliefs are available.

Tax schedule

Table 10 gives the tax schedule.

**Table 10. Personal income tax schedule:
Netherlands, 1999**

<i>Lower limit of bracket (NLG)</i>	<i>Tax rate (%)</i>
0	6.2
15 000	7.5
48 175	50
105 955	60

A.6.2. Social security contributions*Employee contributions*

For unemployment insurance, 6.1% of gross wage less compensation allowance up to NLG 80 910. There is a contribution floor of NLG 28 188.

For health insurance, 1.55% of gross wage less compensation allowance if earnings below NLG 64 300 up to a ceiling of NLG 54 810. Also a fixed payment of NLG 396 if earnings below NLG 64 300.

Contributions to other schemes are levied on the same income as the first and second brackets of the income tax system. Rates are 17.9% for old-age pensions, 1.4% for survivors' pensions and 10.25% for exceptional medical expenses.

Employers pay the compensation allowance to employees to compensate for the switch from employer to employee contributions for exceptional medical expenses. The allowance is 2.2% of gross earnings less employees' social security contributions less the standard deduction for work-related expenses plus the employers' contribution for health insurance. The maximum is 2.2% of NLG 83 200.

Employer contributions

For unemployment insurance, 4.95% on the same base as employee contributions. This includes 4% to the general unemployment fund (with a threshold of NLG 28 188) and 0.95% for the redundancy payments fund.

For invalidity benefits, 7.75% of gross wage less compensation allowance (again with a ceiling NLG 80 910).

For health insurance, 5.85% on the same base as employee contributions.

Contributions for older people

Pensioners pay 11% of pension income for health insurance and survivors' pensions.

A.7. Sweden

A.7.1. Personal income tax

Basic reliefs

Basic allowance against central government taxation varies between SKr 8 700 and SKr 18 100 depending on income.

There is also a tax credit of SKr 1 320 if the income does not exceed SKr 135 000. The tax credit is reduced by 1.2% of income above this ceiling.

Tax allowances and tax credits for older people

Older people are entitled to a special deduction, which varies between SKr8 700 and SKr55 900, depending on the amount of pension income received. The basic income tax deduction varies between SKr8 700 and SKr18 200, depending on income. The additional exemption for older people is withdrawn at a rate of 65% on income in excess of the minimum pension level. The net effect is that there is no special deduction for pensioners whose incomes are above SKr109 000. This special deduction can not be less than the deduction to which a worker on the same income would be entitled.

Reliefs for pension income

No special reliefs are available.

Tax schedule

The schedule is set out in Table 11.

**Table 11. Personal income tax schedule:
Sweden, 1999**

<i>Lower limit of bracket (SKr)</i>	<i>Tax rate (%)</i>
0	0
219 400	20
360 000	25

Local income taxes

These are levied as a proportion of the central government income tax shown above. This varies between 26.4 and 33.15%, and averages 30.59%. There is also a lump sum tax of SKr 200 a year.

A.7.2. Social security contributions*Employee contributions*

For pensions, employees pay 6.95% of income.

Employer contributions

Employers pay a total contribution of 33.06%, divided as follows: old-age pension, 8.1%; parental insurance, 2.2%; health insurance, 7.5%; labour market, 5.84%; industrial injury, 1.38%; general wage fee, 8.04%.

Contributions for older people

Social security contributions are levied on pension income.

A.8. United Kingdom**A.8.1. Personal income tax***Basic relief*

Personal allowance of £4 335 for each individual.

Tax allowances and tax credits for older people

People of pension age receive a higher tax allowance: £5 720 for single 65-74 year olds and £5 980 for single people 75 or over.

Married couples aged between 65 and 74 receive an extra allowance of £5 125 and couples aged 75 or over an extra £5 195. The allowances for couples are deductible only at 10% (and so work like a wasteable tax credit).

Once a pensioner's total income exceeds £16 800, the additional allowances are withdrawn at 50% of the excess.

Reliefs for pension income

No special reliefs are available.

Tax schedule

The income tax schedule is shown in Table 12.

**Table 12. Personal income tax schedule:
United Kingdom, 1999**

<i>Lower limit of bracket (£)</i>	<i>Tax rate (%)</i>
0	10
1 500	23
28 000	40

A.8.2. Social security contributions*Employees' contributions*

Payable at 10% on weekly earnings between £66 and £500. These rates are reduced for employees who contract out of the state earnings-related pension scheme (Serps).

Employers' contributions

Payable at 12.2% on earnings above £83 per week. Again, the rate is reduced for employees who are contracted out of Serps (but only on earnings between £83 and £500 per week).

Contributions for older people

Social security contributions are not levied on pension income. People of pension age who are employed are also not liable.

A.9. United States

A.9.1. Personal income tax

Basic reliefs

Taxpayers who do not itemise their deductions are entitled to a lump-sum standard deduction of \$7 200 for married couple filing jointly, \$6 350 for heads of households and \$4 300 for single people.

There is also a \$2 750 personal exemption. This is reduced by 2% for each \$2 500 by which the income exceeds \$189 950 for married couples, \$126 600 for single taxpayers and \$158 300 for heads of households.

Tax allowances and tax credits for older people

Older people are entitled to an additional standard deduction in the Federal income tax. For single people of working age, the deduction is \$4 300 compared with \$5 350 for the over 65s. A married couple in which both partners are over 65 is entitled to a deduction of \$8 900, compared with a standard deduction of \$7 200 for working-age couples. There is also a tax credit targeted on poorer pensioners and the disabled. The maximum credit is \$1 125, but this is withdrawn against income and is exhausted once total income exceeds \$17 500 or non-taxable public pension benefits exceed \$5 000.

Reliefs for pension income

Social security (public pension) benefits included in taxable income for are limited the lesser of one-half of annual benefits or the excess of income (including half the benefits) over \$32 000 for married couples and \$25 000 for others. A maximum of up 85% of benefits is taxable (if income, including half the benefits, exceeds \$44 000 for married couples and \$34 000 for others).

Tax schedule

Table 13 shows the personal income tax schedule.

**Table 13. Personal income tax schedule:
United States, 1999**

<i>Lower limit of bracket (US\$)</i>		<i>Tax rate (%)</i>
<i>Single person</i>	<i>Married couple filing jointly</i>	
0	0	15
25 750	43 050	28
62 450	104 050	31
130 250	158 550	36
283 150	283 150	39.6

State and local income taxes

The vast majority of states levy an income tax.¹⁹ The modelling assumes that the taxpayer lives in Detroit, Michigan. The state of Michigan has a personal exemption of US\$2 800 for each taxpayer, their spouse and each child dependent child. The tax rate is 4.4%. The city of Detroit has a personal exemption of US\$ 750 and a tax rate of 3%. Michigan provides a credit for city taxes. For city income tax paid up to US\$ 100, the credit is 20%. The credit is 10% on city taxes between US\$ 100 and US\$ 150 and 5% on city taxes over US\$ 150.

State and local treatment of pension income varies. The state income tax system for Michigan gives an extra tax-free allowance of US\$ 900 for people over age 65 (US\$ 1 800 for a married couple filing jointly). Public pensions are entirely exempt from the state income tax, as is the first US\$ 33 810 of income from a private pension. All income from pensions is exempt from the Detroit income tax.²⁰

A.9.2. Social security contributions

Employee contributions

Contributions are 6.2% for old-age, survivors, and disability insurance, and 1.45% for old-age hospital insurance. The former applies only to earnings up to a ceiling of US\$ 72 600 while there is no ceiling on the latter.

Employer contributions

Employers pay the same contributions as employees for pensions and hospital insurance. There is also a levy for unemployment insurance of 6.2% on earnings up to US\$ 7 000. There are also state-sponsored unemployment and work-injury plans to which employers must contribute.

Contributions for older people

Social security contributions are not levied on pension income. However, people working between pensionable age and age 70 continue to pay contributions.

19 See Penner (2000) for broader data on different states' tax treatment of older people. Most states with an income tax — some 22 — give older people an extra exemption or deduction. Five instead give an additional tax credit. Three states offer both these concessions. Five states, however, offer no general income-tax concession to the elderly. Nearly two-thirds of states exempt public-pension (social security) income from tax, while one half exempt some (or, in two cases, all) of private pensions. Two states exempt some private-pension income from tax but no public-pension income.

20 Penner (2000) shows that the Detroit, Michigan tax treatment of older people is more generous than the average. The value of tax concessions in Michigan is worth around 3½% of income for an example individual, compared with a mean of 2.7% for all states and a maximum of 5.6%. For older people with higher incomes, tax reliefs are worth 3% of income in Michigan, compared with a mean of 1.6% and a maximum of 6.4%.

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