



Universität Potsdam

Hans-Georg Petersen

Taxes, Transfers, Economic Efficiency and Social Justice

Essays on Public Economics 1979 – 2009

Chapter 3: Impact of Taxation and Tax Reform

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University of Potsdam 2011

Am Neuen Palais 10
D-14469 Potsdam

Published online at the Institutional Repository of the University of Potsdam:

URL <http://pub.ub.uni-potsdam.de/volltexte/2011/5039/>

URN [urn:nbn:de:kobv:517-opus-50395](http://nbn-resolving.org/urn:nbn:de:kobv:517-opus-50395)

<http://nbn-resolving.org/urn:nbn:de:kobv:517-opus-50395>

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Preface

This volume contains the articles and papers which predominately have been published in international journals or edited volumes in the period from 1979 to 2009. The single articles reflect the main research areas of the editor and his co-authors who were engaged at the Kiel Institute of World Economics, the Johannes-Kepler-University Linz/Austria, the Justus-Liebig-University Giessen, the University of Potsdam, and the German Institute for Economic Research (DIW Berlin). The editor would like to thank all the copy right holders for their content; if any have been inadvertently overlooked the editor will be pleased to make the necessary arrangement at the first opportunity.

The editor would also like to thank Doris Gericke and Christina Bennewitz for all their effort they have invested in the creation of this volume. As a matter of course the editor is deeply indebted to all his co-authors and collaborators and last but not least to all the foundations, which have supported the research projects by generous grants.

Potsdam, September 2010

Hans-Georg Petersen

Chapter 3:

Impact of Taxation and Tax Reform

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(Tax Notes International, Vol. 33, No. 10, March 2004, pp 887 – 897)

CHAPTER 8

THE IMPACT OF THE TAX SYSTEM – FEDERAL REPUBLIC OF GERMANY

By Hans-Georg Petersen

I. INTRODUCTION

Since the strong decline of GNP growth rates in many countries in the mid-1970s, discussion of the influence of taxation on economic activities has been intensified. Often the increase of the public sector is cited as one important growth-retarding factor. The growth of the public sector is expressed on the revenue side of the budget as an increasing average tax rate.¹ Many people consider that the average tax rate has reached or already exceeds the tax burden limit.²

In this paper the attempt will be made to survey recent discussions of the impact of taxation on economic activities in the Federal Republic of Germany.³ Part II deals with the influence of taxation on the supply of effort: on incentives to work as well as incentives to save and to invest. In Part III we try to shed light on the correlation between taxation and growth and in Part IV the redistribution effects of the German tax system are discussed. In Part V the impact of inflation on the tax system is analysed and Part VI tries to answer the question of which maximum average as well as maximum marginal tax rate would be appropriate. As well, some brief remarks about the implications for future tax policies are made.

II. THE IMPACT OF TAXATION ON THE SUPPLY OF EFFORT

Many attempts have been made in the literature to evaluate the limits of taxation by its effects on the supply of effort. The discussions of the micro-effects of taxation on the work supply (incentives to work)⁴ as well as the capital formation (incentives to save and to invest) have not led to unequivocal results. Whether income effects or substitution effects dominate has remained theoretically and empirically an unsolved problem.

Recently some attempts have been made to estimate the disincentive effects by using macro-data and regression analysis.⁵ The data and the

methods used are imperfect; the interpretations of the results are rather speculative and give no evidence for causal relationships; but at least some interesting trends can be seen.

IMPACT OF TAXATION ON THE SUPPLY OF WORK

There are only a few empirical studies on the impact of taxation on the supply of work in Germany.⁶ This is not very surprising because during the first two decades after World War II only high earnings were covered by income tax. This changed markedly in the late 1960s and 1970s: the growth process in Germany was accompanied by secular inflation of varying intensity, but income tax rates and the exemption regulation remained constant in the decade 1965 to 1975. The tax on wages became the one with the highest revenue of all single taxes. Today people with relatively low earnings must pay income taxes, however in the lower income brackets, tax is sharply graduated.⁷

A first comprehensive attempt to evaluate the incentive effects of taxation was made by Koch (1978). Because econometric models did not lead to unequivocal results, and experiments in the social sciences are not usual in Germany, he used the method of field interviews, which naturally has its own problems.⁸ He interviewed two groups of income tax payers: salary earners on the one hand (foremen and craftsmen in manufacturing plants in Schleswig-Holstein) and the self-employed on the other hand (general medical practitioners, veterinarians, dental surgeons, architects, lawyers, and tax consultants in Schleswig-Holstein).

The interview question which is pertinent here is: "if the government were to increase income taxes by 10 per cent (100 per cent),⁹ how would you react?" It is obvious (see Table 8.1) that in the latter case the reactions of the taxpayers are stronger. Category (1) describes the income effect, Category (2) the substitution effect. With one exception (10 per cent, Foreman, 1974) the income effect is larger than the substitution effect. If one uses household rather than individual income, categories (1) plus (4) comprise the income effect, thus rendering the differences between income and substitution effects even greater. Category (3) represents those salary earners who will compensate for the higher tax burden by working in their leisure time, in many cases earning non-taxed income. If we add (2) + (5), we have an estimate of those who might be willing to work in the underground economy (barter economy), engaging either in illicit (non-taxed) or do-it-yourself work.

Table 8.2 indicates the responses of self-employed persons, who have higher pre-tax incomes than the salary earners of Table 8.1. The income effect (1) is relatively small compared to Table 8.1, with the ex-

TABLE 8.1

Reactions of Foremen and Craftsmen to an Income Tax Increase According to Interviews Taken in 1972/73 and 1974 (Per Cent of Sample Size)

| | How would you react to an income tax increase of 10 per cent of the average tax rate? | | | | | | | | | | | |
|--|---|---------|---------|-----------|-----------|---------------------------------------|---------|---------|-----------|-----------|-------|-------|
| | 10 per cent of the average tax rate? | | | | | 100 per cent of the average tax rate? | | | | | | |
| | Total | Foremen | Foremen | Craftsmen | Craftsmen | Total | Foremen | Foremen | Craftsmen | Craftsmen | | |
| 1972/73 | 1974 | 1972/73 | 1974 | 1972/73 | 1974 | 1972/73 | 1974 | 1972/73 | 1974 | 1972/73 | 1974 | |
| 1. I would work more hours (overtime). | 14.2 | 8.9 | 15.8 | 6.8 | 13.4 | 10.1 | 28.1 | 25.5 | 28.8 | 25.0 | 27.6 | 25.8 |
| 2. I would work fewer hours. | 3.6 | 4.9 | 5.8 | 6.8 | 2.4 | 3.7 | 5.2 | 10.0 | 5.8 | 15.9 | 4.9 | 6.5 |
| 3. I would continue working the same number of hours in my present firm, but would try to earn additional income during my leisure time (on weekends). | 17.4 | 13.2 | 23.0 | 18.9 | 14.2 | 9.7 | 22.9 | 23.5 | 24.0 | 31.8 | 21.9 | 18.4 |
| 4. My spouse would earn additional income. | 2.1 | 2.6 | 2.9 | 4.5 | 1.6 | 1.4 | 10.9 | 11.2 | 12.3 | 12.1 | 10.2 | 10.6 |
| 5. I would continue working the same number of hours. | 72.4 | 74.2 | 66.9 | 70.5 | 75.6 | 76.5 | 42.1 | 38.7 | 40.3 | 31.8 | 43.1 | 42.9 |
| 6. Other answers. | 4.5 | 6.1 | 3.5 | 5.3 | 4.9 | 6.5 | 11.2 | 8.3 | 11.7 | 6.8 | 10.9 | 7.2 |
| Total (a) | 114.2 | 109.9 | 117.9 | 112.8 | 112.1 | 107.9 | 120.4 | 117.2 | 122.9 | 123.4 | 118.6 | 113.4 |
| Sample size | 385 | 349 | 139 | 132 | 246 | 217 | 385 | 349 | 139 | 132 | 246 | 217 |

(a) Multiple answers possible.

Source: Koch (1978, Tables 4.2.50, 4.2.51).

TABLE 8.2

| Answer | Reactions of Self-employed Persons to a 10 Per Cent Income Tax Increase According to Interviews Taken in 1974 (Per Cent of Sample Size) | | | | | | |
|--|--|---------------|--------------------|------------|---------|--------------------|--|
| | General Practitioners | Veterinarians | Dental Surgeons | Architects | Lawyers | Tax Consultants | |
| would work more hours | 2.1 | 2.1 | 3.2 | 9.9 | 5.8 | 3.0 | |
| would work fewer hours | 25.1 | 14.4 | 41.8 | 23.6 | 14.8 | 11.2 | |
| the tax increase would have no impact on my working hours | 61.3 | 53.1 | 39.6 | 40.3 | 60.5 | 53.2 | |
| would be content with a lower net income | 5.4 | 2.6 | 5.3 | 4.3 | 5.4 | 5.2 | |
| would try to take better advantage of legal tax concessions | 46.7 | 39.7 | 44.4 | 47.2 | 40.4 | 10.0 | |
| would try to reduce my tax burden by additional depreciations | 15.1 | 14.4 | 15.9 | 26.6 | 17.0 | 3.0 | |
| other answers | 44.9 | 63.4 | 51.8 | 29.6 | 48.9 | 40.9 | |
| Total ^a | 200.6 | 189.7 | 202.0 | 181.5 | 192.8 | 126.5 | |
| Sample Size | 390 | 194 | 791 | 233 | 223 | 269 | |

Multiple answers possible.

Source: Koch (1978, Table 4.2.48).

ception of the architects, who have the lowest incomes of the self-employed. The substitution effect (2) on the other hand is relatively high compared to Table 8.1 (especially for the dental surgeons who have the highest pre-tax incomes of the self-employed); and in all cases the substitution effect is larger than the income effect. The self-employed have — unlike the salary earners — further possibilities to react to tax increases. Avoiding taxes by better utilizing existing tax concessions and additional depreciations plays — as categories (5) and (6) demonstrate — an important role.¹⁰ The distinction between business and personal expenditures is hard to make especially for the self-employed. We may surmise, then, that some “illicit consumption” is involved in category (6).

INCOME AND SUBSTITUTION EFFECTS

Tables 8.1 and 8.2 give some evidence that income and substitution effects are dependent on the level of individual earnings and on the level of the income taxation. It is likely at relatively low levels of each that the income effect is larger than the substitution effect. As they increase, — especially given a progressive income tax — the substitution effect becomes more and more important and finally dominates the income effect (see Beenstock, 1979, p. 10).

Table 8.3 shows the tax rates at which the self-employed will change their supply of effort; these have been called “critical tax rates.”¹¹ The interviews ask only for the critical average tax rates;¹² the marginal tax rates have been calculated from the German income tax regulations for 1965. In the cases where the supply of effort has not yet been affected by income taxation (60.3 per cent of the general practitioners, 58.2 per cent of the veterinarians, etc.) the critical tax rates are higher than the effective tax rates respectively (see line (1)). In the cases where supply of effort has been affected by income taxation the critical tax rates are lower than the effective tax rates (with the exception of the lawyers¹³) (see line (3)). In the other cases the critical tax rate has just been reached. The results demonstrate that, especially with regard to the marginal tax rate, the critical values are nearly reached in the cases where supply of effort has not yet been affected, whereas the differences between critical and effective values with regard to the average tax rates are considerably higher. Compared to the first group, in the second group — where the critical tax rates are just attained — and in the third group — where the critical tax rates already affected the supply of effort — the effective tax rates are higher. The strongest reactions to be observed are those of the dental surgeons, who have the highest pre-tax incomes; more than 50 per cent will reduce or already have reduced their supply of effort. On the other hand the third group demonstrates

TABLE 8.3

Critical Tax Rates and Supply of Effort for the Self-employed (Per Cent)

| Effective and Critical Tax Rates | General | | | | | Tax Consultants |
|---|---------------|---------------|-----------------|------------|---------|-----------------|
| | Practitioners | Veterinarians | Dental Surgeons | Architects | Lawyers | |
| Supply of effort not yet affected by income taxation | | | | | | |
| effective average rate | 39.6 | 28.2 | 39.1 | 26.5 | 30.5 | 28.1 |
| effective marginal rate | 50.3 | 41.4 | 49.9 | 39.7 | 43.4 | 41.2 |
| critical average rate | 49.9 | 38.0 | 51.5 | 39.2 | 45.0 | 45.6 |
| critical marginal rate | 53.0 | 49.5 | 53.0 | 49.9 | 53.0 | 53.0 |
| (in per cent of the sample) | (60.3) | (58.2) | (38.8) | (57.5) | (59.6) | (70.6) |
| The attained effective tax rates represent the critical tax rates | | | | | | |
| average rate | 41.3 | 31.1 | 44.1 | 30.3 | 35.8 | 31.1 |
| marginal rate | 51.5 | 43.9 | 53.0 | 43.2 | 48.1 | 43.9 |
| (in per cent of the sample) | (26.9) | (26.3) | (43.7) | (30.0) | (30.5) | (21.2) |
| Supply of effort already affected by income taxation | | | | | | |
| effective average rate | 42.9 | 32.7 | 42.1 | 41.6 | 33.9 | 42.3 |
| effective marginal rate | 53.0 | 45.4 | 51.8 | 51.6 | 46.5 | 51.9 |
| critical average rate | 36.4 | 28.0 | 37.4 | 33.6 | 35.3 | 37.0 |
| critical marginal rate | 48.5 | 41.1 | 49.1 | 46.1 | 47.7 | 48.9 |
| (in per cent of the sample) | (7.2) | (5.7) | (10.7) | (7.3) | (3.6) | (4.1) |
| Sample size | 390 | 194 | 791 | 233 | 223 | 269 |

marginal tax rates calculated from the German income tax regulations for 1965.

Source: Koch (1978, Tables 4.3.3 and 4.3.5).

that although the critical tax rates have been surpassed, they nevertheless have continued to work. One can assume that this group would have increased work effort, if income tax rates had been lower. But some uncertainty about their real reactions affecting the supply of effort still remains, especially when considering the potentially strategic character of the answers.

Apart from this problem it is very interesting to compare the critical tax rates of the self-employed with the effective burdens of wage taxes and social insurance contributions on salary earners.¹⁴ Table 8.4 shows the effective average and marginal rates of wage taxes and of social insurance contributions for the gross wages of public employees¹⁵ in the Federal Republic of Germany in January 1979 for the entire public service employees (BAT) wage scale. The wage scale of public service employees has been chosen because it includes the normal range of salaries¹⁶ in Germany and statistics are readily available.

MARGINAL WAGE TAXATION

The marginal rate of wage taxes including social insurance contributions is 39 per cent in the lowest wage group (BAT X);¹⁷ it increases up to wage group BAT IVb (for unmarried employees), where it reaches the highest observed value of 58.7 per cent. Then the marginal rate t^m declines, because the limit for compulsory health insurance has been reached.¹⁸ In the next four wage groups the marginal rate increases, until in wage group BAT Ib the limits for compulsory retirement insurance and unemployment insurance are reached.¹⁹ Then the further increase in marginal rates is only due to the progression in the income tax.

Without a doubt the social insurance contributions have a slightly different character than taxes. This is true especially in the case of retirement insurance, where the benefit-principle plays a certain role. But with increasing burdens, this fine difference loses its importance.²⁰ Therefore it is likely that the reactions to an increase in social insurance contributions are similar to those which follow from an increase in income taxation.

Comparing the critical marginal tax rates of the self-employed and the effective marginal burdens (t^m) of the public service employees (especially in the case of unmarried employees)²¹ shows that in the middle of the wage scale the effective marginal burdens are at times considerably higher.²² At these high effective marginal rates a relatively high percentage of the self-employed will reduce or have already reduced their supply of effort. Therefore it seems likely that these high marginal rates have disincentive effects on the work supply.

TABLE 8.4

Average and Marginal Rates of Wage Taxes (\bar{t}_w , t_w^m)^a, of Social Insurance Contributions (\bar{t}_s , t_s^m)^b and of their sum (\bar{t} , t^m) for the Gross Wages of Public Service Employees in the Federal Republic of Germany, 1979

| Wage - Tax - Bracket I (Unmarried Employees) | | | | | | | | | |
|--|----------------------------|--------------------------|-----------|-------------|-------------|-------|---------|---------|-------|
| Wage Group (BAT) | Annual Gross Wages (in DM) | Annual Net Wages (in DM) | \bar{t} | \bar{t}_w | \bar{t}_s | t^m | t_w^m | t_s^m | |
| I | 70,167.87 | 39,143.87 | 0.442 | 0.337 | 0.105 | 0.511 | 0.511 | — | — |
| Ia | 61,596.58 | 34,902.58 | 0.433 | 0.314 | 0.119 | 0.497 | 0.497 | — | — |
| Ib | 57,018.24 | 32,599.24 | 0.428 | 0.299 | 0.129 | 0.487 | 0.487 | — | — |
| Ila | 51,700.22 | 29,811.22 | 0.423 | 0.281 | 0.142 | 0.581 | 0.476 | 0.105 | 0.105 |
| Ilb | 47,080.13 | 27,774.85 | 0.410 | 0.262 | 0.148 | 0.567 | 0.462 | 0.105 | 0.105 |
| III | 46,826.76 | 27,670.68 | 0.409 | 0.261 | 0.148 | 0.566 | 0.461 | 0.105 | 0.105 |
| IVa | 43,339.51 | 26,116.99 | 0.397 | 0.245 | 0.152 | 0.554 | 0.449 | 0.105 | 0.105 |
| IVb | 37,942.95 | 23,642.35 | 0.377 | 0.217 | 0.160 | 0.587 | 0.417 | 0.170 | 0.170 |
| Va | 34,845.18 | 22,305.38 | 0.360 | 0.201 | 0.159 | 0.565 | 0.395 | 0.170 | 0.170 |
| Vb | 33,814.15 | 21,836.55 | 0.354 | 0.195 | 0.159 | 0.555 | 0.385 | 0.170 | 0.170 |
| Vc | 30,930.36 | 20,502.80 | 0.337 | 0.178 | 0.159 | 0.526 | 0.356 | 0.170 | 0.170 |
| VIa | 30,404.38 | 20,244.58 | 0.334 | 0.175 | 0.159 | 0.522 | 0.352 | 0.170 | 0.170 |
| VIb | 28,670.44 | 19,387.08 | 0.324 | 0.165 | 0.159 | 0.502 | 0.332 | 0.170 | 0.170 |
| VII | 25,906.55 | 17,882.95 | 0.310 | 0.150 | 0.160 | 0.463 | 0.293 | 0.170 | 0.170 |
| VIII | 23,620.98 | 16,609.58 | 0.297 | 0.140 | 0.157 | 0.429 | 0.259 | 0.170 | 0.170 |
| IXa | 22,883.75 | 16,158.59 | 0.294 | 0.135 | 0.159 | 0.415 | 0.245 | 0.170 | 0.170 |
| IXb | 22,083.21 | 15,669.61 | 0.290 | 0.131 | 0.159 | 0.401 | 0.231 | 0.170 | 0.170 |
| X | 21,213.90 | 15,130.10 | 0.287 | 0.128 | 0.159 | 0.390 | 0.220 | 0.170 | 0.170 |

TABLE 8.4 (continued)

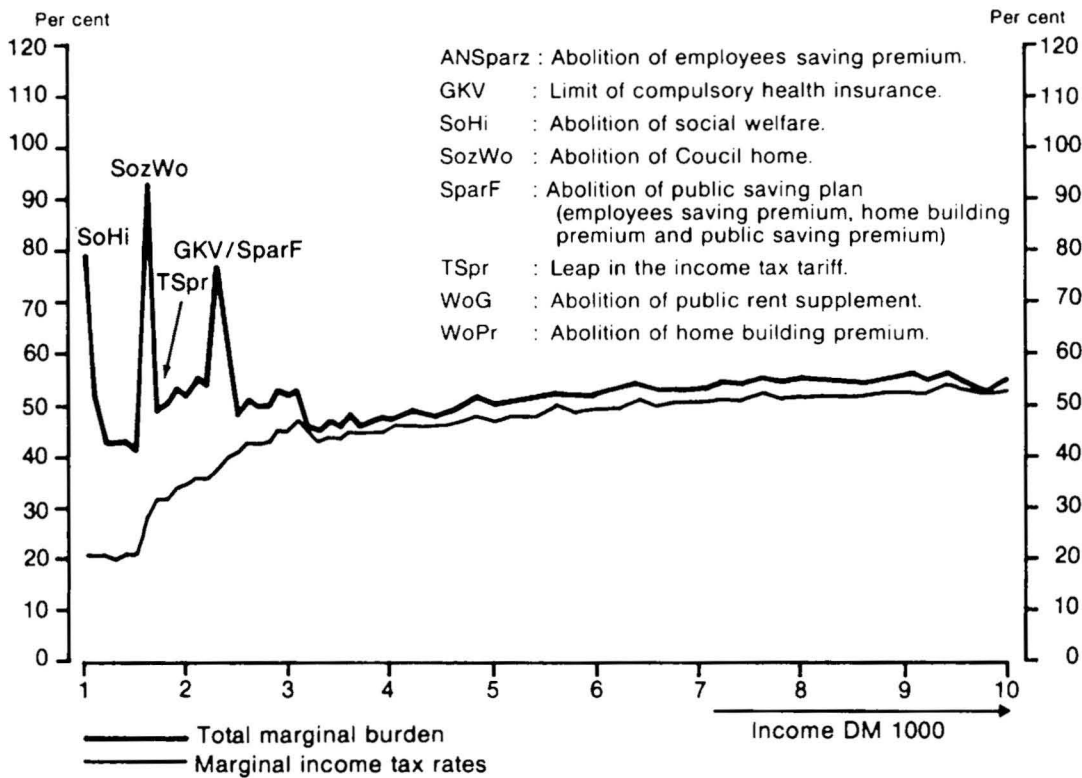
| | Wage - Tax - Bracket III/O (Married Employees, No Children) | | | | | | | | | |
|------|---|-----------|-------|-------|-------|-------|-------|-------|-------|-------|
| I | 71,519.61 | 48,805.61 | 0.318 | 0.214 | 0.104 | 0.408 | 0.408 | — | — | — |
| Ia | 62,948.32 | 43,566.32 | 0.308 | 0.190 | 0.118 | 0.371 | 0.371 | — | — | — |
| Ib | 58,369.98 | 40,467.98 | 0.304 | 0.177 | 0.127 | 0.346 | 0.346 | — | — | — |
| IIa | 53,201.96 | 37,289.96 | 0.299 | 0.162 | 0.137 | 0.315 | 0.315 | — | — | — |
| IIb | 49,227.34 | 34,570.86 | 0.298 | 0.157 | 0.141 | 0.391 | 0.391 | 0.286 | 0.105 | 0.105 |
| III | 48,178.50 | 33,897.94 | 0.296 | 0.148 | 0.148 | 0.382 | 0.382 | 0.277 | 0.105 | 0.105 |
| IVa | 44,691.25 | 31,607.13 | 0.293 | 0.141 | 0.152 | 0.355 | 0.355 | 0.250 | 0.105 | 0.105 |
| IVb | 39,294.69 | 27,915.37 | 0.290 | 0.131 | 0.159 | 0.325 | 0.325 | 0.220 | 0.105 | 0.105 |
| Va | 36,196.92 | 25,883.76 | 0.285 | 0.125 | 0.160 | 0.390 | 0.390 | 0.220 | 0.170 | 0.170 |
| Vb | 35,534.44 | 25,463.44 | 0.283 | 0.123 | 0.160 | 0.390 | 0.390 | 0.220 | 0.170 | 0.170 |
| Vc | 32,217.88 | 23,356.32 | 0.275 | 0.116 | 0.159 | 0.390 | 0.390 | 0.220 | 0.170 | 0.170 |
| VIa | 31,691.80 | 23,015.84 | 0.274 | 0.114 | 0.160 | 0.390 | 0.390 | 0.220 | 0.170 | 0.170 |
| VIb | 29,957.96 | 21,920.56 | 0.268 | 0.109 | 0.159 | 0.390 | 0.390 | 0.220 | 0.170 | 0.170 |
| VII | 27,494.07 | 20,342.47 | 0.260 | 0.101 | 0.159 | 0.390 | 0.390 | 0.220 | 0.170 | 0.170 |
| VIII | 24,908.50 | 18,683.94 | 0.250 | 0.091 | 0.159 | 0.390 | 0.390 | 0.220 | 0.170 | 0.170 |
| IXa | 24,171.27 | 18,183.11 | 0.248 | 0.087 | 0.161 | 0.390 | 0.390 | 0.220 | 0.170 | 0.170 |
| IXb | 23,370.73 | 17,709.77 | 0.242 | 0.083 | 0.159 | 0.390 | 0.390 | 0.220 | 0.170 | 0.170 |
| X | 22,501.42 | 17,100.46 | 0.240 | 0.080 | 0.160 | 0.390 | 0.390 | 0.220 | 0.170 | 0.170 |

^a Marginal tax rates t_w^m calculated from income tax regulations for 1979.

^b Marginal social insurance contribution rates on normal income increases (not, for example, on holiday pay).

Source: Petersen (1979b, Appendix Tables 9, 10 and 11).

Figure 8.1
One Person Household

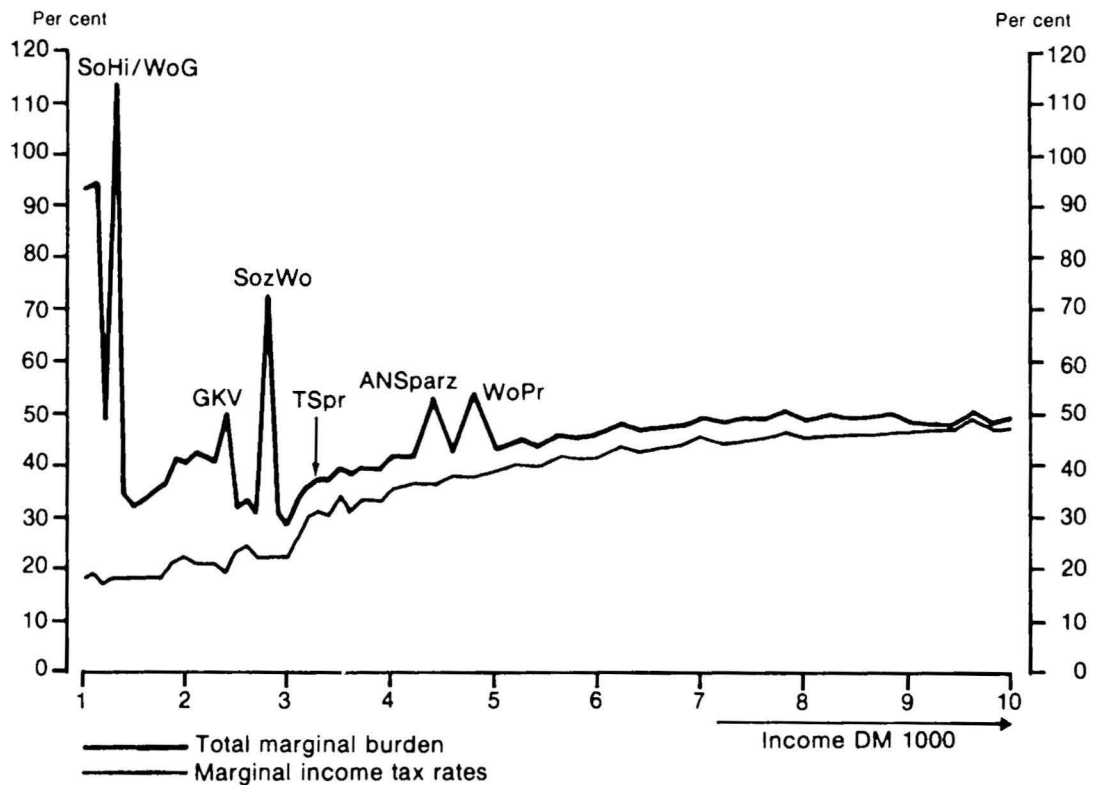


Source: Karrenberg and Kitterer (1979)

For Protestants and Roman Catholics the church tax has marginal rates between 2 per cent on low incomes and 5 per cent on high incomes.²³ The marginal tax rate of indirect taxes to gross income has been estimated by Karrenberg and Kitterer (1979, p. 130) at between 8 per cent in the lower (up to a gross income of DM 2500 monthly) and 1 per cent on the higher income brackets (about DM 8000 monthly). If one adds these marginal tax rates to the marginal rates of wage taxes and social security contributions, in the wage group BAT IVb the marginal burden of all taxes including social security contributions reaches almost the maximum of 70 per cent of gross income.²⁴ Naturally the marginal rates of indirect taxes are less noticeable to taxpayers, but international cross-section analyses have shown that the “imperceptibility” of indirect taxes disappears with an increasing tax burden.²⁵

If additional transfers to households are taken into consideration, which would overextend the topic of this paper, one can observe combined marginal tax and transfer rates, which are considerably higher than 100 per cent – because of uncoordinated income brackets and the

Figure 8.2
Two Person Household



Source: Karrenberg and Kitterer (1979)

sudden abolishment of transfer payments. Figure 8.1 shows the course of such combined marginal rates over the entire income scale for one-person households and Figure 8.2 shows the corresponding rates for a two-person household (with only one salary earner). The examples above should make it clear that disincentive effects on the work supply are likely to exist within present-day tax and transfer systems – especially for wives – and that the disincentive effects in Germany are particularly strong in the lower and middle income brackets. If critical reactions have not yet taken place, one must still be very careful with further increases of the marginal rates of income taxes as well as social security contributions. The negative impact of taxation on the work supply is likely limited to overtime work, because the nominal number of hours which salary earners work is fixed by collective bargaining agreements. But negative impacts on morale at work and especially impacts on additional illicit (non-taxed) work as well as on the do-it-yourself movement are possible. If effective, the underground (barter) economy might grow faster than the market economy.

IMPACT OF TAXATION ON SAVINGS AND INVESTMENTS

There are only a few empirical studies on the impact of taxation on the supply of work. The same is true for studies on the impact of taxation on savings of the private sector. It is difficult enough to determine whether or not taxation changes the supply of work, let alone to determine in which direction the marginal propensity to save could be influenced.²⁶ In low earnings brackets, where the income effect dominates, the marginal propensity to save is low and the effects on saving depend on the extent to which the additional tax burden could be compensated for by additional work supply. If full compensation is possible, it is likely that savings will be constant; if not, savings will decline, because taxpayers will want to maintain their consumption standard.

In the income brackets where the substitution effect dominates, it is possible that, as the result of additional illicit work or do-it-yourself activity, savings will be kept constant; otherwise, if the consumption standard is just maintained, savings will decline. It is nearly impossible to estimate these different effects because a micro-model of the taxpayer's behaviour does not yet exist. Therefore we can only estimate some rough development trends with regression analyses, using simple macro-data from the German National Accounts Statistics.

To shed light on the relationship between the savings of private households and taxation, total taxes have been divided into two groups: taxes on private households and taxes on the corporate sector. The taxes on private households are (1) wage taxes, (2) value-added taxes, (3) excise duties, (4) import levies, and (5) employee contributions to the social insurance system. With this definition of taxes on private households it is assumed that no shifting has occurred, or, using Musgrave's (1959, p. 230) terminology – that effective incidence is the same as impact incidence.

The ratio of taxes on private households to employee gross income has been computed from the German National Accounts Statistics. This ratio (TPH)²⁷ has been correlated with the growth rate of real savings for private households \dot{S} :

$$(1) \dot{S} = a + b \text{ TPH}$$

Estimating the regression equation over the whole sample period yielded:

$$(2) \dot{S} = 62.657 - 1.528 \text{ TPH}$$

$$F = 3.938; \bar{R}^2 = 0.140; DW = 1.1817; N = 18.$$

F is the F-test value, \bar{R}^2 the adjusted R squared, DW the Durbin-Watson-test and N the number of cases. The F-test value is significant at 10 per cent, and the DW-test rejects serial correlation. The adjusted R squared shows that a weak negative correlation exists between the growth rate of savings of private households and the tax ratio TPH. Dividing this ratio into a ratio of taxes on private households excluding social security contributions TPH_T and a ratio of the social security contributions of employees TPH_{SOC} to gross income of employees, gave the results:

$$(3) \dot{S} = 63.736 - 2.074 TPH_T$$

$$F = 2.629; \bar{R}^2 = 0.083; DW = 1.722; N = 18.$$

$$(4) \dot{S} = 52.163 - 1.792 TPH_{SOC}$$

$$F = 3.728*; \bar{R}^2 = 0.132; DW = 1.987; N = 18.$$

The multiple regression for both components yielded:

$$(5) \dot{S} = 14.521 + \frac{2.101}{(0.675)} TPH_T - \frac{7.212}{(3.413*)} TPH_{SOC}$$

$$F = 3.208*; \bar{R}^2 = 0.197; DW = 2.172; N = 18.$$

where F-test values of the coefficients are given in parentheses; asterisks indicate coefficients statistically significant at the 10 per cent level. Interpreting the results of equations (3) to (5): There is some evidence of a weak negative correlation between the growth rate of private household saving and social security taxes, whereas there is no significance for a corresponding correlation between private savings and the taxes on private households; the sign changes as well from the simple to the multiple regression equation.²⁸

CAUTION NEEDED

There are several reasons to consider these estimates with great care. Not the least of these is the fact that all other relevant variables, which might have an impact on private household savings, are included in the error term.²⁹ But as stated above these results should only be interpreted as trend results; even so, however, some speculations can reasonably be made.

The impact of taxation on private investment is discussed among others by Roskamp (1959, p. 258–332), who analyses the influence of different tax exemptions favouring capital formation in the post-war

period (1948–1957) in Germany. The combination of high marginal income tax rates with numerous tax exemptions (especially depreciation allowances) led to high investments in this period.³⁰ During the following decade marginal tax rates were lowered and tax exemptions were partially abolished.

Another attempt to estimate the effects of changes in the tax system on private investments with a macroeconomic tax model³¹ has been made by Beckmann and Uebe (1970). The Wissenschaftlicher Beirat beim Bundesministerium der Finanzen (1967) made the proposal to increase direct taxation (income taxes, corporate income taxes and inheritance taxes) by about DM 5 billion and to lower indirect taxation by the same amount. Beckmann and Uebe (1970, p. 12–13) estimated that an increase in the profit tax rates of about 5 per cent would lead to a strong decline in investments³² and cause a decline in economic growth, similar in magnitude to the decline in economic growth resulting from the recession of 1967 in Germany. But the result is predetermined by the investment function used, and by a causation chain which leads from profit taxation via investment to economic growth.

In later studies, for instance, a study of the “Institut Finanzen und Steuern” (1978) simple time series of the development of investment and corporate taxation have been compared without using any model. The “Institut Finanzen und Steuern” (1978, p. 95) observed that for the years up to 1977: “The analysis of the long-termed development of investment makes it obvious that the annual growth rates of investments are declining permanently. The high growth rates of tax yield are leading to ‘fiscal drag’ effects on economic growth.” Therefore strong changes within the system of corporate taxation were considered necessary.

It is obvious that, up to now, retained profits have been taxed at relatively high rates. In an international comparison the Institut der deutschen Wirtschaft (1979, p. 3) observed the highest tax rates on retained profits for corporations in Germany,³³ but in this comparison the effect of the capital gains taxes in countries such as the U.K. and U.S. has been neglected. For the years following 1977 we again have relatively high positive growth rates for private investments,³⁴ despite the fact that no substantial changes have been made in tax legislation for retained profits.

To focus more clearly on the relations between private investment and taxation we use a relatively simple approach. The taxes on the corporate sector are (1) taxes on incomes of entrepreneurial activities and wealth, (2) corporation income taxes, (3) other taxes on corporations, (4) occupation taxes, (5) payroll taxes,³⁶ (6) real-estate taxes,³⁷ and (7) employers’ contributions to social security insurance. It is also assumed that no shifting has occurred, the worst-possible-situation for the corporate sector.

The ratio of taxes on the corporate sector to gross income on entrepreneurial activities and wealth³⁷ (TCW) has been correlated with the growth of the real private investments I:

$$(6) \dot{I} = a + b \text{ TCW}$$

Estimating the regression equation over the whole sample period yielded:

$$(7) \dot{I} = 24.879 - 0.345 \text{ TCW}$$

$$F = 2.377; \bar{R}^2 = 0.071; DW = 1.276; N = 18.$$

The ratio TCW has been divided into a ratio for taxes on the corporate sector TCW_T and a ratio for employers' social security contributions TCW_{SOC} . The regressions gave the results:

$$(8) \dot{I} = 13.687 - 0.284 \text{ TCW}_T$$

$$F = 0.373; \bar{R}^2 = -0.036; DW = 1.181; N = 18.$$

$$(9) \dot{I} = 10.757 - 0.287 \text{ TCW}_{\text{SOC}}$$

$$F = 1.483; \bar{R}^2 = 0.026; DW = 1.230; N = 18.$$

The multiple regression for both components yielded:

$$(10) \dot{I} = 27.145 - 0.416 \text{ TCW}_T - 0.332 \text{ TCW}_{\text{SOC}}$$

$$\qquad\qquad (0.807) \qquad\qquad (1.881)$$

$$F = 1.137; \bar{R}^2 = 0.015; DW = 1.337; N = 18.$$

The F-test values are not statistically significant. The \bar{R}^2 values are extremely low, so it appears that negative correlations do not exist. This is not very surprising, if one looks at the development of the ratio TCW_T in the sample period.³⁸ (It has been relatively constant.) The ratio TCW_{SOC} has nearly doubled since 1960, but the negative signs in equations (8) and (9), are not significant either. If further variables were added, stronger correlations might be possible. However, if tax shifting is taken into consideration, the opposite results could occur.

III. IMPACT OF THE TAX SYSTEM ON ECONOMIC GROWTH

The question which will be discussed in this section is: what connection exists between the average tax rate and economic growth? As in the regressions above, for the following analyses we use simple macro-data from the German National Accounts Statistics.³⁹ Economic growth is measured here as the annual growth rate of the real gross national product \dot{Y}_R .⁴⁰ The equation which will be tested is:

$$\dot{Y}_R = a - c T$$

where T indicates the macroeconomic average tax rate (including social security contributions). With this equation we only test the maximum influence of taxation which is theoretically possible; all other relevant variables are incorporated into the error term. Therefore the following analyses should be interpreted as trend results.

For the sample period from 1951 to 1982⁴¹ the corresponding regression equation gave the result:

$$(11) \quad \dot{Y}_R = 21.983 - 0.469 T$$

$$F = 14.595; \bar{R}^2 = 0.305; DW = 1.466; N = 32.$$

where the F -test is significant at 1 per cent, and the Durbin-Watson-test (DW) rejects serial correlation. The adjusted R squared (\bar{R}^2) shows that a weak negative correlation exists between growth rate and average tax rate in Germany over the sample period.

The yield elasticity of the tax system during the most recent years and high nominal and real growth rates of income have caused the strong increase in the average tax rates in spite of some autonomous tax reductions (see Neumark, 1979). This growth has – because of different yield elasticities of the various taxes – some consequences for the tax structure. The direct average tax rate, the average tax rate of the social security contributions⁴² as well as the ratios of these taxes to total taxation considerably increased during the sample period. In contrast, the indirect average tax rate as well as the share of indirect taxes in total taxation declined.

DIRECT AND INDIRECT TAXATION

Therefore the total average tax rate has been divided into shares of direct and indirect taxation (TDIR and TIND) and social insurance contributions (TSOC) to gross national product.⁴³ Estimating the regression equations gave these results:

$$(12) \quad \dot{Y}_R = 15.230 - 0.929 \text{ TDIR}$$

$$F = 12.387; \bar{R}^2 = 0.269; DW = 1.436; N = 32.$$

$$(13) \quad \dot{Y}_R = -29.484 + 2.612 \text{ TIND}$$

$$F = 15.603; \bar{R}^2 = 0.320; DW = 1.633; N = 32.$$

$$(14) \quad \dot{Y}_R = 13.879 - 0.795 \text{ TSOC}$$

$$F = 12.387; \bar{R}^2 = 0.290; DW = 1.401; N = 32.$$

The simple linear regression equations are all significant; a weak negative correlation can be observed between both the direct average tax rate (TDIR) and the average rate of the social insurance contributions (TSOC) and the growth rate, whereas there is a positive correlation between the indirect average tax rate (TIND) and the growth rate.

Estimating the multiple regression equation over the whole sample period yielded:

$$(15) \dot{Y}_R = -20.117 - 0.389 \text{ TDIR} + 2.126 \text{ TIND} + 0.118 \text{ TSOC}$$

(0.40) (1.51) (0.03)

$$F = 5.126; \bar{R}^2 = 0.285; DW = 1.615; N = 32.$$

Only in the case of the average rate of the social security contributions does the sign change, however, the values of the F-test (in parentheses) are not significant.

Compared to the linear regression with the total average tax rate (see equation (11)), the adjusted R squared deteriorated. In the sample period, a negative correlation is likely between the direct average tax rate and the growth rate for Germany.

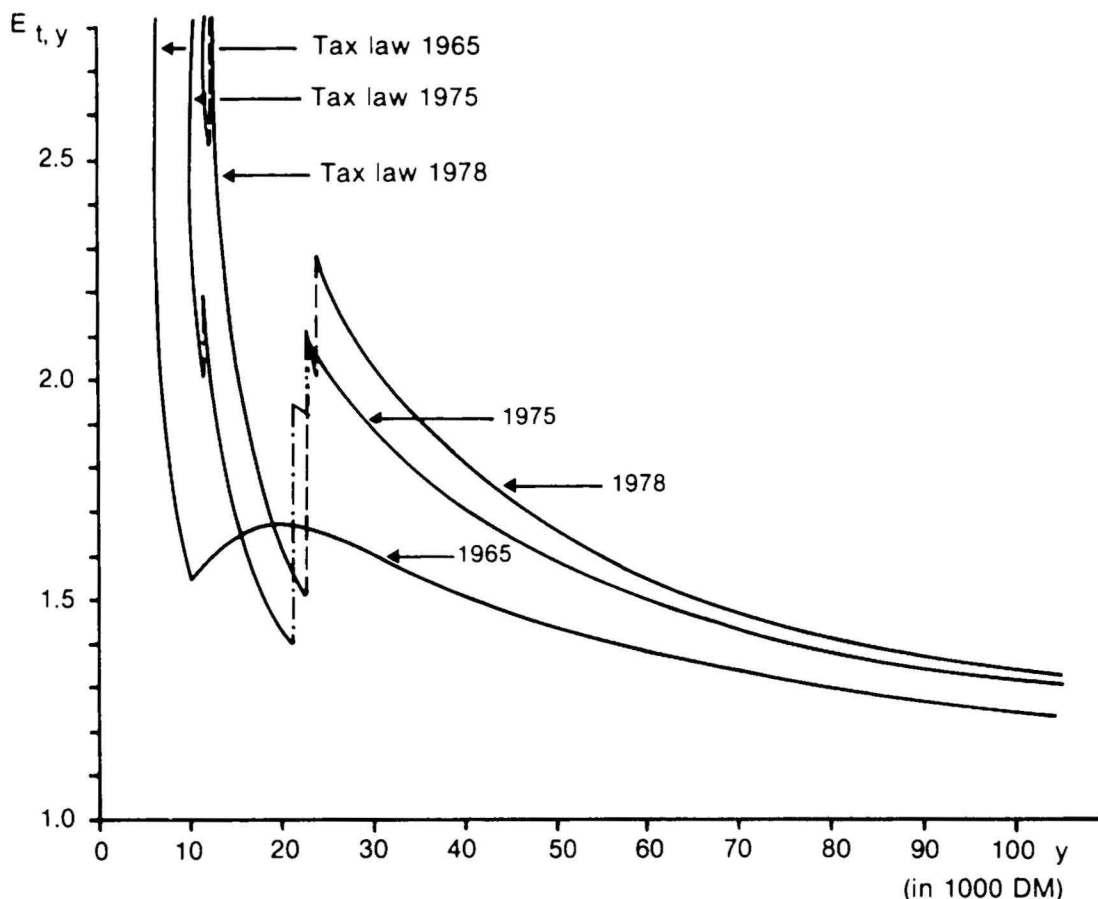
Considering the aggregated disincentive effects of taxation on the supply of effort (see Beenstock, 1979, p. 10), it seems likely that, especially when secular inflation is accompanied by real economic growth, the phenomenon of “fiscal drag” exists (see Neumark, 1979, p. 197). In the case of Germany this “fiscal drag” effect was mostly caused by direct taxes; the fact that indirect taxation is less noticeable to the citizens than direct taxation likely leads to less growth retarding pressure. But—as international cross-section analyses have shown—as indirect taxation increases it, too, is correlated with declining growth rates.⁴⁴

IV. REDISTRIBUTION EFFECTS OF THE TAX SYSTEM

The ability-to-pay principle as well as the redistribution principle of taxation are seen particularly in progressive income taxes, the most important progressive taxes in the German tax system. Figure 8.3 shows the progressive tax rates as well as the exemption regulations for all levels of income in the wage-tax-bracket I (unmarried salary earners) measured by the yield elasticity.* Figure 8.4 shows the corresponding

* Elasticity is defined as the numerical relationship of change between two different variables. For example, the Yield Elasticity of Tax, with respect to Income (Et,y) is defined as:

Figure 8.3
Yield Elasticity $E_{t,y}$ (Wage-bracket I)



Source: Author's Computations

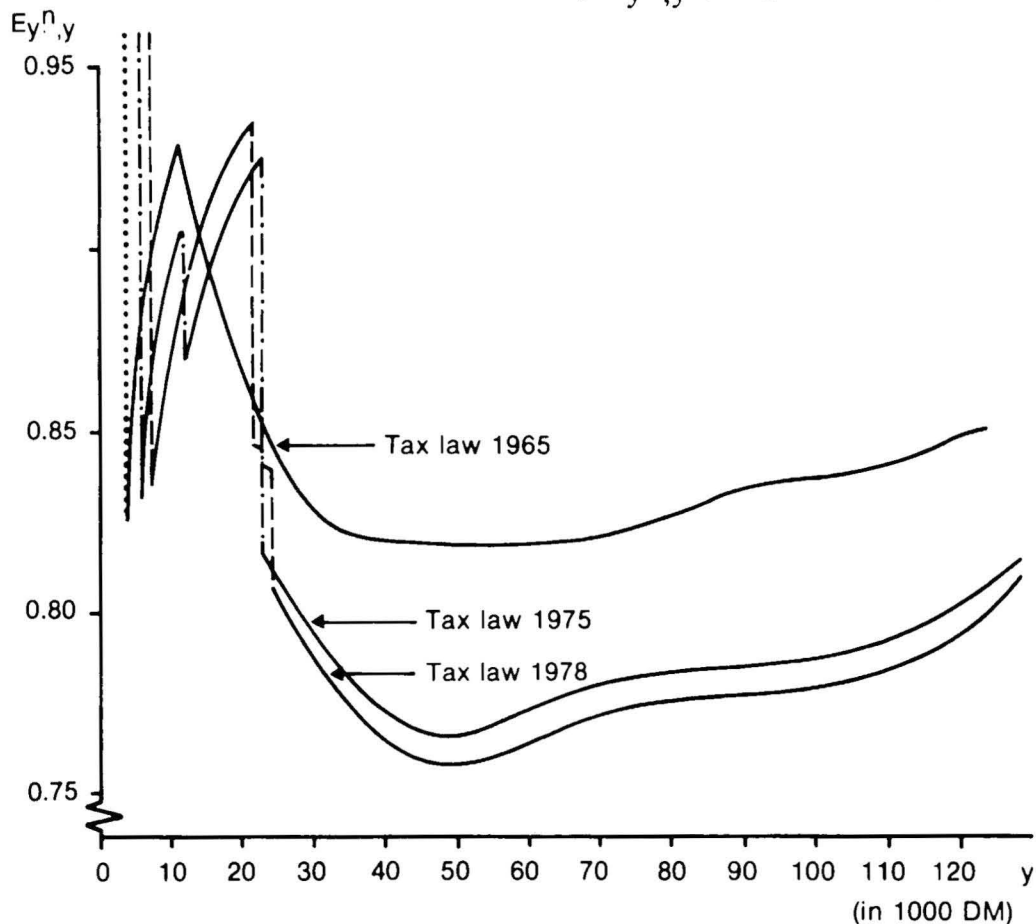
rates measured by residual income elasticity. It is obvious that the lower and middle income brackets are sharply graduated by the income tax and that with the tax reforms this graduation has been increased with the exception of some small income areas.⁴⁵

The redistribution effect of the income tax is dependent on the residual income elasticity and the distribution of the individual gross incomes (y). We have estimated the redistribution effects for the wage tax and the assessed income tax for the years 1965, 1968 and 1971 with an income and wage tax model.⁴⁶ For the tax laws of 1975 and 1978 a simulation model of the wage tax has been used to estimate their redistribution effects.⁴⁷

$$E_{t,y} = \frac{\text{per cent change in tax revenues}}{\text{per cent change in incomes}}$$

$E_{t,y}$ in ordinary language, describes the per cent change in tax revenues which result from a given per cent change in incomes. — ed.

Figure 8.4
Residual Income Elasticity $E_{y^n, y}$ (Wage-bracket I)



Source: Author's Computations

In Table 8.5 various Gini coefficients** are given. If the distributions of gross income y and net income y^n are compared, it is obvious that the redistribution effects of wage taxes and of assessed income taxes are relatively small. For the wage tax the redistribution effect ($y - y^n$) increases slightly from 1965 to 1971, whereas for the assessed income tax the redistribution effect declines slightly from 1965 to 1971.

Table 8.6 shows the Gini coefficients for gross income (y) and net income (y^n) in the wage-tax-bracket I for six consecutive simulation periods ($t = 0, 1, \dots, 5$); the gross income distribution for 1974 ($t = 0$) has been extrapolated by 10 per cent for each period.⁴⁸ As for the wage tax in Table 8.5 the redistribution effect ($y - y^n$) increases with an increase in income, but the differences in the redistribution effects of the different tax laws are very small.

** A Gini coefficient of 1.0 indicates absolute (income) equality: each member of society has exactly the same amount (of income) as every other. A Gini coefficient of 0 indicates absolute (income) inequality: one person has all (the income) and no one else has any. — ed.

TABLE 8.5
Gini Coefficients for Gross Income (Y), Tax Exemptions (E), Taxable Income (X), Tax Yield (T),
and Net Income (Y^n) for Wage Taxes and Assessed Income Taxes

| | Basic Tariff | | | Wage Tax | | | Splitting Tariff | | | Assessed Income Tax | | | |
|-----------|--------------|-------|-------|----------|-------|-------|------------------|-------|-------|---------------------|-------|-------|-------|
| | 1965 | 1968 | 1971 | 1971 | 1965 | 1968 | 1971 | 1965 | 1968 | 1971 | 1965 | 1968 | 1971 |
| | Y | 0.351 | 0.372 | 0.371 | 0.371 | 0.312 | 0.273 | 0.271 | 0.520 | 0.477 | 0.412 | 0.520 | 0.477 |
| E | 0.382 | 0.382 | 0.320 | 0.320 | 0.474 | 0.219 | 0.188 | 0.299 | 0.251 | 0.204 | 0.299 | 0.251 | 0.204 |
| X | 0.337 | 0.367 | 0.391 | 0.391 | 0.251 | 0.301 | 0.302 | 0.578 | 0.542 | 0.462 | 0.578 | 0.542 | 0.462 |
| T | 0.560 | 0.570 | 0.543 | 0.543 | 0.493 | 0.481 | 0.422 | 0.785 | 0.748 | 0.652 | 0.785 | 0.748 | 0.652 |
| Y^n | 0.333 | 0.352 | 0.348 | 0.348 | 0.297 | 0.254 | 0.251 | 0.453 | 0.413 | 0.351 | 0.453 | 0.413 | 0.351 |
| $Y - Y^n$ | 0.018 | 0.020 | 0.023 | 0.023 | 0.015 | 0.019 | 0.020 | 0.067 | 0.064 | 0.061 | 0.067 | 0.064 | 0.061 |

Source: Petersen (1977, Tables 27 and 42).

TABLE 8.6

Gini Coefficients for Gross Income (Y) and Net Income (Y^n) in the Wage-Tax-Bracket I for Six Consecutive Simulation Periods and the Income Tax Laws of 1965, 1975 and 1978

| t | 1965 Income Tax Law | | | 1975 Income Tax Law | | | 1978 Income Tax Law | | |
|---|---------------------|-------|---------|---------------------|-------|---------|---------------------|-------|---------|
| | Y^a | Y^n | $Y-Y^n$ | Y^a | Y^n | $Y-Y^n$ | Y^a | Y^n | $Y-Y^n$ |
| 0 | 0.383 | 0.353 | 0.030 | 0.383 | 0.355 | 0.028 | 0.383 | 0.355 | 0.028 |
| 1 | 0.383 | 0.352 | 0.031 | 0.383 | 0.353 | 0.030 | 0.383 | 0.353 | 0.030 |
| 2 | 0.383 | 0.350 | 0.033 | 0.383 | 0.350 | 0.033 | 0.383 | 0.350 | 0.033 |
| 3 | 0.383 | 0.349 | 0.034 | 0.383 | 0.348 | 0.035 | 0.383 | 0.348 | 0.035 |
| 4 | 0.383 | 0.348 | 0.035 | 0.383 | 0.345 | 0.038 | 0.383 | 0.345 | 0.038 |
| 5 | 0.383 | 0.346 | 0.037 | 0.383 | 0.342 | 0.041 | 0.383 | 0.342 | 0.041 |

^a 1974 Distribution.

Source: Petersen (1981a, Tables 2, 3 and 4).

THEORY AND PRACTICE

On examining the German income tax system as a whole, it becomes obvious that a redistribution effect exists in principle. However, in practice, this effect is rather small. In the case of direct taxes (income taxes) the redistribution effects are obvious: income is distributed more equally after taxes than before. But the very existence of redistribution effects (in the same direction) in the case of indirect taxes is unproven. This is a controversial question among German economists. Bedau and Göseke (1977, p. 381) estimated a nearly even distribution of the indirect tax burden (for 1974), *i.e.*, no redistribution at all. In their view, this resulted due to the value-added tax rate which is lower (6.5 per cent instead of 13 per cent) on basic necessity items. But they observed a slight increase in the average indirect tax rate from 13.2 per cent for monthly incomes of DM 1000 to 13.7 per cent for monthly incomes between DM 3000 and DM 4000. For higher incomes the average tax rate declined as well for incomes over DM 7000 monthly, the average tax rate was smaller than for low incomes.

Although the negative distributional consequences of levies on ("necessity") goods and services have been more or less mitigated since Lassalle's famous discourse on "Indirect Taxes and the Situation of the Working Classes" (1863), as Neumark (1981) states: "The fact remains that such levies are indisputably regressive and have a particularly unjust impact on families with a large number of children." This can also be seen from the research of Karrenberg and Kitterer (1979, p. 130) cited above; they find that the marginal rate of indirect taxes declines from 7 to 8 per cent in the lower and middle income brackets to 1 to 2 per cent in the highest income bracket. Redistribution within the total German tax system depends on the redistributional effect of the indirect taxes. Direct taxes, especially West Germany's income taxes as estimated in Tables 8.5 and 8.6, have only a small redistributional effect. If indirect taxes are evenly distributed, then the redistributional effect is small for the total tax system. If one carries the arguments of Karrenberg and Kitterer (1979) and of Neumark (1981) one step further, the distribution would be either the same before and after taxes or quite possibly the distribution could even be more skewed toward the rich after taxes.

Reynolds and Smolensky (1978, p. 75) observed a decline in the redistributional effects of income taxes in the United States after World War II. A similar development has taken place in Germany. The estimates above show that Tullock (1971) is doubtlessly correct when he assumes that most redistributions only shift the tax burden within the middle income-groups. This is particularly true today as the lower and middle income brackets are taxed with a degree of progression, which formerly only existed for relatively high incomes.

V. IMPACT OF INFLATION ON THE TAX SYSTEM

In the sections above we have discussed the impacts of the tax system on economic development. But many of the problems discussed above are connected to – if not the consequence of – the impacts of the secular inflation on the tax system, especially on the progressive income tax.

We shall consider only the overall impact of inflation on fixed exemptions and tariff regulations for personal income taxation. This is called “*kalte Progression*” (“cold progression”) in German.⁴⁹ This effect in particular caused the strong increase of income tax revenue in the decade 1965 to 1975, when income tax laws were held constant. The lower and middle income brackets were especially stricken with inflation, because in these categories progression is very sharp (see Figures 8.3 and 8.4).

Income tax statistics are only available in West Germany at three year intervals. For these assessment years we estimated the effects of inflation on wage taxes as well as on assessed income taxes, using a tax simulation model.⁵⁰ The difference between tax revenue without indexation and with full indexation (that is: indexation of exemption regulations as well as of the income tax tariff) represents the inflationary share of tax revenue (see Table 8.7). In the assessment years different rates of inflation were measured by the German consumer price index.⁵¹ As prices increased, the inflationary share of tax revenue rose sharply, especially in the case of the wage tax. This gives a broad hint that the employees who are only taxed on wages (those who usually earn less than those whose entire income is taxed), are greatly concerned about the “*kalte Progression*.”

TAX REFORM

In 1975 there was a more dramatic income tax reform, which yielded a loss in revenue of about DM 15 billion that year. But this amount was not enough to compensate for the inflationary effect of 1974 alone (see Table 8.7). Since 1975 secular inflation has led to further increases in tax revenue. Table 8.8 shows some estimates for the period 1974 to 1980 based on the cash tax revenue. If one (counter-factually) assumes that with the income tax reform of 1975 a full compensation of the inflationary effects has been reached, the consumer price index – on which the deflator for indexing is based – is set at 100 per cent for 1974. The inflationary income tax revenue increased from DM 5 billion in 1975 to DM 27.2 billion in 1980; total inflationary income tax revenue amounts to about DM 90 billion for the period 1975–1980, whereas the income tax cuts in 1977/78 and 1979 led to reductions in the tax yield of only about DM 20 billion.

TABLE 8.7

| Income Tax Revenue Caused by Secular Inflation | | | | |
|--|---------------------------------|------------------------------|------------------------|-----------|
| Year | (1) | (2) | (1) - (2) ^a | (1) - (2) |
| | Without Indexation ^a | With Indexation ^a | | (1) |
| Total Wage Tax Revenue | | | | |
| (per cent) | | | | |
| 1965 | 14.606 ^b | 13.957 | 0.649 | 4.4 |
| 1968 | 18.743 | 16.921 | 1.822 | 9.7 |
| 1971 | 39.783 | 34.411 | 5.372 | 13.5 |
| 1974 | 68.103 | 52.807 | 15.296 | 22.5 |
| Total Assessed Income Tax Revenue | | | | |
| Without Indexation | | | | |
| With Indexation | | | | |
| 1965 | 14.821 | 14.593 | 0.228 | 1.5 |
| 1968 | 15.701 | 14.926 | 0.775 | 4.9 |
| 1971 | 25.437 | 22.887 | 2.550 | 10.0 |
| 1974 | 29.047 | 24.759 | 4.288 | 14.8 |
| Total Income Tax Revenue | | | | |
| Without Indexation | | | | |
| With Indexation | | | | |
| 1965 | 29.427 | 28.550 | 0.878 | 3.0 |
| 1968 | 34.444 | 31.847 | 2.597 | 7.5 |
| 1971 | 65.220 | 57.298 | 7.922 | 12.2 |
| 1974 | 99.150 | 77.566 | 19.584 | 20.2 |

^a All figures in DM billion.

Source: Petersen (1979c, Tables 4a - 4c).

In spite of a stagnation in economic growth in the period 1975 to 1978, the income tax yield vigorously increased during that period. As the result of a sharply graduated income tax and a secular inflation accompanied by stagnation ("stagflation"), the "built-in flexibility" does not lead to automatic tax reductions and therefore to expansive effects on economic activities; on the contrary, income taxes create "fiscal drag" to further economic growth, as we have seen. It is also obvious that the increasing disincentives on the supply of effort as well as the reductions in the redistributive effect of income taxation are at least partly consequences of the inflationary income tax increases.

TABLE 8.8
Additional Income Tax Revenue Caused by Inflation 1975-1980 (Estimates)

| Year | (1) Consumer Price Index | (2) Total Income Tax Revenue (DM Billion) | (3) Inflationary Income Tax Revenue (DM Billion) | (4) Additional Income Tax Revenue (Per Cent) |
|------|--------------------------------|--|---|--|
| 1974 | 100.0 | 98.8 | — | — |
| 1975 | 106.6 | 99.2 | 5.0 | 5.0 |
| 1976 | 110.6 | 111.5 | 7.8 | 7.0 |
| 1977 | 114.7 | 126.3 | 12.6 | 10.0 |
| 1978 | 117.8 | 139.9 ^a | 16.8 | 12.0 |
| 1979 | 122.6 | 153.1 ^b | 20.7 | 13.5 |
| 1980 | 129.3 | 164.9 ^b | 27.2 | 16.5 |

^a Estimated without the changes in the 1978 Income Tax Law.

^b Estimated without the changes in the 1979 Income Tax Law.

Source: Calculated from Bundesministerium der Finanzen (1979).

Instead of implementing a systematic adjustment scheme for income taxation, politicians did nothing. After ten years they began initiating haphazard and unsystematic income tax reductions, which favoured random and changing groups of taxpayers. Avoided was a total and equitable compensation of the inflationary effects on the income tax. It is also obvious that—had indexation been implemented—a total change in economic policy would have been necessary: income tax rates would have been increased, or growth rates of public expenditures would have declined.

VI. SOME IMPLICATIONS FOR TAX POLICY

1. Briefly summarizing the results: There is some empirical evidence that the disincentives of the tax system, especially on the supply of work, have grown in importance. In the cases of savings and especially investments, “many modern economists tend to overrate the significance of taxes” (Neumark, 1981), especially if tax-shifting is taken into consideration.
2. There is some empirical evidence that the increasing shares of direct taxation in gross national product as well as in total taxation have led to growth retarding pressure. But a strong relationship between taxation and economic growth as expressed in the “Laffer curve,” which seems to gain increasing popularity in Anglo-American countries, cannot be observed for Germany.⁵² Therefore, it is impossible to give a precise maximum average tax ratio or marginal tax rate which represents the limit, where further increases become counter-productive.

Growth retarding forces are much more involved in the innumerable and very complicated details of tax laws. In Germany, for instance, the investment in shares is discriminated against, because dividends are taxed at source with corporation taxes and dividend taxes, whereas interest payments on mortgages, fixed-interest bearing bonds and other monetary investments are not so treated. Here we have a “publicly accepted toleration of tax evasion” on interest payments, with far reaching consequences for allocation. For many years investments in — as Giersch (1973) calls it “Betongold” — and similar property were taxed at higher rates than investments in productive assets. Not only inflation but also tax laws led to the result. It is important that these “excess burdens” for productive assets must be avoided.

3. There is some empirical evidence that the redistributive effect of the German tax system has declined since World War II, since today nearly all citizens are covered by income taxation, including the lower income brackets, and these areas have sharply graduated tax rates. The increase of the maximum marginal income tax rate from

53 per cent to 56 per cent in 1975 had no positive effect on redistribution. Doubtless, the Meade Commission was correct in claiming that extremely high marginal tax rates are very problematic, because they contribute little to vertical equity, and may well have significant disincentive effects on the supply of effort (Meade, 1978, p. 308).

4. Many of the problems connected with taxation only occurred because politicians did nothing about the distortions caused by inflation. Rather, they welcomed the additional inflationary tax revenue, and used it for further increases in public expenditures. The consequence was that at least for a time, inflation accelerated. This process yielded not only a declining money illusion but also an increasing “tax awareness” (or declining “tax illusion”).
5. Therefore it seems senseless to substitute indirect for direct taxes to try to lower the growth retarding pressures. With an increasing share of indirect taxes, their imperceptibility disappears. Just as money illusion decreases with an increasing rate of inflation, so “indirect tax illusion” falls with a rising share of indirect taxes. Beyond this, indirect taxes (as well as the expenditure tax) promote the movement “back to barter,” because do-it-yourself and other “underground” transactions become more lucrative.⁵³
6. With an adjustment scheme for the impact of inflation on income taxes (*i.e.*, indexation) many problems would be diminished. Politicians would be forced to openly increase tax rates, if they want to increase public expenditure. But then taxpayers’ resistance to taxation will likely reduce public expenditures.
7. An inflation adjustment scheme for income taxes will reduce progression, because purely nominal income increases would then be taxed proportionately. A reduction of marginal income tax rates, especially in the lower and middle income brackets, is necessary in order to avoid further strengthening the disincentive effects and the growth of the underground economy.⁵⁴ Naturally, the “green,” “back to nature,” and “back to barter” movements always have some sympathetic followers, but if these attitudes become accepted by most of the members of society, they destroy its very economic foundations.
8. An inflationary adjustment scheme as well as a reduction of marginal income tax rates could be financed by abolition of the various direct government subsidies.⁵⁵ Also advisable is the harmonization of the tax and transfer system through an integration of social concepts into the income tax system. This can lead to a widening of the tax base and avoid cumulative side effects of different kinds of transfer payments. As well, higher than 100 per cent combined tax-transfer rates can be ended. In this way the principle of “vertical

equity” can be better realized. A comprehensive income tax base lends the financial scope for diminishing tax progressivity, and especially for reducing the disincentive effects in the lower and middle income brackets. It also leads to a redistributive effect which is more efficient, because redistribution avoids transferring money from one pocket to the other—the most important effect of the present tax and transfer system. A “trade-off between equity and growth” as the consequence of progressive (income) taxation will still remain, but with a more finely tuned tax and transfer system the negative implications of the “trade-off” could be reduced.

NOTES

1. If not otherwise noted, the macroeconomic average tax rate (or more precisely the average tax ratio) is defined in the following as the relation of total taxation (including social security contributions) to gross national product (GNP). The aspects of the nearly simultaneously increasing ratio of public debt to GNP are not handled in this paper.
2. See, *e.g.*, Brunner (1978), Beenstock (1979).
3. Details about the tax structure and a list of the single taxes of the German tax system are given in Table 8-A1 in the Appendix.
4. See, for instance, Wales and Woodland (1979) and the literature cited there.
5. See, *e.g.*, Beenstock (1979).
6. Among these Strümpel (1966) and Engelhardt (1968).
7. See Petersen (1977; 1979b). The income tax reductions in 1975, 1977/78 and 1979 did not change this situation; a corresponding assertion can be made for the income tax reduction planned for 1981.
8. See Koch (1978).
9. This question was posed for two cases: an increase of 10 per cent corresponding to an absolute increase in the tax yield of DM 20 per worker per month and, because this was a relatively small absolute increase, an increase of 100 per cent of the average tax rate corresponding to an absolute increase of DM 200 to DM 400.
10. Adding veracity to the findings, the relatively small reaction of the tax consultants proves that they are the group with the best information about taxation.
11. They were derived as answers to the question: “It is often argued that a further increase of the tax burden would lead to a strong decline in the supply of effort. How would you react?” (The answers “others” and “no answer” are responsible for the failure of the responses to add up to 100 per cent.)
12. The effective average tax rates result from other questions.
13. There are two possible explanations: (1) the lawyers have a high sensibility to taxation without precise information; (2) the growth rates of their supply of effort have already declined. See Koch (1978).
14. For this comparison one has to recognize that in 1975 the maximum marginal tax rate of income taxes was increased from 53 to 56 per cent.

15. This does not include the civil servants (Beamte), who do not pay social insurance contributions in Germany.
16. In the private sector salaries are perhaps somewhat higher.
17. This marginal rate as well as all marginal rates in Table 8.4 exclude the employers contributions to social insurance.
18. In 1979 the limit was at DM 3000 monthly; at this amount the maximum compulsory premium (employee contribution) amounted to DM 195 (6.5 per cent of gross wages).
19. In 1979 the limit was DM 4000 monthly; at this amount the maximum compulsory premium (employee contribution) for retirement insurance amounted to DM 360 (9 per cent of gross wages) and for unemployment insurance, DM 60 (1.5 per cent of gross wages).
20. In this respect Messere (1978, p. 204) observed "the erosion, if not yet the complete collapse of the insurance myth."
21. The same burdens are given for married employees, when husband and wife earn equal amounts.
22. Naturally the self-employed can pay voluntary premiums for private or public retirement insurance, but these premiums are not directly tied to their gross incomes.
23. The church tax amounts to 9 per cent of the income tax yield (in some German states 8 per cent).
24. The separate marginal rates are:
 - (1) wage taxes - 41.7 per cent,
 - (2) social insurance contributions - 17.0 per cent,
 - (3) church taxes - 3.8 per cent,
 - (4) indirect taxes - 7.0 per cent.
25. See Petersen (1981b). In Germany the discussion of the tax burden has become a popular topic for the mass media.
26. See, e.g., Musgrave (1959, p. 268–272).
27. Since no distinction is made between pensioners, entrepreneurs, and employees in the statistics, it is impossible to determine the indirect taxation for employee households alone. Therefore the ratio TPH is too high and the results presented here only indicate tendencies.
28. The implementation of time lags shows that with a time lag of up to three years signs stay negative. Using 5-year moving averages leads partially to an increase in \bar{R}^2 values.
29. If shifting is taken into consideration, which has been excluded from these analyses, other results might occur. For example, as suggested in an OECD Study (1978, p. 83) labour unions might attempt to use wage tax increases as an excuse for higher monetary wages.
30. A similar combination seems to apply today in the U.K., according to a publication of the Institut der deutschen Wirtschaft (1979). Compared to Germany the U.K. must be a "depreciation paradise," but it seems that this combination does not work as well as in the post-war period in Germany.
31. The basic model used is the one created by van der Werf for the Planning Office of the Netherlands.
32. Albach (1970) reached similar results using microeconomic appraisals.
33. The combined tax rate of corporation taxes on retained profits (56 per cent) and of occupation taxes on profits (6.15 per cent at an average collection rate of 325 per cent when taking into consideration the deduction

- allowance of occupation taxes for corporation taxes) amounts to 62.15 per cent; see Institut der deutschen Wirtschaft (1979, p. 3).
34. In 1974 and 1975 there were high negative growth rates.
 35. This tax was only levied in some German communities. This tax was abolished in 1980.
 36. Taxes on private property are included.
 37. Private property is included as well.
 38. See Table 8-A3 in the Appendix.
 39. See the critical remarks about this kind of analysis above.
 40. See Table 8-A2 in the Appendix.
 41. The statistics for 1979–1982 have been extrapolated from the National Accounts Statistics using data from public program planning and the last estimate of tax revenue.
 42. The increase in social security contributions was caused by increases in social security rates by government and social insurance institutions.
 43. Following the definition of the German National Accounts Statistics.
 44. In Sweden (which has the highest average tax rate of all OECD member countries) there is a relatively significant negative correlation for direct as well as indirect taxation; see Petersen (1981b). Some international comparisons of growth rates and tax ratios are given in Table 8-A4 in the Appendix. This table shows that Germany has middle ranks for real growth rates as well as for the tax ratios compared to the other OECD member countries.
 45. Since the last reform of the income tax tariff in 1979 once more we have an accelerated progression in the first area of direct progression.
 46. Because of important differences in tax statistics, wage and assessed income taxes cannot be combined.
 47. See Petersen (1977, pp. 139–218).
 48. For a discussion of the method, see Petersen (1979a).
 49. “Kalte Progression” is defined as an increasing individual average tax rate resulting from purely nominal income increases without the implementation of an adjustment scheme. Naturally, there are special problems connected with the taxation of profits and interest; but especially in the case of profit taxation there are numerous regulations within the German income tax law which make it possible for firms to become more or less resistant to inflation. See, for instance, Petersen (1977, pp. 67–91). Estimations similar to those of Feldstein and Summers (1979) are not available for Germany.
 50. See Petersen (1977).
 51. The deflator for indexation was 1.033 in 1965, 1.105 in 1968, 1.226 in 1971, and 1.480 in 1974.
 52. See Petersen (1981b).
 53. Especially in the case of personal progressive expenditure taxes.
 54. Formerly disincentives on high incomes were most frequently discussed; today they are less important, perhaps because of the numerous possibilities for high income earners to avoid taxes or to gain from tax expenditures.
 55. Here one only has to mention the numerous articles written about the “comprehensive tax base.”

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STATISTICAL APPENDIX

TABLE 8-A1

Shares of Single Taxes to Total Tax Revenue

| Taxes | Revenue of Single Taxes to Total Tax Revenue in Per Cent | | | | | | | | | | |
|---------------------------------|--|------|------|------|------|------|------|------|------|--------------------|--------------------|
| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 ¹⁾ | 1980 ¹⁾ |
| 1. taxes on income and wealth | 53.3 | 54.0 | 55.6 | 58.1 | 60.0 | 58.7 | 59.7 | 61.8 | 59.9 | 58.5 | 57.8 |
| among them taxes on | | | | | | | | | | | |
| —income | 40.7 | 41.5 | 43.1 | 45.6 | 47.5 | 46.3 | 47.2 | 49.0 | 47.9 | 46.9 | 47.9 |
| —wealth | 4.7 | 4.3 | 3.8 | 3.5 | 3.5 | 3.7 | 3.8 | 3.9 | 3.5 | 3.1 | 2.8 |
| —business | 7.9 | 8.2 | 8.7 | 9.0 | 9.0 | 8.6 | 8.7 | 8.9 | 8.5 | 8.5 | 7.1 |
| 2. taxes on wealth transactions | 1.4 | 1.4 | 1.3 | 1.1 | 1.0 | 1.1 | 1.3 | 1.0 | 1.0 | 1.1 | 1.1 |
| 3. taxes on income spending | 45.3 | 44.6 | 43.0 | 40.7 | 39.0 | 40.3 | 39.0 | 37.2 | 39.1 | 40.4 | 41.1 |
| among them | | | | | | | | | | | |
| —sales taxes | 25.4 | 25.6 | 24.3 | 22.5 | 21.8 | 22.8 | 22.2 | 21.4 | 23.4 | 24.9 | 26.2 |
| —motor vehicle tax | 2.5 | 2.4 | 2.4 | 2.2 | 2.2 | 2.2 | 2.1 | 2.0 | 2.0 | 2.1 | 1.9 |
| —mineral oil tax | 7.5 | 7.2 | 7.2 | 7.4 | 6.7 | 7.1 | 6.8 | 6.4 | 6.4 | 6.4 | 6.2 |
| —customs | 1.9 | 1.8 | 1.6 | 1.4 | 1.4 | 1.3 | 1.4 | 1.2 | 1.2 | 1.1 | 1.1 |
| —others | 8.0 | 7.6 | 7.5 | 7.2 | 6.9 | 6.8 | 6.5 | 6.2 | 6.1 | 5.9 | 5.7 |

1) Estimate

Structure for the single groups:

| | |
|-------------------------------|---|
| Taxes on income | wage tax, assessed income tax, dividend tax, corporation tax. |
| Taxes on wealth: | wealth tax, land tax, equalization fees. |
| Taxes on business: | occupation tax, payroll tax. |
| Taxes on wealth transactions: | inheritance tax, realty transfer tax, stamp duty, capital movement tax. |
| Taxes on sales: | VAT, import levy, freight traffic taxes, premium tax. |
| Taxes on consumption: | tobacco tax, tax on liquors, champagne tax, beer tax, coffee tax, tea tax, sugar tax, vinegar tax, salt tax, tax on lighting materials, lottery tax, other local taxes. |

Source: Bundesministerium der Finanzen (1979).

TABLE 8-A2

Growth Rates of Real Gross National Product \dot{Y} , Total Tax Ratio T , Direct Tax Ratio T_{DIR} , Indirect Tax Ratio T_{IND} , and Ratio of Social Security Contributions T_{SOC}

| Year | \dot{Y} (In Per Cent) | T (In Per Cent of Y) | T_{DIR} (In Per Cent of Y) | T_{IND} (In Per Cent of Y) | T_{SOC} (In Per Cent of Y) |
|------|----------------------------|---------------------------|---------------------------------|---------------------------------|---------------------------------|
| 1951 | 10.45 | 30.82 | 8.50 | 13.78 | 8.53 |
| 1952 | 8.89 | 32.12 | 9.47 | 14.26 | 8.39 |
| 1953 | 8.22 | 32.76 | 9.88 | 14.18 | 8.70 |
| 1954 | 7.44 | 32.29 | 9.50 | 14.05 | 8.74 |
| 1955 | 12.00 | 31.37 | 8.67 | 13.94 | 8.77 |
| 1956 | 7.29 | 31.51 | 8.85 | 13.80 | 8.86 |
| 1957 | 5.68 | 32.07 | 8.64 | 13.61 | 9.83 |
| 1958 | 3.73 | 32.14 | 8.36 | 13.28 | 10.50 |
| 1959 | 7.30 | 32.53 | 8.66 | 13.59 | 10.28 |
| 1960 | 9.02 | 33.03 | 9.24 | 13.77 | 9.19 |
| 1961 | 4.87 | 34.20 | 10.19 | 13.92 | 9.21 |
| 1962 | 4.42 | 34.61 | 10.49 | 13.87 | 9.38 |
| 1963 | 2.98 | 34.79 | 10.59 | 13.81 | 9.50 |
| 1964 | 6.63 | 34.44 | 10.60 | 13.69 | 9.27 |
| 1965 | 5.54 | 33.81 | 9.96 | 13.56 | 9.37 |
| 1966 | 2.53 | 34.28 | 10.13 | 13.43 | 9.76 |
| 1967 | - 0.13 | 34.63 | 10.00 | 13.76 | 9.86 |
| 1968 | 6.50 | 34.33 | 10.25 | 13.00 | 10.06 |
| 1969 | 7.89 | 36.32 | 10.69 | 14.14 | 10.43 |
| 1970 | 5.88 | 35.57 | 10.73 | 12.84 | 10.89 |
| 1971 | 3.34 | 36.36 | 11.24 | 12.75 | 11.19 |
| 1972 | 3.65 | 36.95 | 11.01 | 13.00 | 11.74 |
| 1973 | 4.91 | 39.25 | 12.59 | 12.87 | 12.52 |
| 1974 | 0.35 | 39.67 | 13.01 | 12.38 | 12.90 |
| 1975 | - 1.75 | 39.05 | 11.96 | 12.24 | 13.48 |
| 1976 | 5.28 | 40.44 | 12.78 | 12.28 | 13.97 |
| 1977 | 2.55 | 41.71 | 13.75 | 12.45 | 14.11 |
| 1978 | 3.52 | 41.14 | 13.01 | 12.73 | 14.14 |
| 1979 | 4.36 | 40.89 | 12.68 | 12.85 | 14.07 |
| 1980 | 1.50 | 41.19 | 12.93 | 12.79 | 14.10 |
| 1981 | 1.00 | 41.77 | 13.38 | 12.72 | 14.13 |
| 1982 | 2.50 | 42.61 | 14.22 | 12.68 | 14.21 |

Source: 1950-1978, Statistisches Bundesamt (1950-1979). 1978-1982, Estimates.

TABLE 8-A3

Growth Rates of Real Savings for Private Households \dot{S} , and the Ratios TPH, TPHT, and TPHSOC and the Growth Rates of Real Private Investments \dot{i} , and the Ratios TCW, TCWT, and TCWSOC

| Year | \dot{S} | TPH | TPHT | TPHSOC | \dot{i} | TCW ^a | TCWT | TCWSOC |
|------|-----------|-------|-------|--------|-----------|------------------|-------|--------|
| 1960 | 4.59 | 33.53 | 25.29 | 8.25 | 7.00 | 54.30 | 35.73 | 18.57 |
| 1961 | 10.56 | 33.88 | 25.87 | 8.01 | 6.50 | 58.58 | 39.10 | 19.49 |
| 1962 | -0.44 | 34.04 | 25.96 | 8.08 | 2.70 | 61.38 | 40.77 | 20.61 |
| 1963 | 19.55 | 34.07 | 26.00 | 8.07 | -1.10 | 63.37 | 41.65 | 21.72 |
| 1964 | 21.87 | 34.65 | 26.59 | 8.06 | 9.30 | 59.69 | 39.27 | 20.42 |
| 1965 | 16.68 | 33.84 | 25.73 | 8.11 | 5.70 | 58.21 | 37.46 | 20.76 |
| 1966 | -2.28 | 34.05 | 25.72 | 8.33 | 1.30 | 60.18 | 37.96 | 22.22 |
| 1967 | -2.05 | 35.27 | 26.76 | 8.51 | -6.40 | 58.47 | 36.59 | 21.88 |
| 1968 | 16.98 | 35.29 | 26.45 | 8.85 | 3.50 | 56.27 | 34.68 | 21.59 |
| 1969 | 15.19 | 37.66 | 28.49 | 9.18 | 10.90 | 62.01 | 38.42 | 23.59 |
| 1970 | 6.42 | 37.57 | 28.34 | 9.24 | 10.60 | 54.24 | 30.23 | 24.00 |
| 1971 | 2.57 | 38.19 | 29.05 | 9.14 | 7.80 | 55.98 | 30.16 | 25.82 |
| 1972 | 14.93 | 38.10 | 28.69 | 9.41 | 4.50 | 61.26 | 32.51 | 28.74 |
| 1973 | -3.30 | 39.36 | 29.55 | 9.81 | 0.30 | 68.90 | 37.15 | 31.75 |
| 1974 | 8.34 | 39.00 | 29.22 | 9.78 | -13.20 | 70.72 | 37.06 | 33.66 |
| 1975 | 5.17 | 38.59 | 28.27 | 10.32 | -4.50 | 67.48 | 33.42 | 34.06 |
| 1976 | -9.05 | 39.92 | 29.07 | 10.86 | 6.50 | 70.80 | 35.81 | 34.99 |
| 1977 | -5.12 | 40.61 | 29.62 | 10.99 | 5.50 | 73.14 | 38.54 | 34.60 |
| 1978 | 2.38 | 40.90 | 29.87 | 11.03 | 6.00 | 72.60 | 37.57 | 35.03 |

^a Social security contributions of public employees included (for "Beamte" only fictitious contributions).

Source: Statistisches Bundesamt (1960-1979).

TABLE 8-A4

Mean Real Growth Rates of GNP/GDP and the Tax Ratios T, TDIR, and TIND, and the Shares of Direct TDIR/T, and Indirect Taxation TIND/T to Total Taxation for OECD Member Countries (1965-1977)

| | Y _R (MEAN) | RANK No. | T (MEAN) | RANK No. | TDIR ^a (MEAN) | RANK No. | TIND (MEAN) | RANK No. | TDIR/T (MEAN) | RANK No. | TIND/T (MEAN) | RANK No. |
|----------------|--------------------------|-------------|-------------|-------------|-----------------------------|-------------|----------------|-------------|------------------|-------------|------------------|-------------|
| Australia | 4.49 | 10 | 26.71 | 17 | 20.17 | 15 | 6.54 | 19 | 75.44 | 3 | 24.56 | 21 |
| Austria | 4.54 | 8 | 36.90 | 5 | 21.19 | 13 | 15.70 | 2 | 57.36 | 19 | 42.64 | 5 |
| Belgium | 4.10 | 12 | 36.55 | 7 | 24.72 | 6 | 11.83 | 9 | 67.24 | 12 | 32.76 | 12 |
| Canada | 4.90 | 6 | 30.92 | 14 | 20.02 | 16 | 10.89 | 11 | 64.59 | 14 | 35.41 | 10 |
| Denmark | 3.55 | 17 | 38.84 | 4 | 24.18 | 7 | 14.66 | 4 | 61.94 | 15 | 38.06 | 9 |
| Finland | 4.08 | 14 | 35.08 | 9 | 21.34 | 11 | 13.75 | 6 | 60.49 | 17 | 39.51 | 7 |
| France | 4.58 | 7 | 36.23 | 8 | 22.08 | 10 | 14.15 | 5 | 60.84 | 16 | 39.16 | 8 |
| Germany | 3.58 | 16 | 34.30 | 11 | 23.87 | 8 | 10.44 | 13 | 69.41 | 10 | 30.59 | 14 |
| Greece | 6.22 | 3 | 24.07 | 19 | 12.21 | 21 | 11.86 | 8 | 50.55 | 22 | 49.45 | 2 |
| Ireland | 3.78 | 15 | 31.11 | 12 | 15.50 | 18 | 15.61 | 3 | 49.65 | 23 | 50.35 | 1 |
| Italy | 4.10 | 12 | 31.08 | 13 | 20.28 | 14 | 10.80 | 12 | 65.04 | 13 | 34.96 | 11 |
| Japan | 8.00 | 1 | 19.98 | 22 | 14.57 | 19 | 5.41 | 23 | 72.55 | 7 | 27.45 | 17 |
| Luxembourg | 2.96 | 19 | 36.59 | 6 | 28.70 | 3 | 7.89 | 17 | 78.20 | 2 | 21.80 | 22 |
| Netherlands | 4.33 | 11 | 41.42 | 2 | 30.42 | 1 | 11.01 | 10 | 73.31 | 6 | 26.69 | 18 |
| New Zealand | 2.84 | 20 | 28.72 | 16 | 21.33 | 12 | 7.39 | 18 | 74.04 | 5 | 25.96 | 19 |
| Norway | 4.51 | 9 | 41.29 | 3 | 24.74 | 5 | 16.55 | 1 | 59.87 | 18 | 40.13 | 6 |
| Portugal | 5.70 | 4 | 22.39 | 20 | 12.08 | 22 | 10.31 | 14 | 53.85 | 21 | 46.15 | 3 |
| Spain | 5.45 | 5 | 18.56 | 23 | 12.62 | 20 | 5.94 | 21 | 67.46 | 11 | 32.54 | 13 |
| Sweden | 2.47 | 22 | 42.56 | 1 | 30.30 | 2 | 12.25 | 7 | 70.88 | 9 | 29.12 | 15 |
| Switzerland | 2.48 | 21 | 25.18 | 18 | 18.96 | 17 | 6.21 | 20 | 74.80 | 4 | 25.20 | 20 |
| Turkey | 6.70 | 2 | 20.22 | 21 | 11.32 | 23 | 8.90 | 16 | 55.13 | 20 | 44.87 | 4 |
| United Kingdom | 2.23 | 23 | 35.01 | 10 | 24.99 | 4 | 10.03 | 15 | 71.28 | 8 | 28.72 | 16 |
| United States | 3.38 | 18 | 29.02 | 15 | 23.52 | 9 | 5.50 | 22 | 81.01 | 1 | 18.99 | 23 |

^a Social security contributions included.

Source: Petersen (1981b, Tables 2 and 7).

Chapter 3:

Impact of Taxation and Tax Reform

3.1.

Impact of the Tax System. Federal Republic of Germany

(Walter Block and Michael Walker (Eds): Taxation: An International Perspective, The Fraser Institute, Vancouver, B. C. 1984, pp 283 – 329)

3.2.

Marginal Tax Burden - A Case Study of Austria and the Federal Republic of Germany

Co-author Johann K. Brunner

(Empirica (Austrian Economic Papers), Stuttgart, Vol. 12 (1985), pp 209 – 226)

3.3.

Further Results on Income Tax Progression

(Zeitschrift für Wirtschafts- und Sozialwissenschaften, Berlin, 101. Jg. 1981, pp 45 – 59)

3.4.

The German Tax and Transfer System: A Problem Oriented Overview

(Hans-Georg Petersen and Patrick Gallagher (Eds): Tax and Transfer Reform in Australia and Germany. Australia Center Potsdam, Berlin 2000, pp 13 – 40)

3.5.

Globalisation, Capital Flight and Capital Income Taxation

(Tax Notes International, Vol. 33, No. 10, March 2004, pp 887 – 897)

Marginal Tax Burden

A Case Study of Austria and the Federal Republic of Germany

Johann K. Brunner, Hans-Georg Petersen

Zusammenfassung

Bei der Beurteilung etwaiger leistungshemmender Wirkungen der Steuer- und Abgabensysteme muß insbesondere die Grenzabgabenbelastung analysiert werden; sie ist sowohl in Österreich als auch in der Bundesrepublik Deutschland in der jüngeren Vergangenheit stark angestiegen. Mit diesem Beitrag wird versucht, die gesamte Grenzabgabenbelastung (aus direkten und indirekten Steuern sowie Sozialabgaben) für beide Länder approximativ zu bestimmen. Dabei scheint der Vergleich zwischen Österreich und Deutschland besonders interessant zu sein, da es im Steuer- und Sozialrecht einerseits weitgehende Gemeinsamkeiten in der historischen Entwicklung gibt, andererseits aber auch grundlegende Divergenzen bestehen, so beispielsweise im unterschiedlichen Gewicht von direkter und indirekter Besteuerung. Über etwaige Wirkungszusammenhänge werden abschließend einige spekulative Überlegungen angestellt.

1. Introduction

In Austria as well as in Germany the burden of taxes and social security contributions has grown strongly since the end of World War II — a development which is clearly indicated by an increase in the ratio of tax revenue to GDP. But for an assessment of the consequences of an increasing tax burden, the marginal tax rate is of more interest than the average value. Disregarding for the moment the effects of the government's respending of revenue, taxes usually show an income effect (reduction of disposable income) and a substitution effect (reduction of factor supply). The latter depends on the alteration of the relative prices (of work and leisure) and therefore on the value of the marginal tax rate, while the average tax rate determines the tax revenue (and the income effect).

In analysing possible negative effects of a tax system on productive efforts, the main focus must be on the distribution of the marginal tax burden. With respect to the time trend of the marginal tax burden, comparative international studies have shown that the marginal tax burden has risen even faster than the average tax burden. It is the aim of our study to determine at least approximately the extent of the marginal tax incidence and — as far as possible — its distribution by income classes. For this purpose a comparison between Austria and Germany seems especially interesting.

There exist far-reaching similarities in the historical development of the tax and social security systems, but also fundamental differences, as for example, the relative importance of direct and indirect tax revenues(1). Moreover, there have been continual attempts in both countries over the last 30 years to undertake a fundamental reform of the tax system — especially with regard to the income tax — but without any real success.

Chapter 2 of the study presents a comparative analysis of the burden of the income tax, in which we first investigate the tax rates and then the tax base. In Chapter 3 we attempt — insofar as data are available — to roughly assess the marginal burden of indirect taxes; in Chapter 4 we include the social security contributions. Then we tentatively quantify the overall marginal burden of taxes and social security contributions in Chapter 5. We also briefly mention the effects of income-related transfers; these transfers often raise the marginal tax rate drastically when cancelled as a result of a purely inflation-induced increase in income. Finally, we speculate on the consequences of our findings. Our study is a first and imperfect attempt to provide some empirical estimates; it does not present a comprehensive model of the behavioural consequences of the marginal tax burden. At best, we can provide some suggestions as to where further empirical studies are needed.

2. Tax rates and effective burden of the income tax

The marginal and average tax rates for different incomes can be derived from the official income tax schedule. But these schedule tax rates are not the effective ones because the tax base according to the tax schedule (“taxable income“) differs from gross income by tax deductions, exemptions, tax credits, etc. In addition to some general lump-sum deductions for every taxpayer, there exists a whole string of exemptions for certain groups, and even for individual taxpayers, which reduce either the tax base or the tax rate. The abundance of these tax exemptions has led to an increase in the discrepancy between the schedule tax rates and the effective tax rates. This large discrepancy is decried by many because it undermines the progressivity of the tax schedule which is derived from the ability-to-pay and the redistribution principles.

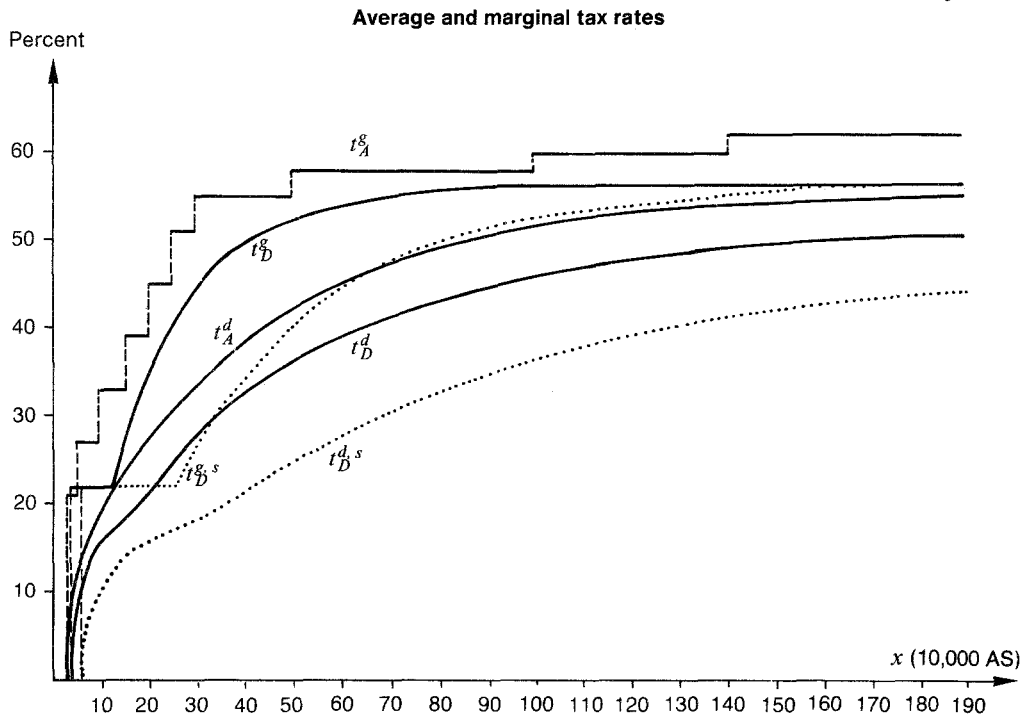
2.1 The income tax schedule

Despite several modifications(2), taxes as a proportion of income have grown strongly during the last decades because of the so-called hidden tax increase — especially the inflation-induced bracket creep (see *Petersen, 1979*). The following comparison of the Austrian and German income tax schedules refers to the tax codes in effect from January 1985. The schedules differ fundamentally in their construction: the Austrian is a marginal rate schedule with 10 income brackets; the German schedule has different formulas for the various sections, namely, polynomials up to the fourth degree(3). Both schedules are progressive

throughout, because the average tax rate increases over the whole range. While the Austrian schedule shows an indirect progressivity within all brackets, the German schedule is indirectly progressive in the second and fifth sections, and directly progressive in the third and fourth sections.

An essential difference is that in Austria the principle of individual taxation is applied, while in Germany the principle of household taxation with income splitting for married couples is used. With the latter, the same tax schedule is applied to the taxation of married couples: the tax is calculated with respect to one half of the joint taxable income. The resulting amount is doubled to arrive at the income liability of the spouses. In the Austrian tax schedule, the only allowance for married couples is a tax credit of AS 3,900 per year, if only one spouse earns income. Clearly this reduction of the tax bill is almost negligible compared with the effect of income splitting(4). In the following analysis we assume that only one spouse is a wage-earner; only in such a case is a comparison of the tax schedules immediately possible.

Figure 1



t^s = Marginal tax rate, s = splitting schedule, D = Federal Republic of Germany
 t^d = average tax rate, A = Austria,

Source: Own computations.

Figure 1 shows especially interesting graphs of the marginal tax rates t^g of the Austrian and the German (normal and splitting) income tax schedules. To facilitate a comparison, the corresponding graphs of the average tax rates t^d are also included. The graph of the Austrian marginal tax rate lies considerably above the German one, with the exception of a small interval between approximately AS 29,500 and 50,000. The main difference is due, of course, to the German splitting method.

A comparison of the tax incidence not involving a couple with one wage-earner is more difficult, for in Austria the average and marginal tax burden of married couples is not determined by the institution of "marriage", but by the division of the total household income between the spouses. Though detailed computations have not been made, we may state the following: in Germany taxation of the second wage-earner's income starts at the first wage-earner's marginal tax rate. In Austria, however, the income of a second gainfully employed spouse is subject to the normal marginal tax rate, if after allowing for several deductions, exemptions, and credits a tax liability exists at all. If the second wage-earner's income is low, the marginal burden is lower in Austria; but this difference decreases as the income of the second wage-earner rises, because the marginal tax burden of the Austrian tax schedule grows much faster than that of the German splitting schedule.

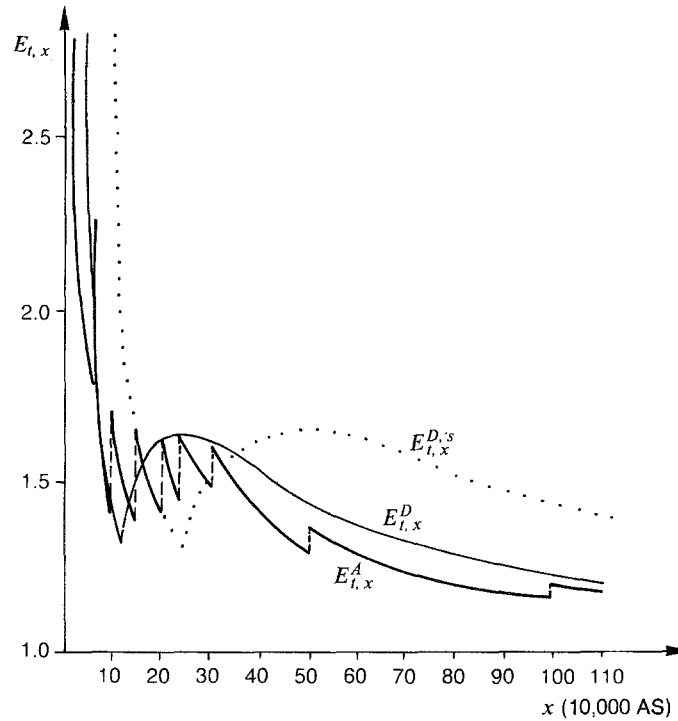
Figure 2 shows the corresponding yield elasticities $E_{t,x}$ of the income tax(5). The German income tax schedule shows a delayed progressivity up to an income of AS 126,000 (splitting schedule: AS 252,000) and above approximately AS 245,000 (splitting schedule: AS 490,000); in between progressivity is strongly accelerated. On the contrary, the Austrian marginal rate schedule possesses a delayed progressivity over the whole range. Nevertheless, a comparable acceleration of progressivity is brought about by an appropriate choice concerning the length of the intervals and the extent of the jumps in the marginal tax rates. One may suppose that in both countries the bulk of the income lies within these brackets so that the tax yield is also concentrated there. A severe progressivity in the central range between AS 210,000 and AS 420,000 is also indicated by the residual income elasticities $E_{x^r,x}$, whose graphs are included in Figure 3. It can be seen that similar ranges of incomes are affected by the redistribution of income, but the Austrian residual income elasticities exhibit considerably lower values over some intervals.

2.2 Deductions, exemptions, and the tax base

The scheduled marginal and average burden, as well as the distributive and redistributive effects, are substantially reduced and modified by numerous deductions and exemptions. Both instruments have been carried to such extremes in some countries that the problem of an increasing "erosion of the income tax base" has arisen. But a declining tax base necessitates an increase in the marginal tax rates in order to sustain a desired tax revenue, and leads thereby to a stronger progression of the tax schedule. This in turn creates incentives, not only for tax avoidance but also for tax evasion, which further reduce the tax base.

Figure 2

Yield elasticities



$E_{t,x}$ = Yield elasticity, A = Austria,
 s = splitting schedule, D = Federal Republic of Germany

Source: Own computations.

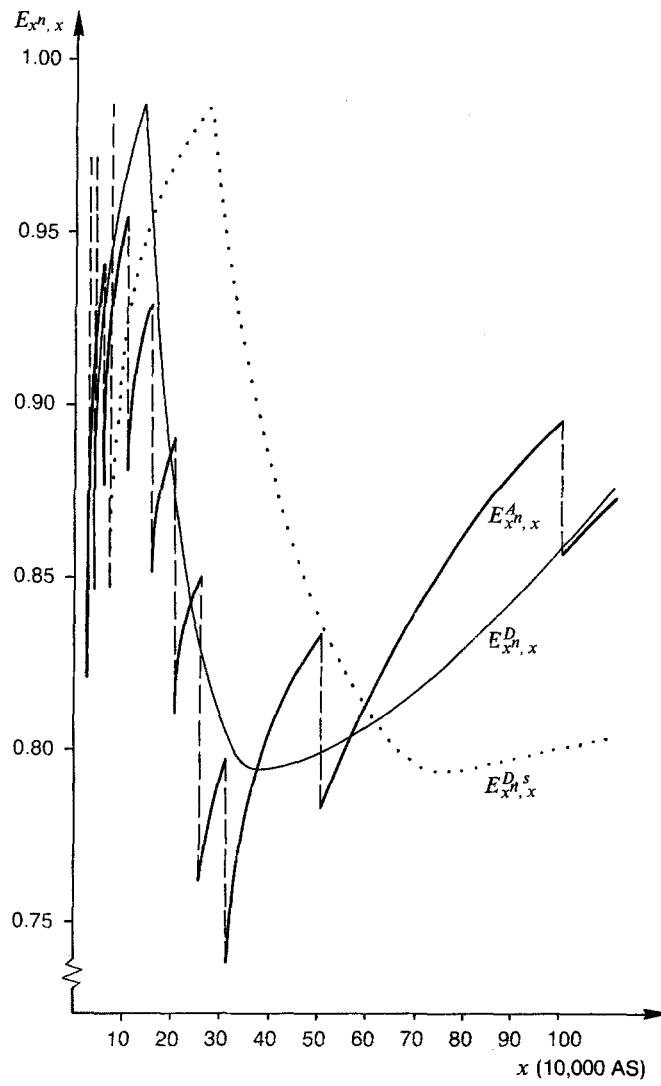
2.2.1 The situation in Germany

First, there exists a long string of personal exemptions and deductions, classic instruments for adjusting the income tax to different individual circumstances, but also reducing the tax base(6). Because these deductions are mainly of a general nature, their differentiating effect is rather low. They do, however, strongly reduce the effective average tax rates relative to the schedule rates especially for lower incomes. Second, and of much higher quantitative significance, is the reduction in tax revenues because of preferential tax provisions for married couples, public pensions(7) and owner-occupied residences(8).

Table 1 shows the extent of some tax preferences for households. The loss of tax revenue stemming from the splitting system was estimated using a wage and income tax-simulation

Residual income elasticities

Figure 3



$E_{x^n, x}$ = Residual income elasticities, A = Austria,
 s = splitting schedule, D = Federal Republic of Germany.

Source: Own computations.

Table 1

Tax preferences and subsidies in the FRG

| | 1973 | 1974 | 1979 | 1980 | 1981 |
|--|----------------|-------|-------|-------|-------|
| | Billions of DM | | | | |
| Tax preferences for private households(1) | | | | | |
| Splitting | 20.7 | 20.3 | 34.5 | 37.5 | 42.0 |
| Public pension taxation | 12.9 | 13.4 | 21.5 | 23.8 | 25.6 |
| Public pension taxation (government employees) | 1.7 | 1.8 | 2.8 | 3.1 | 3.3 |
| Taxation of owner occupied residences | 2.3 | 2.7 | 3.6 | 4.1 | 4.3 |
| Tax preferences for firms(2) | 19.3 | 20.7 | 31.3 | 33.9 | 34.6 |
| Subsidies(2) | 42.3 | 47.1 | 76.9 | 78.5 | 78.9 |
| Tax preferences and subsidies(2) | 99.2 | 106.0 | 170.6 | 180.9 | 188.7 |
| Yields of income and corporate income tax(3) | 100.6 | 111.7 | 161.3 | 173.9 | 174.3 |

(1) Own computations and estimations. — (2) *Jüttemeier* (1984B). — (3) Bundesministerium der Finanzen (current).

model based on the statistics of the wage and income tax. The loss grew from 20.7 billion German Marks (DM) in 1973 to DM 42.0 billion in 1981. The loss due to tax preferences for households receiving public pensions was estimated from an own simulation model using data on the German income distribution of the German Institute of Economic Research (DIW), Berlin. *Hauser et al.* (1977) estimated the loss of tax revenue due to the preferential treatment of owner-occupied residences for 1969; the result was updated assuming a weighted yield elasticity. In summary, these tax preferences for private households amounted to DM 75.2 billion in 1981, i. e., 43.1 percent of the total revenue of wage, income, and corporate income taxes (DM 174.3 billion, compare Table 1).

In addition to these tax preferences for private households, there exists a long list of other preferences favouring households and, to a greater degree, firms. A list of preferences (see Table 1) was compiled by *Jüttemeier* (1984A) in connection with the report on the German economic structure. The loss of tax revenue from tax exemptions grew from DM 19.3 billion in 1973 to DM 34.6 billion in 1981 (see Table 1). The total volume of tax preferences amounts to DM 109.8 billion, i. e., 63 percent of the income and corporate income tax revenue.

In addition to these legal means of reducing the tax liability, the practice of not reporting parts of household income to the tax authorities is widespread — not counting the tax evasion associated with the black economy. The resulting losses of tax revenues may amount to more than DM 10 billion. Altogether, deductions, preferences, and tax evasion reduce either the tax base or tax revenues drastically. As a result, the schedule tax burden is normally much higher than the effective tax burden imposed on gross income; this applies to the schedule average tax rate, much less to the marginal tax rate. The situation is further aggravated by the tendency of many tax preferences to favour higher incomes.

2.2.2 The situation in Austria

Although the striking discrepancy between high schedule tax rates and far lower effective tax rates has been viewed as a serious problem for some decades (see, e. g., *Kausel*, 1966, *Weber*, 1962), detailed empirical studies on this subject are rare. The considerable erosion of the tax base results from the numerous exemptions allowed in the Austrian income tax law. Usually these exemptions are justified on the grounds that a fair tax system must allow for different individual and job-specific circumstances, and that tax incentives help promote and control economic activities. The great number of exceptions are, however, the root of the comparatively strong progressivity of the Austrian tax system which is necessary to ensure sufficient revenues.

For wage-earners, the main cause of the large difference between gross income and taxable income lies in the treatment of the so-called "supplementary wages and salaries" (especially the Christmas and holiday bonuses which amount to one month's earnings each). If they do not exceed one-sixth of the regular earnings per year, a fixed tax rate between 0 and 6 percent (depending on the number of children of the taxpayer) is applied to them (§ 67 of the income tax code). Severance payments are subject to the same rate. The original aim of this provision was a simplification of the tax collection, but in the course of time it became the most important tax preference for wage-earners(9). The report on subsidies in 1982 estimated the loss in wage tax revenue due to this provision at AS 25 billion, i. e., more than one third of the total wage-tax yield. This amount could obviously be used to lower tax rates considerably, tax rates which are highly progressive even for average incomes. But this opportunity has not yet been taken advantage of, for a lack of political will: such a moderation would sacrifice a tax preference of a special group (the wage-earners), while given the system of a synthetic income tax, the advantage of a lower tax schedule would be general.

The most important provision reducing the tax base of the self-employed is the system of indirect investment promotion which has been practised since the years after World War II(10). The static partial equilibrium loss of tax revenues resulting from these provisions amounts to approximately one-sixth of the total income tax revenues. In contrast to the preferential treatment of "supplementary wages and salaries" of wage-earners, the promotion of investment via tax incentives has been a targeted measure of economic policy, and its cancellation in favour of a milder progressivity of the tax schedule would constitute a major policy change.

In addition to the items mentioned above, there are many more provisions eroding the tax base which were introduced to allow for reduced ability-to-pay and also to influence individual behaviour. Other reasons for a decrease in tax payments are, of course, tax evasion (the extent of which is almost impossible to uncover), and the existence of a parallel economy (see *Lehner*, 1983). All these revenue losses contribute to the strong progressivity of the tax schedule, beginning with relatively low incomes (the so-called "middle class

paunch"); the marginal tax rate of the wage-earner with an average income is 33 percent; it increases rapidly to 45 or 51 percent for higher incomes.

Our comparison reveals that in Austria certain tax preferences are designed as tax credits (for single wage-earners) or as transfer payments (child benefit payments). These provisions, aimed at changing the income distributions, actually tend to strengthen the progressivity of the tax schedule(11). In Germany, child deductions were introduced anew; the deductible amount will be sharply increased in the course of the 1986 income tax reform.

3. The marginal burden of indirect taxes

The value-added tax forms the second important tax source. Some special excise taxes also play a fairly significant role. From a traditional point of view, these taxes are thought to be less perceptible because they do not reduce disposable income at its source — as does wage tax (pay-as-you-earn system) — but lay a burden on the consumptive expenditures of households by increasing the prices of goods and services. The consumer, however, may not become aware of the extent of this burden. Exactly this alleged imperceptibility has recently led to a certain renaissance of indirect taxation: a shift from direct to indirect taxation was favoured even by ministers of finance who are members of the German Socialist Party (SPD), though a reduction of indirect taxes has been a traditional postulate of the SPD since Ferdinand Lassalle's famous discourse on "Indirect Taxes and the Situation of the Working Classes," stressing the regressive effects of these taxes. The reason for this renewed interest may lie in the hope that higher indirect taxation may help to avoid raising income taxes beyond a certain psychological threshold. A further increase in marginal tax rates is feared to induce drastic adjustments of individual behaviour.

But this hope of a successful shift to indirect taxation may be unrealistic for two reasons: first, the substitution of a general turn-over tax by a value-added tax makes an important part of indirect taxation much more perceptible. Second, international comparative studies show that the so-called indirect tax illusion is not independent of the prevailing level of the indirect tax burden. For, like money illusion which disappears with a rising inflation rate, the indirect tax illusion diminishes with an increasing tax burden (see *Petersen*, 1981). In this case, the shift from direct to indirect taxation for the purpose of exploiting the indirect tax illusion cannot reduce the perceptibility of the total marginal burden of the tax system.

3.1 The situation in Germany

There has been a long discussion about the regressive effects of present indirect taxation in Germany. The question is whether the average burden of indirect taxes decreases with increasing incomes. Computations by *Bedau — Göseke* (1977) indicate, however, a pro-

portional distribution of the indirect tax burden for a wide range of incomes; a weak regressive effect could be found only for very high incomes. This may be the case because goods and services for basic needs are subject to only half the rate which applies to other goods and services(12). To be sure, the extent of the indirect tax burden varies markedly with income, with the type of household, and especially with the number of children.

The marginal burden of indirect taxes is mainly determined by the value of the marginal rate of consumption and by the composition of consumption expenditures, because consumption goods are not only subject to different rates of the value-added tax, but also to different excise taxes. An analysis of these determinants by the Rheinisch-Westfälische Institute of Economic Research in Essen (RWI) yields a result contrary to that of Bedau and Göseke, namely, that the marginal burden of indirect taxes is significantly regressive in relation to gross income for all households. In 1977 it amounted to approximately 7 to 8 percent for lower and average incomes (up to a gross household income of approximately AS 17,500 per month) and fell to 1 to 2 percent for the highest incomes (about AS 56,000 per month) (see *Karrenberg — Kitterer*, 1979). Allowing for the rise in the tax rates which took place after 1977 for the value-added tax(13) and for some excise taxes (tobacco, spirits, champagne, and petrol), the marginal tax burden is now likely to reach 9 percent.

3.2 The situation in Austria

A comprehensive and detailed study of the extent and distribution of the burden of indirect taxes in Austria does not exist. Here we can only try to provide some rough estimates. The normal rate of the value-added tax in Austria amounts to 20 percent (since 1984). A lower rate of 10 percent applies to food, housing rents, various services, and professional activities; "luxury" goods like cars or jewelry are subject to a higher rate of 32 percent. Weighting these different tax rates (in a rather crude manner) with the aid of the Austrian consumer expenditure survey of 1974, an average rate of 15 percent can be derived on consumption expenditures (for comparison: *Lehner*, 1984, computed an average burden of 11.7 percent on a macroeconomic basis in 1982, i. e., before the tax rates were raised by 2 percentage points and 7 percentage points (energy)).

Assuming 0.75(14) as a plausible value for the marginal rate of consumption, we obtain a marginal burden of the value-added tax of more than 11 percent on disposable income. An approximate allowance for the burden of excise taxes whose revenue totals one fourth of that of the value-added tax raises the marginal burden on disposable income to about 14 percent. In relation to average gross income, this amounts to approximately 8 percent (see Chapter 4).

As long as no detailed studies are available, these estimates, imperfect as they are, may serve as a basis for comparing the incidence of indirect taxes in both countries: the marginal tax burden on gross income in Austria does not differ markedly from that in Ger-

many, though the share of indirect taxes is greater in Austria than in Germany, and the ratios of total taxes to GDP do not differ significantly from each other. One apparent reason for this discrepancy is our very rough estimate of the figure for Austria(15). Furthermore, the higher marginal rate of the Austrian income tax reduces the share of the indirect taxes in the total marginal burden imposed on gross income by definition. One substantive explanation of this discrepancy, however, may relate to the export structures of these countries. Tourist revenues subject to indirect taxes amount to 19 percent of total exports in Austria; this ratio is about 2.5 percent in Germany. This indicates that in Austria part of the comparatively high receipts from indirect taxes is paid by foreign tourists.

4. Social security contributions

The practice of financing social security systems via contributions is in general derived from the benefit principle and modified for reasons of social justice. Thus, on the face of it, social security contributions are different from taxes: social security contributions are compulsory payments which are usually associated with specific (immediate or future) returns; taxes are compulsory payments without specific returns where the ability-to-pay principle and the principle of redistribution of incomes are applied instead of the benefit principle. From an economic viewpoint, however, the differences between social security contributions and taxes are immaterial: the exact equivalence of payments and returns prevailing in private insurance systems is violated in social security, especially because the latter is used as an instrument for redistributive purposes.

For this reason, social security contributions resemble compulsory payments such as taxes earmarked for special purposes. Regarding the increasing importance of redistributive elements, Messere stated that "the last decade has witnessed in the industrialized countries of western Europe the erosion, if not yet the complete collapse, of the insurance myth"(16). Moreover, the psychological advantage of social security contributions vanishes if it leads — alone or in connection with direct taxes — to such a high burden that the individual taxpayer becomes conscious of it (see *Pfaff — Schneider*, 1979). Then taxes and social security contributions may be perceived as a single burden so that the incentive effects of both are quite similar.

The public retirement insurance (GRV), the public health insurance (GKV), and the unemployment insurance make up the German social security system. The employees' contributions to GRV amount to 9.35 percent of gross income (excluding employers' contributions) up to an income of AS 453,600 per year(17). Incomes in excess of this limit are exempt from social security contributions. Thus, the burden is proportional to income up to the limit mentioned above, i. e., marginal and average rates are equal. Above this limit the average rate decreases, while the marginal rate is zero. The contribution rate for GKV varies for different regional health insurance institutions and amounts presently to about 6.25 percent

up to a limit of AS 340,200 of gross income. The employees' contributions to the unemployment insurance amount to 2.2 percent of gross income with the same limit as for GKV.

Altogether, the burden of social security contributions is 17.8 percent of gross income, up to the respective limits. The employers have to match this amount. The employees' contributions are partly deductible from gross income, but especially for unmarried employees, considerable portions of these social security contributions are also subject to income taxation.

In Austria the compulsory payments for social security also form an essential part of the total tax burden. The following section is limited to an analysis of the rates for the most important group of employed workers, i. e., those insured with the official regional institutions of health insurance, as well as with the official retirement insurance institution for employees. This group includes about two thirds of all employed workers. Other rates prevail for other groups, e. g., public-sector employees.

The total contributions for health-, retirement- and unemployment insurance, as well as some further compulsory payments, amount to 15.95 to 17.2 percent of gross income. At present, this constant rate applies up to a limit of AS 285,600 (health insurance) and AS 344,400 (other). The employer must also pay contributions which amount to 24.15 to 27.4 percent of wage payments (excluding the payroll tax). The compulsory employees' contributions reduce the income tax base.

The separate payment of the employers' contributions to social security institutions reduces the rate of the employees' contributions; this may diminish their perceptibility and thereby moderate negative incentive effects. For the firms' calculations, however, all costs are relevant. Adding the compulsory payments of both employees and employers, the burden on wages comes to 40.1 to 44.0 percent of gross income⁽¹⁸⁾, while in Germany the total social security contribution rate amounts to 35.6 percent. These rates are valid for incomes up to the respective limits.

5. The total marginal burden

An estimate of the total marginal burden of taxes and social security contributions for different types of households and for different incomes would clearly be of value, but this would necessitate complex microanalytic simulation models which are presently not available. We therefore illustrate the tax and social security burden of employed persons with the aid of a fictitious example, knowing well that the marginal burden is sensitive to income changes. Assuming an average gross income of AS 180,000, the following marginal burden results for an Austrian employee (respective values for a German employee in parentheses):

— 16 (17.8) percent for social security and for similar contributions.

- The marginal rate of the wage tax amounts to 33 (26) percent allowing for several exemptions, as well as for the deduction of Christmas and holiday bonuses. Allowing for the deduction of social security contributions from taxable income (in Germany only 9 percent of these payments are deductible, up to a certain limit), this rate is 27.7 (23.7) percent. This yields a total marginal burden of direct taxes and social security contributions of 43.7 (41.5) percent.
- Adding the incidence of indirect taxes, estimated at a rate of 14 percent of disposable income, i. e., 8 (9) percent of gross income, we derive a total marginal tax burden of 51.7 (50.5) percent with respect to gross income(19).

The shape of the income tax schedules implies that the marginal tax rate increases rapidly for incomes above the average; the marginal burden of the social security contributions, however, diminishes above the respective limits. Taking into account the marginal burden of indirect taxes and of church tax, marginal rates result which amount to nearly 70 and 80 percent (depending on whether or not the employers' contributions are included).

The burden is aggravated excessively if the employees are recipients of income-related benefits where the income brackets are not coordinated with the income tax schedule. For a discussion of this problem, see the study of the RWI, Essen (*Karrenberg — Kitterer, 1979*) which states that for certain households the decrease in social transfer payments triggered by a rise in incomes causes a marginal burden which far exceeds 120 percent(20).

In Austria, there are several allowances that are related to income; we mention only two of them. One is the education allowance: for parents of children studying at a university or academy, an additional marginal burden of up to 45 percent occurs within a certain income range — the allowance is cut when the income rises.

The second area of degressive transfers is the promotion of new dwellings by the government. Benefits are graduated with respect to household income, and marginal burdens of more than 50 percent can result for incomes only slightly exceeding the average. An especially striking feature is that the benefit is totally cancelled if income reaches a certain limit, while below this limit the difference between reasonable and actual housing costs is subsidized. Theoretically this may lead to an unlimited marginal burden.

6. Some implications for tax policy

In Austria as well as in Germany the marginal tax burden has reached such a high level that one must expect a reaction from the taxpayers if a further increase in the burden of taxes and social security contributions (or even a so-called hidden tax increase) occurs. Lamen-

tations that the limits of the tax burden have been attained or even exceeded are certainly not new. When the Prussian income tax with a maximum marginal rate of 4 percent was introduced in 1891, for example, drastic changes in the behaviour of the taxpayers were feared. Such exaggerations have led to the opinion, adopted not only by textbooks on public finance, that negative incentive effects of a progressive income tax on the labour supply do not play an essential role and are in fact compensated by positive effects. But in view of the size of the cumulative marginal burden as estimated above, this view must be considered too optimistic.

Extrapolating the past development of the public sector which is responsible for the present tax burden, the average and marginal tax burden, especially for incomes above the average, can be expected to attain values that were until now inconceivable. This would lead to an unacceptable reduction in disposable income and would also remove any incentives for particular efforts, e. g., innovative achievements which seem to be especially desirable from a macroeconomic viewpoint. Individual effort would hardly pay, and the economic incentives would tend to drive the economic agents out of the market system. Of course, this could be a possible goal, but one must be aware that our present institutions could not survive if this took place on a mass scale. The state would then drift into the "crisis of the tax state" which was diagnosed by Schumpeter after World War I.

To avoid these negative consequences, an effective control of public expenditures is necessary, in short, a reduction of subsidies and of tax reliefs for certain groups of taxpayers. This would generate sufficient revenues to provide a significant relief for all households which are not favoured presently, mainly via a compensating decrease of the marginal tax rates. Such a procedure affects the supply side as well as the demand side of an economy. Studies on the distribution of subsidies in relation to firm size indicate that it is the smaller firm which would be favoured, because subsidies are now mainly given to larger firms. At the same time, the threshold for the entry of new firms would be lowered, firms which are expected to carry on successful innovations. Concerning households, tax preferences are distributed chiefly in favour of higher incomes; elimination of these tax reliefs in combination with a marked decrease in income tax rates would entail a rise in disposable income and thereby in the demand for consumer goods.

There are, however, two major political obstacles to such a strategy which would favour most of the taxpayers: first, past experience has destroyed the taxpayers' confidence that full taxation of those portions of their income which had received preferential treatment would indeed be compensated by a corresponding general reduction in tax rates; second, according to Olson's theory of groups, there exists no organization representing taxpayers as a whole, while certain groups benefitting from various tax preferences are well organized. Every attempt to reduce subsidies or tax preferences is strongly resisted by the groups which are affected, and their organized opposition is reported by the mass media. The interests of ordinary taxpayers are rarely articulated, however; the reason may also be that politicians are more responsive to special interest groups than to the public.

Despite these doubts as to its political feasibility there exists no other strategy than a decisive reorientation of fiscal and social policy. It is not an abrupt tour de force at any price that is needed, but rather a long-term and credible perspective by which confidence in fiscal policy can be regained.

7. References

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8. Notes

(1) The ratio of direct taxes (income and wealth taxes) to indirect taxes (turnover and excise taxes) is about 1 : 1.15 in Austria, but 1 : 0.75 in Germany.

(2) As to the effects of the numerous adaptations of the tax schedule, see *Blöcker — Petersen (1975)*, *Lehner (1981)*.

(3) The schedules are defined in § 33 and § 32a of the Austrian and German income tax code, respectively.

(4) In the following figures we do not account for the tax credit of AS 3,900 for a single wage-earner of a family. This credit would only shift the lower limit of taxation up to AS 42,857 and would reduce the average tax rates slightly (affecting lower incomes more than higher); the marginal tax rates would remain unaffected. On the contrary, a German single wage-earner gains from the splitting arrangement (compared to an unmarried taxpayer with the same taxable income) AS 12,964 in the first interval of indirect progression, but up to AS 103,859 in the second interval of indirect progression. For simplification we use the exchange rate of 1 DM = 7 AS in our study.

(5) For a definition of different elasticities, compare *Petersen* (1977), pp. 108ff.

(6) Among others, tax exemptions for agriculture and forestry, for professionals; lump-sum deductions for professional outlays and special expenditures (including provisions for the future — e. g., social security contributions up to certain limits), household exemptions; deductions for children, for older earners, for employees; exemptions for Christmas remunerations.

(7) Taxation of public pensions is confined to the profit share, i. e., they are practically tax-free; compare *Petersen* (1982).

(8) Owner-occupied residences are taxed according to their user value (1 percent of their rateable value) which lies considerably below the market rent.

(9) Compare *Doralt — Ruppe* (1978), pp. 135f.

(10) The advantages of the direct versus the indirect investment promotion in Austria have long been discussed. See, e. g., *Tichy* (1980).

(11) Compare *Genser — Holzmann* (1983).

(12) The normal rate of the value-added tax is presently 14 percent, the reduced rate is 7 percent.

(13) They amounted to 5.5 and 11 percent in 1977, respectively.

(14) We use an average value of the estimates published by *Schebeck — Thury* (1977). The use of a macroeconomic, long-term marginal rate of consumption is problematic.

(15) In *Kitzmantel* (1979) a study by Ostleitner is cited which establishes a burden of the value-added tax on disposable income of 10.2 percent; at that time tax rates were lower by 2 percentage points. This result agrees with our estimates.

(16) *Messere* (1978); compare also the country studies in *Rosa* (1982).

(17) State at January 1, 1985. Other arrangements hold for public-sector employees and other groups of employees, but we cannot treat them here explicitly.

(18) Additionally the employer has to pay a payroll tax of 2 percent.

(19) If one adds the contributions of the employers to gross earnings (which is appropriate from an economic view), the marginal burden is increased drastically. In fact the traditional term "employers' contribution" serves to mask the effective burden on gross wage.

For most German taxpayers, the church rate should also be included because it is collected by public authorities as is the income tax. In our example the corresponding marginal rate was about 3 percent.

The corresponding marginal rate in Austria is 1.7 percent, but the perceptibility may be lower there because the church rate is not collected by the fiscal administration.

(20) E. g., for welfare payments, for rent subsidies, and for education allowances.

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Chapter 3:

Impact of Taxation and Tax Reform

3.1.

Impact of the Tax System. Federal Republic of Germany

(Walter Block and Michael Walker (Eds): Taxation: An International Perspective, The Fraser Institute, Vancouver, B. C. 1984, pp 283 – 329)

3.2.

Marginal Tax Burden - A Case Study of Austria and the Federal Republic of Germany

Co-author Johann K. Brunner

(Empirica (Austrian Economic Papers), Stuttgart, Vol. 12 (1985), pp 209 – 226)

3.3.

Further Results on Income Tax Progression

(Zeitschrift für Wirtschafts- und Sozialwissenschaften, Berlin, 101. Jg. 1981, pp 45 – 59)

3.4.

The German Tax and Transfer System: A Problem Oriented Overview

(Hans-Georg Petersen and Patrick Gallagher (Eds): Tax and Transfer Reform in Australia and Germany. Australia Center Potsdam, Berlin 2000, pp 13 – 40)

3.5.

Globalisation, Capital Flight and Capital Income Taxation

(Tax Notes International, Vol. 33, No. 10, March 2004, pp 887 – 897)

Some Further Results on Income Tax Progression

By Hans-Georg Petersen

The purpose of this paper is to indicate the problems connected with the measurement of the progression of a tax system by different forms of Gini indices. These measures show theoretical and statistical shortcomings compared with the liability progression and the residual income progression of Musgrave and Thin. German tax data have been used to give empirical evidence.

I. Introduction

The measurement of the progression of the income tax and the tax system respectively has recently grown in importance. This is primarily caused by the excessive growth of incomes due to inflation.¹ The main purpose of this paper is to discuss a proposal of a "new measure of tax progressivity"; it does not intend to create another "new" measure, but to show that all measures discussed can be reduced to the basic work of *Musgrave and Thin* (1948). Additionally the microeconomic relations between these measures are represented.

In part II the measure of progression proposed by *Kakwani* (1977), its theoretical consistency and its usefulness will be analyzed. On the result of this analysis part III is based; it concentrates on the functional relationship between the "liability progression" and the "residual income progression" of *Musgrave and Thin* (1948), and on the interdependence of these elasticities, the distribution of the tax burden and the distribution of income after tax (net income). In part IV the income tax system of the Federal Republic of Germany is used to give empirical evidence to the argumentation of part III. The results are summarized in part V.

II. A New Measure of Progression?

Kakwani's (1977) criticism of the measure of progression proposed by *Slitor* (1948) and called "average rate progression" by *Musgrave and Thin* (1948) focuses on the fact that this measure defines the pro-

¹ There have been some publications on the topic recently, e. g., *Blöcker and Petersen* (1975), *Jakobsson* (1976), *Kakwani* (1977).

gression in only one point of the income scale.² *Kakwani* (1977) prefers a measure which expresses the severity of progression for the entire income area in a single number.³ The question is whether a single number is capable to describe adequately the progressivity of an income tax system. To find out we have to define the factors which influence this measure.

The measure of progressivity (P) — as proposed by *Kakwani* (1977) — represents the area between the Lorenz curve of the distribution of the tax burden and the Lorenz curve of the gross income distribution. This can be formalized as the difference between the Gini index (C) of the distribution of the tax burden and the Gini index (G) of the distribution of the income before tax:

$$(1) \quad P = C - G .$$

The measure of progression P is determined by 1) the distribution of the income before tax, and 2) the yield elasticities referring to the individual incomes before tax (called “liability progression” by *Musgrave* and *Thin*, 1948):

$$(2) \quad E_{t, y} = \frac{dt}{dy} : \frac{t}{y} .$$

This “liability progression” is defined as the relation between marginal tax rate $t^m = \frac{dt}{dy}$ and average tax rate $\bar{t} = \frac{t}{y}$ (t denotes individual tax yield, y individual gross income). This “microeconomic yield elasticity” can appear in the income scale in values between ∞ (for incomes which tend to zero) and one (for incomes which tend to infinite), if we assume an income tax system with delayed progression⁴ over the whole range.⁵

² The same is true for the “marginal rate progression” as well as the “liability progression” and the “residual income progression” proposed by *Musgrave* and *Thin* (1948).

³ This comes close to the “effective progression” of *Musgrave* and *Thin* (1948); see also the measures proposed by *Dalton* (1955) and *Wenk* (1947).

⁴ We get a delayed progression when the “average rate progression” drops with growing income and when its first derivative (= second derivative of the average tax rate function) is negative. This type of progression is dominant in most countries of the Western world. It keeps the marginal tax rate from exceeding a certain, politically fixed maximum; see *Blöcker* and *Petersen* (1975).

⁵ We always get a delayed progression in the case of an indirect progression. The tariff is: $t = a(y - b)$ (a denotes the marginal tax rate, b the exemption). Consequently the yield elasticity results from:

$$E_{t, y} = \frac{1}{1 - \frac{b}{y}} , \text{ with } \lim_{y \rightarrow 0} E_{t, y} = \infty \text{ and } \lim_{y \rightarrow \infty} E_{t, y} = 1 .$$

If income is equally distributed ($G = 0$) or completely concentrated ($G = 1$) the measure P corresponds to be zero, because then the distribution of tax burden is equally distributed ($C = 0$) or completely concentrated ($C = 1$) too. Whether P is positive or negative depends on the type of the tax system (progressive or regressive). The numerical value depends on the degree of unequal distribution of incomes and the values of microeconomic yield elasticity over the income scale. Therefore the question is: how effective is P as measure of progression?

1. Obviously only a single number as measurement, which expresses the progressivity of an income tax system, expresses little about the different types of tariffs and exemption regulations, the irregularities and injustices, which may stay behind.⁶ If we assume that an income tax system has to fulfill certain material tax criteria and formal tariff-criteria,⁷ it should be clear that a single number will not respond to the requirements of an investigation as to whether these conditions have been met.

2. The value of this measure is not only dependent — as has been mentioned above — on the exemption regulation and the tariff structure, it is also determined by the distribution of the gross income Y in the income classes. Thus quite different measures of progression can result from the assumption of two different income distributions in the very same income tax system: if, e.g., P is very high this is not necessarily a consequence of a particularly steep rise of the tariff progression; it can also be caused by the concentration of incomes in the lower income brackets, where yield elasticity is higher. If P is very low, however, this may under certain circumstances result from a concentration of income in the upper income brackets, where yield elasticity is lower.

Thus we can trace the differences in the data of P to two distinct causes: either they result from different income tax systems and/or different income distributions. Those components cannot be separated. Apart from these P creates even more problems, which are primarily of a statistical-technical kind.

3. An isolated analysis of Gini indices without the investigation of the Lorenz curves on which they are based seems to be doubtful particularly in the dynamic analysis. Since the Lorenz curves of the income distributions of two consecutive periods can intersect, an assessment of the changes in distribution (toward equal and unequal

⁶ See *Pollak* (without date).

⁷ See *Pigou* (1956) and *Petersen* (1976/77; 1977).

distribution respectively) is impossible,⁸ the estimated Gini indices are not correct. Consequently the measure of progression P gives no evidence.

4. In the case of classified empirical income distributions the estimation of Lorenz curves and Gini indices with standard numerical approaches might lead to incorrect conclusions, if incomes grow at a fixed rate:⁹ the Lorenz curve should be the same, but estimates give a changing one.¹⁰ Three factors determine direction and extent of this "class phenomenon": a) the classification of the income distribution, or more precisely, a₁) the number of size groups and a₂) the change (increase) in the length of interval over the income scale; b) the structure of the income distribution itself: b₁) uni- or multimodal, b₂) skewed to the left or skewed to the right and c) the magnitude of income growth.

Apart from these theoretical and statistical shortcomings of the measure of progression P it seems important to state, that *Kakwani* (1977) neglects particularly the microeconomical, functional interdependence between the distribution of the tax burden and the distribution of net income. This may have caused his faulty interpretation of the "effective progression" as well. We shall try to clear up this problem in the following section.

III. The Interdependence of Yield Elasticity and Residual Income Elasticity

While the yield elasticity essentially determines the distribution of the tax burden, the distribution of the net income is influenced by the elasticity of the individual residual income y^n referring to the individual gross income y :

$$(3) \quad E_{y^n, y} = \frac{dy^n}{dy} : \frac{y^n}{y} .$$

This measure is defined as the relation between marginal and average residual income rate.¹¹ It was also called "residual income progression" by *Musgrave* and *Thin* (1948). An elasticity larger than one is equivalent to a regressive tax, of one corresponds to a proportional tax,

⁸ See *Krelle* (1962).

⁹ In practice at least part of the income increase of any period has the character of growth at a fixed rate, e. g., that part which is destined to compensate the general inflation rate.

¹⁰ Accordingly the Gini index changes; see *Petersen* (1979 a).

¹¹ $\frac{dy^n}{dy} = \left(1 - \frac{dt}{dy}\right)$ and $\frac{y^n}{y} = \left(1 - \frac{t}{y}\right)$.

and of less than one to a progressive tax. If we assume again an income tax tariff with delayed progression over the whole range, the residual income elasticity in the case of low incomes (below the basic exemption) is equal to one. Growing incomes then cause values below one. Finally it rises again — after having reached a minimum — for higher incomes and converges toward one in the infinite.¹²

Musgrave and *Thin* (1948) proposed as a measure of progression the quotient of the Gini index of the distribution after tax and the Gini index of the distribution before tax. This is similar to the measure of progression P preferred by *Kakwani* (1977). This measure called “effective progression” by *Musgrave* and *Thin* (1948)¹³ depends on the distribution of gross income and the development of the residual income elasticity. *Kakwani* (1977), however, goes wrong in taking P to be a measure of progressivity and the “effective progression” as a measure of the distributive effects of the tax system. The correct notation for P would be “measure of the distribution of tax burden” and for the effective progression “measure of the redistribution of income”. Both describe — under the restrictions made above — the progressivity of a tax system, for the determinants of these measures — the yield elasticity and the residual income elasticity — are functionally coherent.

The yield elasticity (2) can be divided in:

$$(4) \quad E_{t,y} = E_{\bar{t},y} + 1;^{14}$$

$E_{\bar{t},y}$ represents the elasticity of average tax rate \bar{t} referring to the gross income y . Correspondingly the residual income elasticity can be divided into:

$$(5) \quad E_{y^n,y} = E_{\bar{y}^n,y} + 1 .$$

The elasticity of the average residual income rate \bar{y}^n referring to the gross income can be expressed as:

¹² In a proportional income tax system ($E_{t,y} = 1$ and $E_{y^n,y} = 1$) the Lorenz curves of the distribution of the gross income, of the tax burden, and of the net income will coincide ($P = 0$).

¹³ The critical remarks about measure of progression P also apply to this measure.

¹⁴
$$E_{t,y} = \frac{d(\bar{t} \cdot y)}{dy} \cdot \frac{y}{(\bar{t} \cdot y)} = \left[\frac{d\bar{t}}{dy} \cdot y + \bar{t} \right] \cdot \frac{y}{(\bar{t} \cdot y)} .$$

Consequently:

$$E_{t,y} = \frac{d\bar{t}}{dy} \cdot \frac{y}{\bar{t}} + 1 .$$

$$(6) \quad E_{\bar{y}^n, y} = \frac{d(1 - \bar{t})}{dy} \cdot \frac{y}{(1 - \bar{t})} .$$

Consequently:

$$(7) \quad E_{\bar{y}^n, y} = \frac{d\bar{t}}{dy} \cdot \frac{\bar{t}}{y} \cdot \frac{\bar{t}}{(1 - \bar{t})}$$

or:

$$(8) \quad E_{\bar{y}^n, y} = - E_{\bar{t}, y} \cdot \frac{\bar{t}}{(1 - \bar{t})}$$

respectively:

$$(9) \quad E_{y^n, y} = 1 - E_{\bar{t}, y} \cdot \frac{\bar{t}}{(1 - \bar{t})} .$$

The residual income elasticity thus depends on the elasticity of the average tax rate as well as on the relation between the average tax rate and the average residual income rate.

This confirms *Kakwani's* statement: the residual income elasticity — and consequently the distribution of net income — depends in a particular way on the average tax rate \bar{t} .¹⁵ On the other hand in view of:

$$(10) \quad E_{\bar{t}, y} = 1 - E_{\bar{y}^n, y} \cdot \frac{\bar{y}^n}{(1 - \bar{y}^n)}$$

we can say that the yield elasticity — and consequently the distribution of the tax burden as well — depends in a particular way on the average residual income rate \bar{y}^n .¹⁶ The average tax rate \bar{t} as well as the average residual income rate \bar{y}^n are potential parameters of action used by state authorities. We have to keep in mind, however, that establishing one parameter requires *uno actu* the establishing of the other. Which parameter is changed depends on the decision on distribution of legislator.

Thus microeconomic yield elasticity and microeconomic residual income elasticity are not contrary measures. Both describe the progres-

¹⁵ An exogenous, steady rise of the average tax rate \bar{t} (for example a doubling) for all tax payers would, as could easily be shown, keep the yield elasticity constant, and would cause the residual income elasticity to decline, since the relation $\bar{t}/(1 - \bar{t})$ rises. Distribution of tax burden would be constant while distribution of net income would change.

¹⁶ Correspondingly a cut by half of all individual average residual income rates \bar{y}^n would keep the residual income elasticity constant, and would cause the yield elasticity to rise, since the relation $\bar{y}^n/(1 - \bar{y}^n)$ decreases. Distribution of net income would remain constant while distribution of tax burden would change.

sion of an income tax system: one from the point of view of tax burden, the other from the point of view of the withdrawal effect of taxation; both are inseparable. If we base our calculations on the utility theory and if we assume further that taxes lower the level required for satisfying personal needs, we should prefer the residual income elasticity as a measure of progression. In general, both measures should be used because even big shifts in the distribution of tax burden could be compatible with constant distribution of the net income and vice versa.¹⁷

The statements given above should have convinced that the analysis of the development of the yield elasticity as well as of the residual income elasticity over the entire income area is decisive for a judgement of the progressivity of an income tax system. The next chapter serve to provide empirical evidence; as an example the income tax system of the Federal Republic of Germany is chosen.

IV. Measures of Progression for the German Income Tax System

The developments of the microeconomic yield elasticity over the entire income area of the German income tax laws of 1965, 1975 and 1978 are depicted in figure 1 (page 52).¹⁸ This figure shows that in 1975 and 1978 the German income tax system has been of delayed progressivity in all areas.¹⁹ The large leaps in the developments of the microeconomic yield elasticity (1975 and 1978) are to refer to jumps in the marginal tax rate of the tariff, while the smaller leaps are the result of the limitation of the exemptions especially for social insurance.²⁰ Figure 2 (page 52) shows the corresponding developments of the microeconomic residual income elasticity.

Both figures demonstrate — constant tax law assumed — that especially small earners, who are just covered by taxation, and the incomes of the middle bracket are subject to an extremely severe progression. If the income tax reform from 1975 as well as from 1978 are taken into account we can note, that they create an increase²¹ of the yield elasticity especially for the incomes of the middle bracket, while the residual income elasticity is declining. These developments point out the

¹⁷ See *Jakobsson* (1976), *Niehans* (1958) and the appendix below.

¹⁸ As example the exemption regulation of the "Lohnsteuerklasse I" (income tax on wages of unmarried employees) has been chosen.

¹⁹ The German income tax tariff of 1965, however, showed an area of accelerated progression (first derivative of average rate progression positive) as well; see *Blöcker* and *Petersen* (1975). Since the last reform of the income tax tariff in 1979 once more we have an accelerated progression in the first area of direct progression; see *Petersen* (1980).

²⁰ See *Petersen* (1978).

²¹ With the exception of some small areas.

Figure 1:
yield elasticity

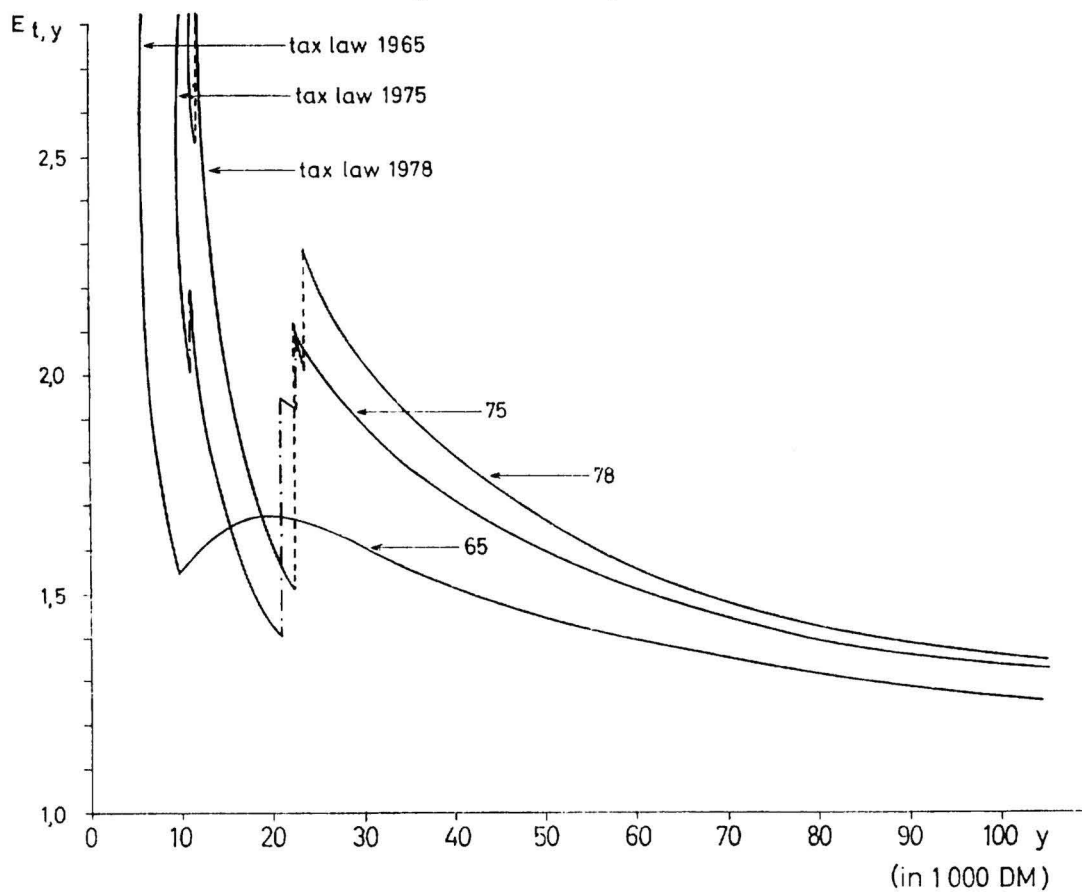
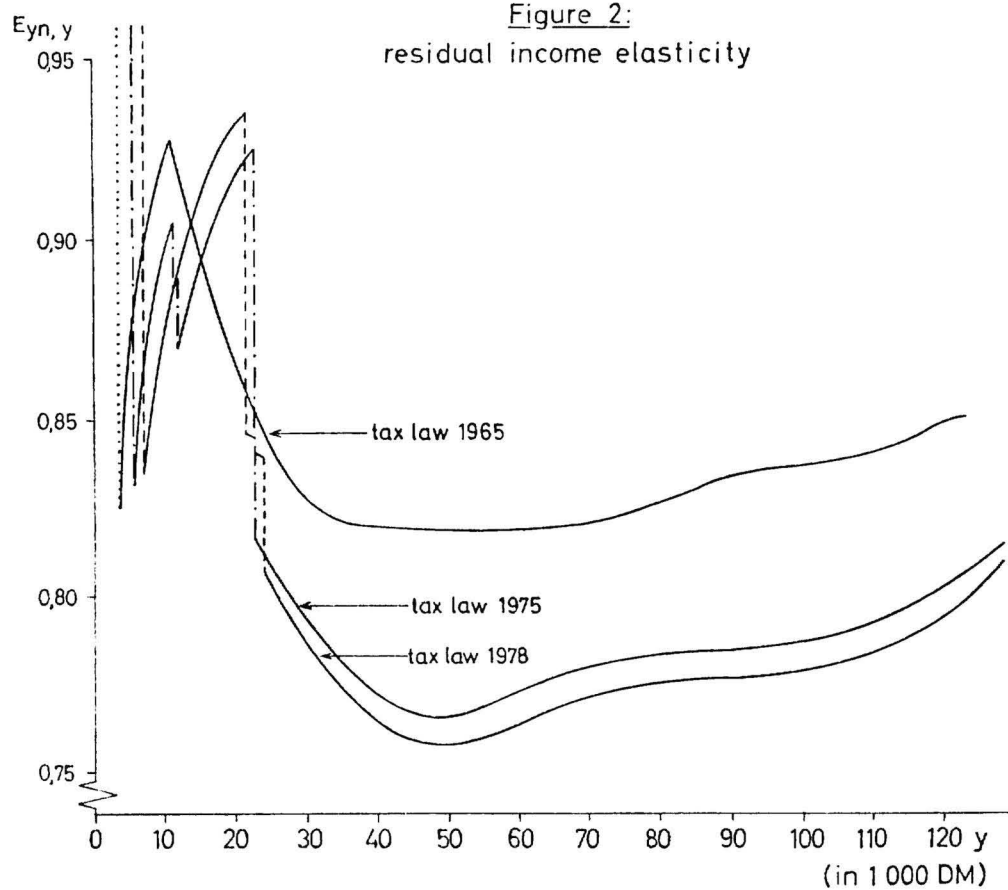


Figure 2:
residual income elasticity



fact that the progression of income tax almost in all areas has been strongly increased.²²

The calculations of the microeconomic yield elasticity and the microeconomic residual income elasticity have proved that they make evident the different types of tariffs and exemption regulations; especially the leaps in the developments of the elasticities produce some injustices and refuse both principles, the ability-to-pay as the redistribution principle.²³

Now let us have a look at the measure of progression P and the "effective progression". The following results are derived from a simulation model of the German income tax system.²⁴ Six consecutive simulation periods are taken into account ($t = 0, 1, \dots, 5$); the income distributions before taxes of the basic period ($t = 0$) were extrapolated by 10 per cent each.²⁵

Table 1 (page 54) shows the Gini indices of the distribution of the gross income G ,²⁶ the tax burden C and the net income G^* in the simulation periods for the income tax system of 1965 and the distribution of tax payers of the "Lohnsteuerklasse I" of 1965. The "effective progression" EP results from:

$$(11) \quad EP = G^*/G .$$

If P is used as a measure of progression it declines with increasing individual incomes, which indicates a lower progression of the income tax system. On the other hand, if we use EP , it declines too but indicates an increase of progression.²⁷ But if we use our correct notation P indicates a levelling of the distribution of tax burden, whereas EP simultaneously indicates a more equal distribution of net income. This development of both distributions only shows that levelling the distribution of tax burden is not necessarily connected with a differentiation of the distribution of net income (and vice versa).²⁸

²² This causes some problems especially if inflation is taken into account; see *Petersen* (1979 b).

²³ See *Petersen* (1976/77); such leaps are typical for most of the income tax systems of the Western world, e. g., *Levy* (1960).

²⁴ See *Petersen* (1977).

²⁵ For a discussion of the method, see *Petersen* (1979 a).

²⁶ The statistical shortcomings mentioned above do not occur here because of the particular method of extrapolation; see *Petersen* (1979 a). The Gini index of the gross income distribution remains constant, since all tax payers get the same income growth of 10 per cent. Thus nothing is changed in distribution.

²⁷ If P is declining (and tends to zero) the progression is declining too and vice versa; if EP is increasing (and tends to one), the progression is declining and vice versa.

²⁸ The development of the distributions depends on the values (especially the leaps) of the microeconomic elasticities; see *Petersen* (1979 b).

Table 1

**Gini indices, measure of progression P, and "effective progression" EP
(1965 income tax system)**

| I | t | I | G ^{a)} | I | C | I | G* | I | P | I | EP | I |
|---|---|---|-----------------|---|--------|---|--------|---|--------|---|--------|---|
| I | 0 | I | 0.3591 | I | 0.5853 | I | 0.3376 | I | 0.2262 | I | 0.9401 | I |
| I | 1 | I | 0.3591 | I | 0.5681 | I | 0.3373 | I | 0.2090 | I | 0.9393 | I |
| I | 2 | I | 0.3591 | I | 0.5561 | I | 0.3367 | I | 0.1970 | I | 0.9376 | I |
| I | 3 | I | 0.3591 | I | 0.5473 | I | 0.3359 | I | 0.1882 | I | 0.9354 | I |
| I | 4 | I | 0.3591 | I | 0.5376 | I | 0.3352 | I | 0.1785 | I | 0.9334 | I |
| I | 5 | I | 0.3591 | I | 0.5309 | I | 0.3343 | I | 0.1718 | I | 0.9309 | I |

a) Distribution of the "Lohnsteuerklasse I" 1965.

Table 2

**Gini indices, measure of progression P, and "effective progression" EP
(1965 income tax system)**

| I | t | I | G ^{a)} | I | C | I | G* | I | P | I | EP | I |
|---|---|---|-----------------|---|--------|---|--------|---|--------|---|--------|---|
| I | 0 | I | 0.3834 | I | 0.5413 | I | 0.3531 | I | 0.1579 | I | 0.9210 | I |
| I | 1 | I | 0.3834 | I | 0.5375 | I | 0.3516 | I | 0.1541 | I | 0.9171 | I |
| I | 2 | I | 0.3834 | I | 0.5321 | I | 0.3503 | I | 0.1487 | I | 0.9137 | I |
| I | 3 | I | 0.3834 | I | 0.5272 | I | 0.3489 | I | 0.1438 | I | 0.9100 | I |
| I | 4 | I | 0.3834 | I | 0.5227 | I | 0.3475 | I | 0.1393 | I | 0.9064 | I |
| I | 5 | I | 0.3834 | I | 0.5184 | I | 0.3461 | I | 0.1350 | I | 0.9027 | I |

a) Distribution of the "Lohnsteuerklasse I" 1974.

Table 2 shows the corresponding values for the income tax system of 1965 but the distribution of the "Lohnsteuerklasse I" of 1974. Compared to 1965, the 1974 distribution became less equal ($G_{65} = 0.3591$; $G_{74} = 0.3834$); P and EP declined ($t = 0$ in table 2 compared with table 1). This change was caused only by the differentiation of the distribution because tax law was constant.

The following two tables show the corresponding values for the income tax system of 1975 (table 3) and the system of 1978 (table 4); in both cases the distribution of 1974 has been used. Now the changes in P and EP are referred to the changes in the tax law because distribution was constant. Only in this case it is correct to say that progression has been increased (compare table 3 and 4, $t = 0$).

In any case, the calculations make clear that the measure P as well as the measure EP give no evidence of the progressivity of a tax

system, if both — the tax system itself and the income distribution — have been changed; then the values of P and EP are mainly dependent on the centre of gravity of the income distributions. For international comparisons, where usually the tax systems and the income distributions are quite different, these measures are absolutely unsuitable.

Table 3

**Gini indices, measure of progression P , and „effective progression“ EP
(1975 income tax system)**

| I | t | I | G ^{a)} | I | C | I | G* | I | P | I | EP | I |
|---|---|---|-----------------|---|--------|---|--------|---|--------|---|--------|---|
| I | 0 | I | 0.3834 | I | 0.5756 | I | 0.3547 | I | 0.1918 | I | 0.9251 | I |
| I | 1 | I | 0.3834 | I | 0.5710 | I | 0.3526 | I | 0.1872 | I | 0.9197 | I |
| I | 2 | I | 0.3834 | I | 0.5676 | I | 0.3502 | I | 0.1838 | I | 0.9134 | I |
| I | 3 | I | 0.3834 | I | 0.5637 | I | 0.3477 | I | 0.1799 | I | 0.9069 | I |
| I | 4 | I | 0.3834 | I | 0.5606 | I | 0.3449 | I | 0.1768 | I | 0.8996 | I |
| I | 5 | I | 0.3834 | I | 0.5569 | I | 0.3423 | I | 0.1731 | I | 0.8928 | I |

a) Distribution of the "Lohnsteuerklasse I" 1974.

Table 4

**Gini indices, measure of progression P , and „effective progression“ EP
(1978 income tax system)**

| I | t | I | G ^{a)} | I | C | I | G* | I | P | I | EP | I |
|---|---|---|-----------------|---|--------|---|--------|---|--------|---|--------|---|
| I | 0 | I | 0.3834 | I | 0.6069 | I | 0.3553 | I | 0.2235 | I | 0.9267 | I |
| I | 1 | I | 0.3834 | I | 0.6010 | I | 0.3529 | I | 0.2176 | I | 0.9204 | I |
| I | 2 | I | 0.3834 | I | 0.5974 | I | 0.3501 | I | 0.2140 | I | 0.9131 | I |
| I | 3 | I | 0.3834 | I | 0.5894 | I | 0.3478 | I | 0.2060 | I | 0.9071 | I |
| I | 4 | I | 0.3834 | I | 0.5820 | I | 0.3452 | I | 0.1986 | I | 0.9004 | I |
| I | 5 | I | 0.3834 | I | 0.5763 | I | 0.3424 | I | 0.1929 | I | 0.8931 | I |

a) Distribution of the "Lohnsteuerklasse I" 1974.

V. Concluding Remarks

The arguments given above show that the measure of progressivity of the income tax system proposed by *Kakwani* (1977) suffers from considerable theoretical and statistical shortcomings. It may have a certain significance as far as statistical comparisons are concerned. The use of Lorenz curves and Gini indices for the investigation of the effects on the distribution of tax burden and redistribution of net income may be quite efficient, if their weaknesses are taken into ac-

count. Our analysis has shown, though, that distribution of the tax burden and income distribution after taxes are essentially influenced by the development of the microeconomic yield elasticity and residual income elasticity, which again are functionally coherent. If the differences between the Lorenz curves of the distribution of the tax burden and the income distribution before tax is used,²⁹ indeed we get a single number of measurement. This number, however, does not tell us anything about the severity of the progression, as far as the individual tax payer is concerned.

A usefull measure of progression, however, has to satisfy the demand, i.e., to supply information on all areas of income — including those less occupied — as the severity of the progression. This can be satisfied particularly by the measures proposed by *Musgrave* and *Thin* (1948), the liability progression and the residual income progression. These should, however, be regarded as complementary measures of progression. Moreover they are usefull for international comparisons as well, since they are not affected by the different distributions of income in the individual countries.

Appendix

In the case of an income tax tariff of general form:

$$(1) \quad t = a \cdot y^b \quad \text{with } a > 0 \quad \text{and } b > 0 ,$$

the marginal tax rate t^m :

$$(2) \quad t^m = b \cdot a \cdot y^{b-1}$$

and the average tax rate \bar{t} :

$$(3) \quad \bar{t} = a \cdot y^{b-1}$$

the yield elasticity then is:

$$(4) \quad E_{t, y} = \frac{b \cdot a \cdot y^{b-1}}{a \cdot y^{b-1}} = b .$$

It is thus constant for all incomes³⁰, while the residual income elasticity drops continuously from one to zero³¹.

²⁹ The quotient of the Gini index of the net income distribution and the Gini index of the gross income distribution ("effective progression") respectively.

³⁰ This tariff produces for every income increase the same effects which *Kakwani* (1977) observed in the case of a doubling of all individual average tax rates: its yield elasticity is constant.

On the other hand, the income tax tariff of general form:

$$(5) \quad t = y - a \cdot y^b \quad \text{with } a > 0 \quad \text{and } b > 0$$

shows a constant residual income elasticity that amounts to b^{32} , while the yield elasticity declines from ∞ to one. It is obviously that tariffs including constant yield elasticity (residual income elasticity) do not affect the distribution of the tax burden (income after taxes) in the case of growing incomes (except for the distribution effects at the date of their introduction). There is no way to construct a progressive tariff which includes a constant yield elasticity and the same time a constant residual income elasticity³³.

Summary

Recently there have been some publications on the progression of the tax system, especially of the income tax. *Kakwani* (1977) proposed a "new measure of tax progressivity" that — following *Kakwani* — expresses the severity of progression for the entire income area in a single number. This measure is based on the Gini index and comes close to the "effective progression" of *Musgrave* and *Thin* (1948). Both measures show theoretical and statistical shortcomings, especially they do not tell us anything about the severity of the progression, as far as the individual tax payer is concerned. This can be satisfied particularly by the measures proposed by *Musgrave* and *Thin* (1948), the liability progression and the residual income progression. A simulation model for the German income tax system has been used to give some empirical evidence.

Zusammenfassung

In jüngerer Zeit wurden verschiedene Beiträge zur Progression des Steuersystems — insbesondere der Einkommensteuer — publiziert. *Kakwani* (1977) schlug ein „neues“ Progressionsmaß vor, das seiner Meinung nach die Stärke der Progression für den gesamten Einkommensbereich in einer Zahl zum Ausdruck bringt. Diese Maßzahl basiert auf den Gini Index und ist der

$$^{31} \quad y^n = y - (a \cdot y^b)$$

$$\frac{dy^n}{dy} = 1 - a \cdot y^{b-1}$$

$$\frac{y^n}{y} = 1 - b \cdot a \cdot y^{b-1}$$

$$E_{y^n, y} = \frac{1 - b \cdot a \cdot y^{b-1}}{1 - a \cdot y^{b-1}}; \quad \lim_{y \rightarrow 0} E_{y^n, y} = 1 \quad \text{and} \quad \lim_{y \rightarrow \infty} E_{y^n, y} = 0 .$$

$$^{32} \quad y^n = a \cdot y^b$$

$$\frac{dy^n}{dy} = b \cdot a \cdot y^{b-1} ;$$

$$\frac{y^n}{y} = a \cdot y^{b-1} ; \quad \text{consequently: } E_{y^n, y} = b .$$

³³ See *Niehans* (1958).

„effective progression“ von *Musgrave* und *Thin* (1948) ähnlich. Beide Maße haben theoretische und statistische Schwächen; insbesondere bringen sie nicht die Stärke der Progression, der der einzelne Steuerpflichtige gegenübersteht, zum Ausdruck. Diese Anforderung erfüllen in besonderer Weise die von *Musgrave* und *Thin* (1948) vorgeschlagenen Steuerschuld- und Verfügungselastizitäten. Unter Zuhilfenahme eines Simulationsmodells für das deutsche Einkommensteuersystem wurden die Zusammenhänge empirisch untermauert.

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Chapter 3:

Impact of Taxation and Tax Reform

3.1.

Impact of the Tax System. Federal Republic of Germany

(Walter Block and Michael Walker (Eds): Taxation: An International Perspective, The Fraser Institute, Vancouver, B. C. 1984, pp 283 – 329)

3.2.

Marginal Tax Burden - A Case Study of Austria and the Federal Republic of Germany

Co-author Johann K. Brunner

(Empirica (Austrian Economic Papers), Stuttgart, Vol. 12 (1985), pp 209 – 226)

3.3.

Further Results on Income Tax Progression

(Zeitschrift für Wirtschafts- und Sozialwissenschaften, Berlin, 101. Jg. 1981, pp 45 – 59)

3.4.

The German Tax and Transfer System: A Problem Oriented Overview

(Hans-Georg Petersen and Patrick Gallagher (Eds): Tax and Transfer Reform in Australia and Germany. Australia Center Potsdam, Berlin 2000, pp 13 – 40)

3.5.

Globalisation, Capital Flight and Capital Income Taxation

(Tax Notes International, Vol. 33, No. 10, March 2004, pp 887 – 897)

The German Tax and Transfer System: A Problem Oriented Overview

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*The state is like a cow which is fed
in heaven but milked on earth
(Puviani)*

A. Introduction

The main purpose of this paper is to provide a brief overview of the German tax and transfer system. Bearing in mind the enormous complexity of the system, it is obvious that only the most basic components can be explained here. Emphasis will be placed on the current institutional framework, the single tax and transfer basis and the schedule structures, as well as the basic principles which have determined the character of both systems. Additionally some concise information on the revenue and transfer structures is given.

With regard to the historical development of the system it should be mentioned that both systems have developed more or less independently. While the social security system was promulgated in the 'Emperor's Message' of 1881 and implemented in the following decade, the 'modern' tax system was introduced by the Erzberger tax reform of 1920. Despite some changes to detail which have since occurred, the basic legal characteristics of both systems have remained almost unchanged, despite significant changes in social structure, values and behaviour which have led to an expansion of the system far beyond the original target groups of taxpayers and transfer recipients.

In the German tradition the transfer system was developed under the rubric of the 'social state' (*Sozialstaat*), a principle which is fundamentally different from the British 'welfare state'.¹ While the Beveridgian approach is a model of redistribution and socialist welfare, the Bismarckian model is one of minimalist social insurance, originally aimed at solidarity in times of need. In its evolution, and as a result of numerous political interventions, the principle characteristics of the social insurance system have become blurred. The minimalist approach was substituted by paternalistic views and with a concomitant erosion of the insurance myth extensive measures for interpersonal or intergenerative redistribution were introduced, which in turn has arguably had an adverse impact on income distribution. The

¹ For more details see Koslowski (1997, p. 113).

current social aid system, which adopts the subsidiary principle, came into existence in the 1920s and was further developed after World War II.

It was particularly with the Erzberg tax reform that a modern income tax system was introduced at the federal level. The tax base was broadly defined by pragmatic income assessment criteria, and due to the ability-to-pay principle, the tax schedule was highly progressive. This progressive marginal rate structure had the important function of redistributing income from the rich to the poor, although this was a target which – as just mentioned – was not part of the original social insurance system but was rather introduced as part of the later social aid system. As with any democratic setting after World War II, the increasing influence of many interest groups meant that the income tax system faced ongoing erosion of the tax base as a result of tax concessions and loopholes. In the context of long-term fixed income brackets, and as a consequence of inflation, income growth in the lower and middle income groups caused a marked increase in marginal tax rates for these groups. At the same time, a large number of taxpayers in the higher income groups could take advantage of the permanently increasing tax concessions, thereby effecting a sharp decline in effective average marginal tax rates. The redistribution which was originally intended was partly turned in the opposite direction, with the consequence that nowadays the bulk of the tax burden is laid on the middle income classes, with follow-on effects on incentive schemes. Tax evasion has been as often deplored as the growth of the shadow economy.²

In Chapter B, a short description of Germany's tax and revenue structures will be presented, while Chapter C presents a brief overview of the 'transfer' or social security system. Chapter D elucidates the basic underlying principles and benefit structures of the system, as well as the scope of marginal tax and transfer rates, which are important for further discussion. In Chapter E, a basic security concept is juxtaposed against the current status quo; Chapter F concentrates on possible further political development patterns and Chapter G gives a brief summary of the arguments.

B. The tax system

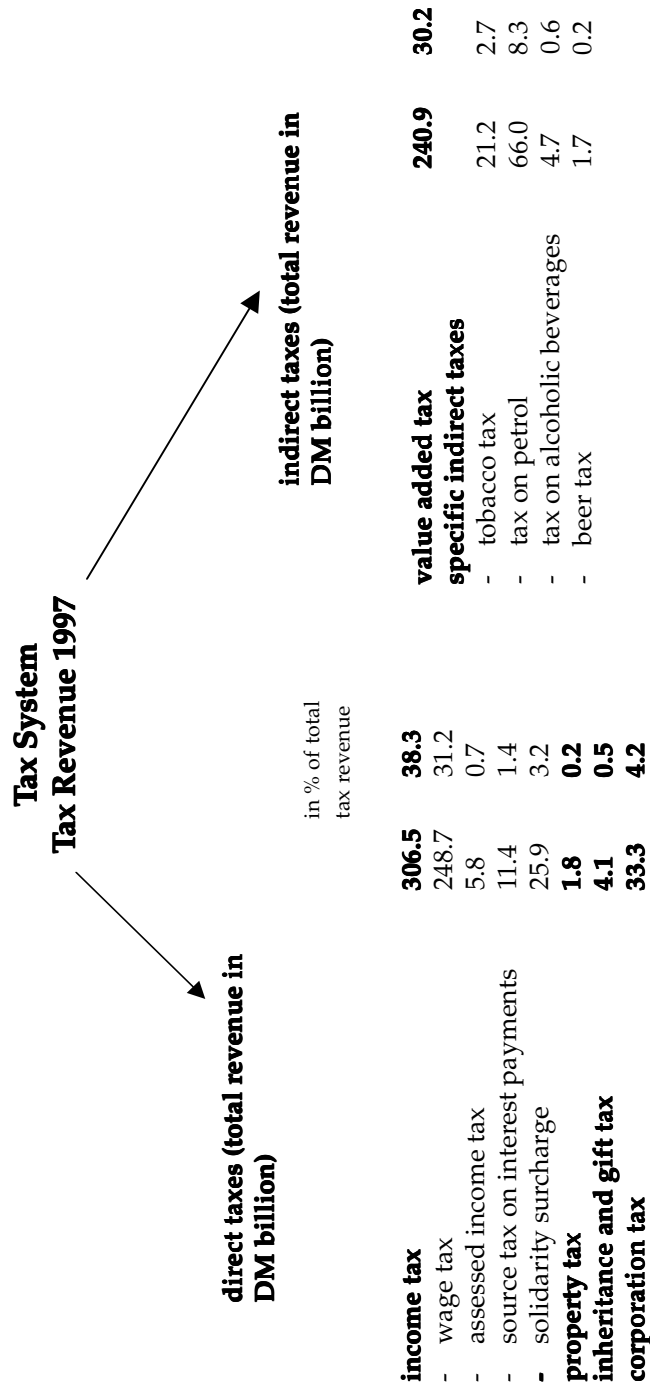
The German tax system is similar to other European systems, and consists of about 40 different individual taxes. The most important of these are presented in Figure 1. In addition, the revenue for 1997 is shown, both in billion DM as well as in percentage of total tax revenue. The most important of these various taxes is income tax, which comprises wage tax and assessed income tax. The second most relevant direct tax is corporation tax. Property tax was abolished in 1996, while the tax base of inheritance tax has been broadened, a move which will lead to a higher tax revenue in the future.

The value added tax (VAT) is the most important indirect tax, and forms the second largest source of revenue in the German system. With respect to the specific indirect taxes, petrol tax is predominant, and this will gain even more importance as it forms part of the new ecological tax program.³ In April 1999 we will see, along with the new government coali-

² See article by Schneider in this volume.

³ For the effects of an increasing petrol tax and corresponding reductions within income tax, see Müller, Nagel & Petersen (1997).

Figure 1: Tax System – Tax Revenue in 1997



Source: Institut Finanzen und Steuern (1998)

tion's tax reform package, the implementation of an ecological tax system which also consists of a specific energy tax (on electric inputs or consumption).

The German tax system is partly regulated under the legal sovereignty of the federal state (the indirect taxes in particular) and partly by way of conjunction between the Federation and the States (*Länder*). Revenue sharing (see Figure 2) is predominantly regulated under the German Constitution (*Grundgesetz*), according to which most specific indirect taxes are also Federal taxes. Income tax and value added tax are common taxes, that is, shared by the Federation (*Bund*) and the States (*Länder*), with the distribution of VAT being negotiable between the two jurisdictions.

The States have no autonomy over tax revenue and levy only minor taxes. They are thus heavily dependent on common taxes, in relation to which they can influence their revenue share via negotiations between the Federal Parliament and the second chamber (*Bundesrat*). At the municipal level there is limited autonomy with regard to firms' profit tax and land tax and here the local tax rate can be influenced by a rate multiplier. The sharing rules for 1997 are depicted in Figure 3.

The structure of fiscal administration reflects Germany's hierarchical federal system and its different levels of legal sovereignty; administration is carried out by Federal and State ministries which both have departments within the revenue directorates (see Figure 4). The directorates then have control over the custom and revenue offices; the revenue offices then work in co-operation with the municipal revenue offices to determine local taxes.

Table 1 provides an overview of tax revenue and revenue sharing amongst the German jurisdictions for selected years. As has already been mentioned, common taxes make up the largest proportion of shared revenue (almost 70 per cent in 1997). The Federal taxes comprise 17.8 per cent, while local government taxes, at 8.4 per cent, are almost twice as much as State taxes – a clear indicator that the *Länder* are strongly dependent on the common tax revenue.

In addition to this more general information, some details should be added for the two most important taxes, namely income and value added tax. As previously noted, the tax base of German income tax is pragmatically and realistically defined; there are seven different kinds of income sources. Since 1999 a distinction has been made between active and passive income sources. Income from agricultural activities, self-employment, business, and wages belong to the former, while rents and leasing, capital income (especially interest payments and dividends) as well as other means of income belong to the latter. Considerable tax exemptions and concessions distinguish gross from taxable income, structures partly determined according to different income sources. As a consequence, taxable income is often substantially reduced, so that the gap between the scheduled tax rates (average and marginal) and effective tax rates (related to gross income) is remarkably high. This gap expresses the above-mentioned erosion, which in the post-war period has led to an increasing deviation from the concept of a comprehensive tax base.

Figure 2: Tax System – Classification by Revenue Sovereignty

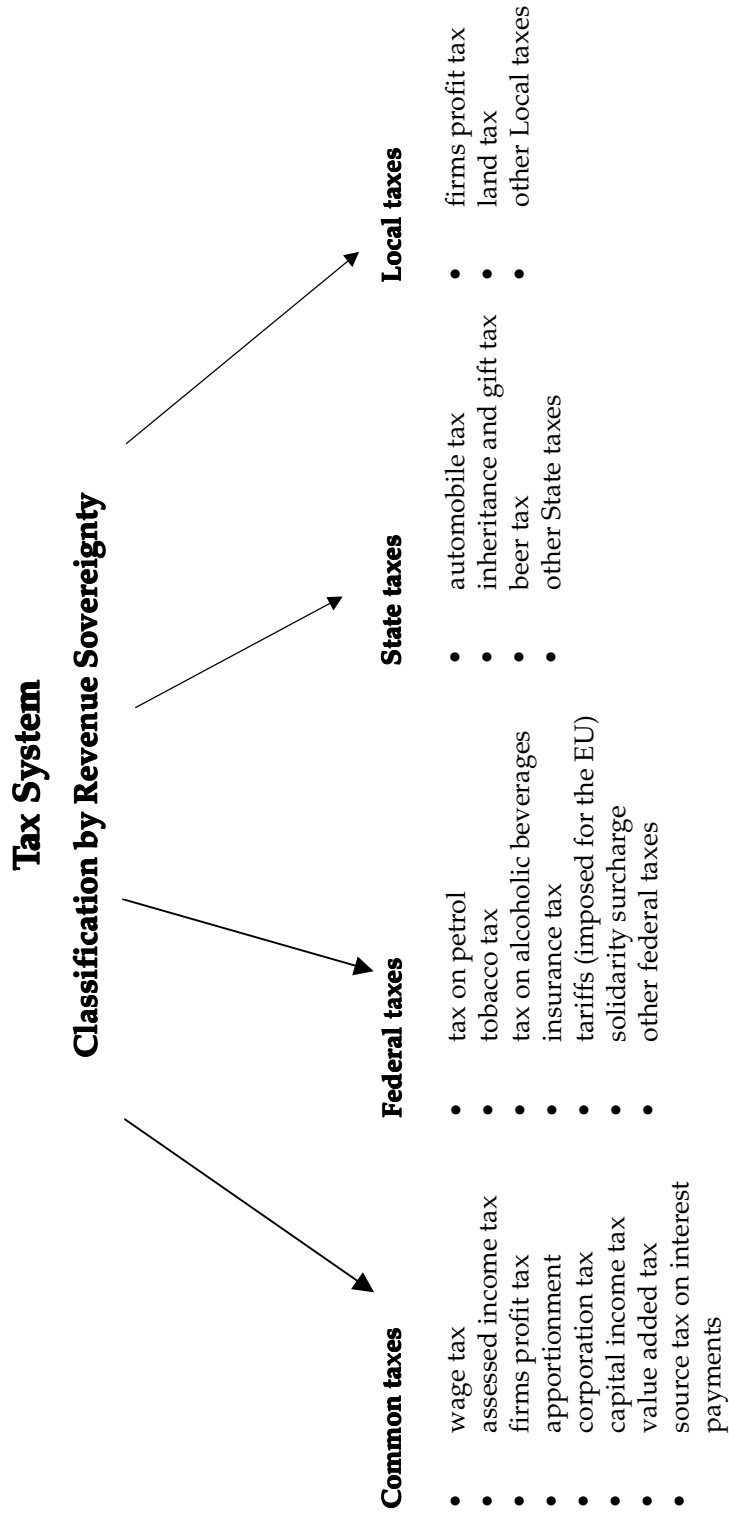


Figure 3: Revenue Sharing amongst the German Jurisdictions in 1997

| | Share of the Federal Government | Share of the States | Share of Local Government |
|---------------------------------|---------------------------------|---------------------|---------------------------|
| Wage tax | 42.5% | 42.5% | 15% |
| Assessed income tax | 42.5% | 42.5% | 15% |
| Corporation tax | 50% | 50% | |
| Capital income tax | 50% | 50% | |
| Value added tax* | 56% | 44% | |
| Source tax on interest payments | 44% | 44% | 12% |
| Firms profit tax | 5% | 5% | 90% |

* since 1998 the local governments receive 2.2% in VAT revenue

Because of general budgetary pressures, there has, in recent years, arisen the need for income tax revenue, which requires a comparatively progressive marginal rate structure. Notwithstanding this, tax brackets, basic tax exemptions, allowances, tax credits and so on have not been adequately adjusted to take inflation into account, while both high marginal rates and long-term exemptions have created disincentives. Furthermore, behavioural adaptations have shifted the income tax burden to the middle income classes. In a crucial ruling of the German Constitutional Court in 1992, the Federal Parliament was obliged to fix the basic exemption within the income tax schedule to the minimum income guaranteed by the social aid system, a figure which is to be adapted every year.⁴ Increasing inefficiency and intensified public discussion of an ever-rising equity gap then led to a political strategy which sought to abolish at least some specific exemptions, whereas others which were regarded as especially important for large groups of voters (such as pensioners dependent on social retirement insurance) were protected.⁵

The basic idea was thus to lower marginal rates, and compensate for revenue losses by an increase in taxable income. The former coalition government envisaged a marginal rate structure of between 15 per cent for low income earners and 39 per cent for high income earners. The new Government, fearing serious revenue losses, seems to be much less courageous and more dependent on their specific political clientele. Consequently they will reduce the highest marginal rate only to 48.5 per cent for wages and other passive incomes by 2002, while for business income the highest marginal rate will be reduced to 35 per cent. The current tax schedule (1999) has a marginal rate structure of between 23.9 and 53 per cent.

⁴ See, *Bundesverfassungsgericht* (1992). Another important ruling was recently made by the Constitutional Court with regard to the family benefits system; the revenue losses of this ruling will be much higher than the losses connected with the tax reforms of 1999 to 2002.

⁵ For details see, eg, Petersen & Bork (1997).

Figure 4: Fiscal Administration Structures

Fiscal Administration Structures

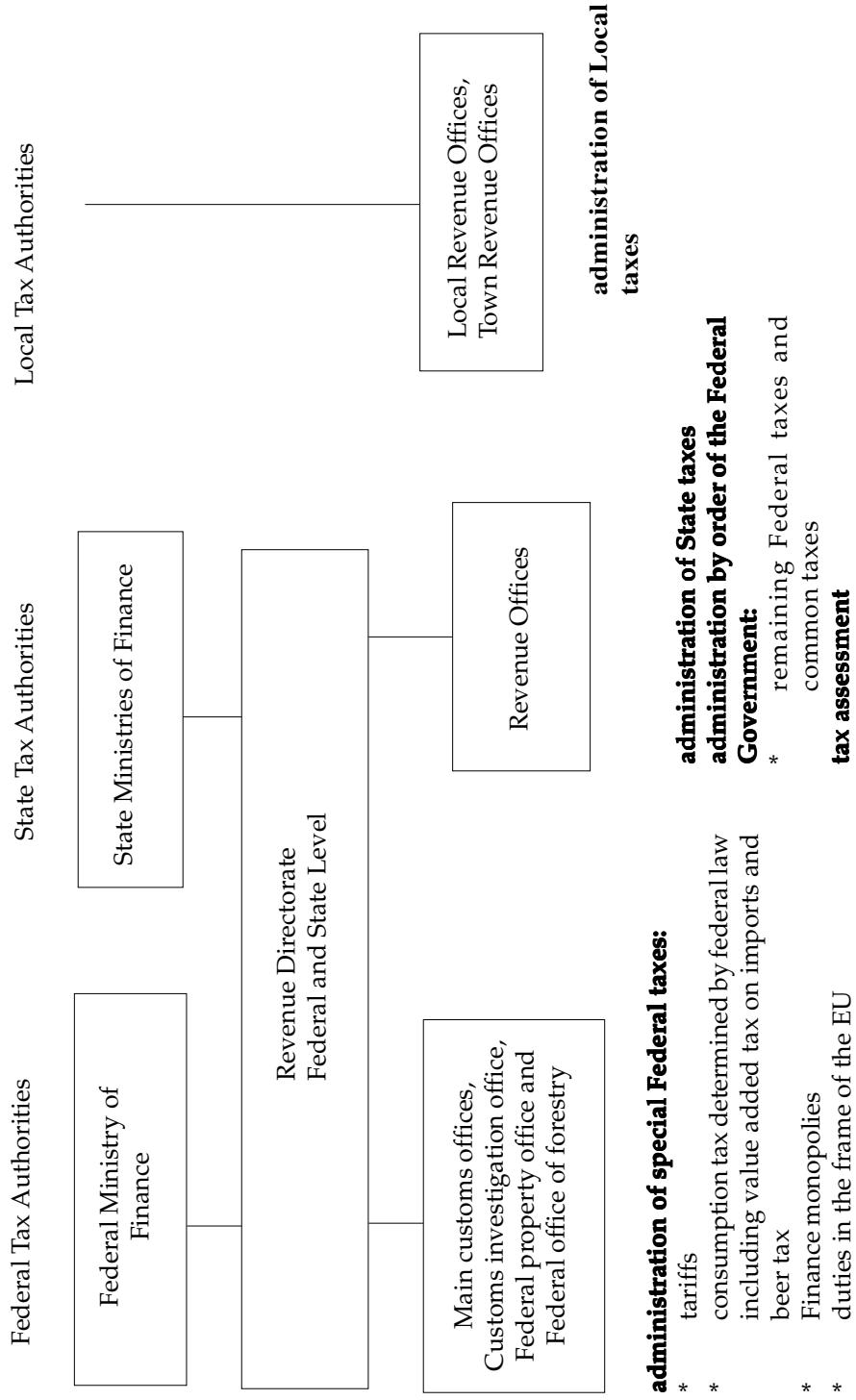


Table 1: Tax Revenue of the German Jurisdictions

| [A = in billion DM B = in % of total tax revenue] | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1986 | | 1990 | | 1995 | | 1997 | |
| | A | B | A | B | A | B | A | B |
| Common taxes | 333.7 | 73.8 | 416.4 | 73.4 | 579.2 | 71.1 | 554.7 | 69.6 |
| wage tax | 152.2 | 33.6 | 181.1 | 31.9 | 282.7 | 34.7 | 248.7 | 31.2 |
| assessed income tax | 29.9 | 6.6 | 36.5 | 6.4 | 14 | 1.7 | 5.8 | 0.7 |
| corporation tax | 32.3 | 7.1 | 30.1 | 5.3 | 18.1 | 2.2 | 33.3 | 4.2 |
| capital income tax | 8.1 | 1.8 | 10.8 | 1.9 | 16.9 | 2.1 | 14.7 | 1.8 |
| value added tax | 58.6 | 13.0 | 84.6 | 14.9 | 198.5 | 24.4 | 199.9 | 25.1 |
| value added tax on imports | 52.6 | 11.6 | 69.9 | 12.3 | 36.1 | 4.4 | 41 | 5.1 |
| source tax on interest payments | | | | | 12.8 | 1.6 | 11.4 | 1.4 |
| Federal taxes | 56.4 | 12.5 | 76.4 | 13.5 | 141.2 | 17.3 | 142.2 | 17.8 |
| tax on petrol | 25.6 | 5.7 | 36.6 | 6.5 | 64.9 | 8.0 | 66 | 8.3 |
| tobacco tax | 14.5 | 3.2 | 18.3 | 3.2 | 20.6 | 2.5 | 21.2 | 2.7 |
| tax on alcoholic beverages | 4.1 | 0.9 | 4.5 | 0.8 | 4.8 | 0.6 | 4.7 | 0.6 |
| insurance tax | 4.2 | 0.9 | 6.4 | 1.1 | 14.1 | 1.7 | 14.1 | 1.8 |
| Tariffs | 5.2 | 1.1 | 7.2 | 1.3 | 7.1 | 0.9 | 6.9 | 0.9 |
| solidarity surcharge | | | | | 26.3 | 3.2 | 25.9 | 3.2 |
| other federal taxes | 2.7 | 0.6 | 3.4 | 0.6 | 3.3 | 0.4 | 3.4 | 0.4 |
| State taxes | 21.3 | 4.7 | 25.4 | 4.5 | 36.6 | 4.5 | 34.7 | 4.4 |
| property tax * | 4.4 | 1.0 | 6.3 | 1.1 | 7.9 | 1.0 | 1.8 | 0.2 |
| automobile tax | 9.4 | 2.1 | 8.3 | 1.5 | 13.8 | 1.7 | 14.4 | 1.8 |
| inheritance and gift tax | 1.9 | 0.4 | 3 | 0.5 | 3.5 | 0.4 | 4.1 | 0.5 |
| beer tax | 1.3 | 0.3 | 1.4 | 0.2 | 1.8 | 0.2 | 1.7 | 0.2 |
| other state taxes | 4.3 | 1.0 | 6.4 | 1.1 | 9.6 | 1.2 | 12.7 | 1.6 |
| Local taxes | 41.2 | 9.1 | 48.6 | 8.6 | 57.2 | 7.0 | 65.6 | 8.2 |
| firms profit tax ** | 32 | 7.1 | 38.8 | 6.8 | 42.1 | 5.2 | 48.6 | 6.1 |
| land tax | 7.6 | 1.7 | 8.7 | 1.6 | 13.7 | 1.7 | 15.5 | 1.9 |
| other local taxes | 1.5 | 0.3 | 1.1 | 0.2 | 1.4 | 0.2 | 1.5 | 0.2 |
| total tax revenue | 452.4 | 100.0 | 567.3 | 100.0 | 814.2 | 100.0 | 797.2 | 100.0 |

* until 1997

** until 1997 incl. firms capital tax

Due to innumerable specific regulations, tax law, and its accompanying income tax instructions and directives, has become highly complex. This complexity is clearly expressed within the different commentaries on income tax law, some of which fill over ten thousand pages. This flood of information has made the tax system a profitable field for tax consultants – their number would be an excellent proxy measure for the inefficiencies of the system; it has also created dubious redistributive effects. The system may have become exploitable for the informed, but it is the uninformed, the average person, who has to foot the bill.

Similar developments have taken place with regard to value added tax (VAT) – the commentaries on which are also quite extensive. Introduced in 1967 as a comparatively simple

and efficient tax, the VAT tax law has since become more and more complex, especially due to the modifications which have been necessary as part of European integration. The VAT system operated as a consumption tax and is based on net turnover of goods and services; the tax credit method is used. The turnover due to other transaction taxes and housing rents is exempt and there is also an exemption for small turnover. The tax rate is proportional, with a standard rate of 16 per cent and a reduced rate of 7 per cent for goods and services which are basic needs (eg, food, books, newspapers). The tax-free rents and reduced rate were introduced to diminish the regressive effects of the VAT system. Empirical estimates have shown that such a reduction is in fact observable, while slight regressive effects remain.⁶ We do not have any precise empirical information about the total redistributive effect of the German tax system, but in view of the numerous concessions and loopholes, the whole system appears to be more proportional than progressive.⁷

C. The transfer system

The German transfer system is far too complex to represent in a simple table. There are over 40 institutions with more than 90 general laws and regulations covering social policy, not to mention thousands of guidelines for its administrative execution. There is neither enough space nor time to describe this in detail. However, unlike systems with no comprehensive code, the German system is built around an ever developing social security code.

The institutions are roughly grouped in Figure 5 (detailed interrelations have been omitted). The federal and state authorities have legal sovereignty over almost all of the institutions mentioned, partly on a competitive basis. The main tasks of the various ministries should be mentioned. The Ministry for Finance is responsible for family-based benefits which are mainly included within the income tax system, while the Ministry for the Interior decides on pensions for government employees. The Ministry for Employment and Social Order has power over some social insurance institutions, such as social unemployment and accident insurance, in addition to regulating the social aid system (administered by the Local Government Social Offices and predominantly financed by the municipalities). Social health insurance is administered by the Ministry for Health; the Ministry for Transport and Housing is responsible for rent and housing support. Specific social programs are organised by the Ministry for Family, Senior Citizens, Women and Youth, while the Ministry of Education administers the educational assistance system.

The primacy of the family is at the core of the structure of the German social security system. Parents are obliged to maintain their adult children whilst they are in the education system or in times of need; this obligation extends to all first-degree relatives and is regulated by the German Civil Code (BGB, §§ 1601 ff.). In accordance with the subsidiary principle, social security is only available in cases of insufficient income or property. The social

⁶ See, eg, Nagel & Müller (1992).

⁷ The regressive effect depends heavily on the tax base and the chosen time horizon; what is regressive in an annual perspective may not be regressive if considered in terms of a lifetime. Annual market income is less equally distributed than annual consumption, and lifetime consumption is more equally distributed than lifetime market income; for details, see Metcalf (1994) and Petersen (1996).

aid system now secures a 'socio-cultural' standard of living, whereas in the first post-war decades a concept similar to the idea of 'relative poverty' was followed. Due to historical reasons the current system is predominantly financed by local jurisdictions; this often creates serious financial problems in regions suffering from great structural change and associated unemployment.

Under the original Bismarckian model, social insurance institutions were founded as self-administering institutions. In social elections, the representatives of employers and employees are still today elected in parity. Meanwhile the influence and power has in fact shifted to the political sphere, so that all important decisions are now decided by the Federal Parliament. This is true for contributions to, as well as for benefits from, the social insurance system. In general the social insurance system is wage-oriented, in the sense that almost all contributions are linked to gross wages; benefits are also wage-oriented according to a socially modified insurance principle.

In contrast to private insurance schemes, personal redistribution is built into the system to a certain extent, as wage distribution differs from individual risk distribution. With steadily increasing political interventions into the social insurance system, redistribution measures have been intensified. At the same time, demographic development has impaired the rate of return of the system and will continue to do so in the future. Therefore the nature of the insurance has been lost and the system has become more one of aid or care. Consequently, the contributions are taken as quasi-taxes, thus generating the same behavioural changes as taxes. Nowadays we not only complain of tax avoidance and evasion but also of contribution avoidance and evasion, a problem which is closely linked to the treatment of low incomes for part-time work.⁸

In comparison with the social aid system, the benefits of the transfer scheme are predominantly defined in accordance with income tax, but several modifications have led to the fact that the upper income ceilings are quite different. If family income exceeds certain income limits the sudden abolishment of transfers like housing benefits, education benefits, and support of property formation leads to erratic increases in marginal tax and transfer rates (see Figure 9 below). The benefit levels for payments out of the social insurance system are partly gross- and net-wage oriented and treated quite differently within the income tax system. Because the social insurance and income tax systems have not been rationally planned from the very beginning, and their integration has never been a political target, they are not well co-ordinated.

⁸ In Germany, low part-time wages have until now been taxed at a fixed proportional rate and the tax burden is anonymously paid by the employer (so-called 630/530 DM jobs in the old/new States of Germany). The new coalition plans to substitute the 20 per cent wage tax with a 20 per cent social security contribution, which will no longer be paid anonymously.

Figure 5: Social Security Institutions in Germany

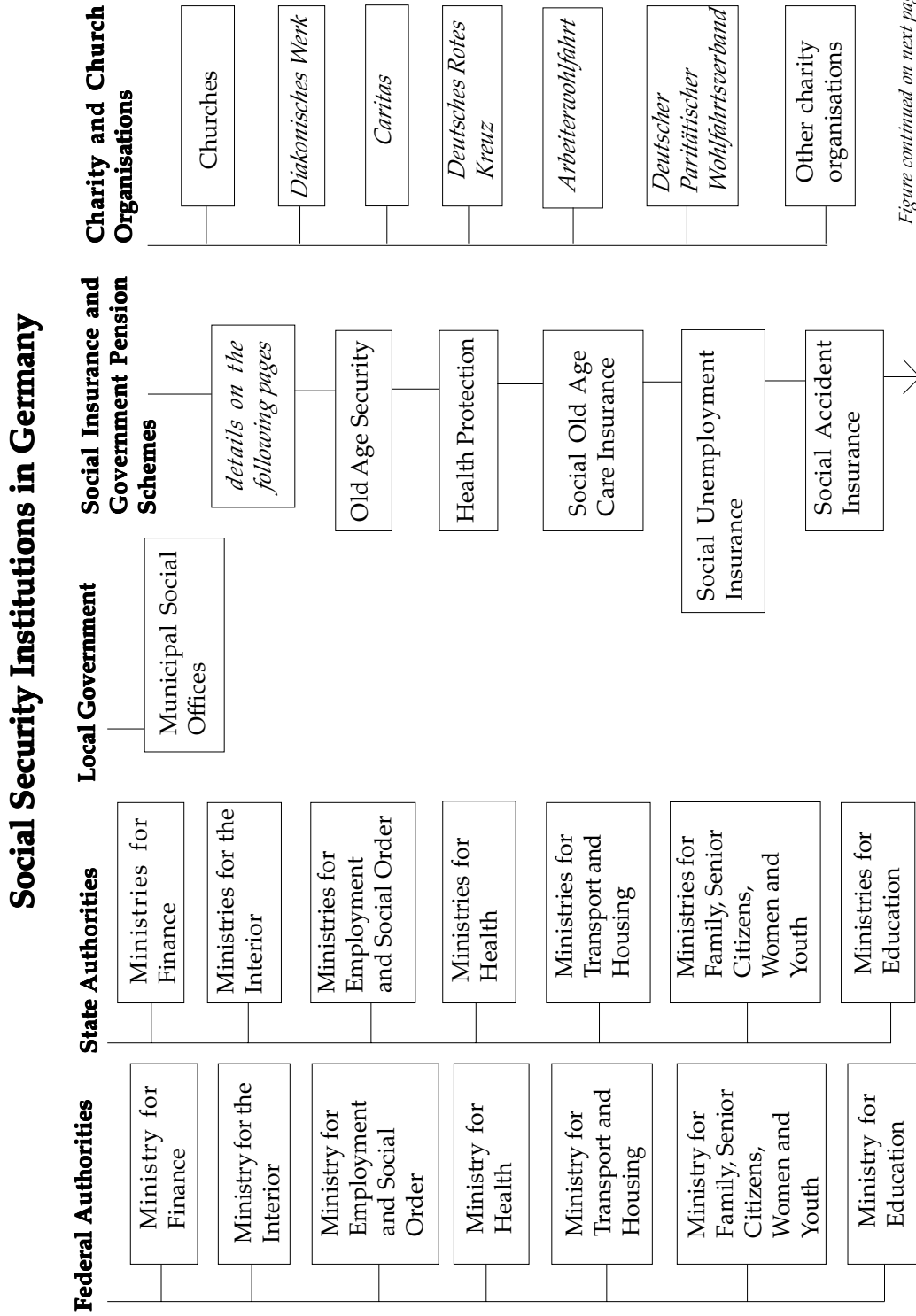


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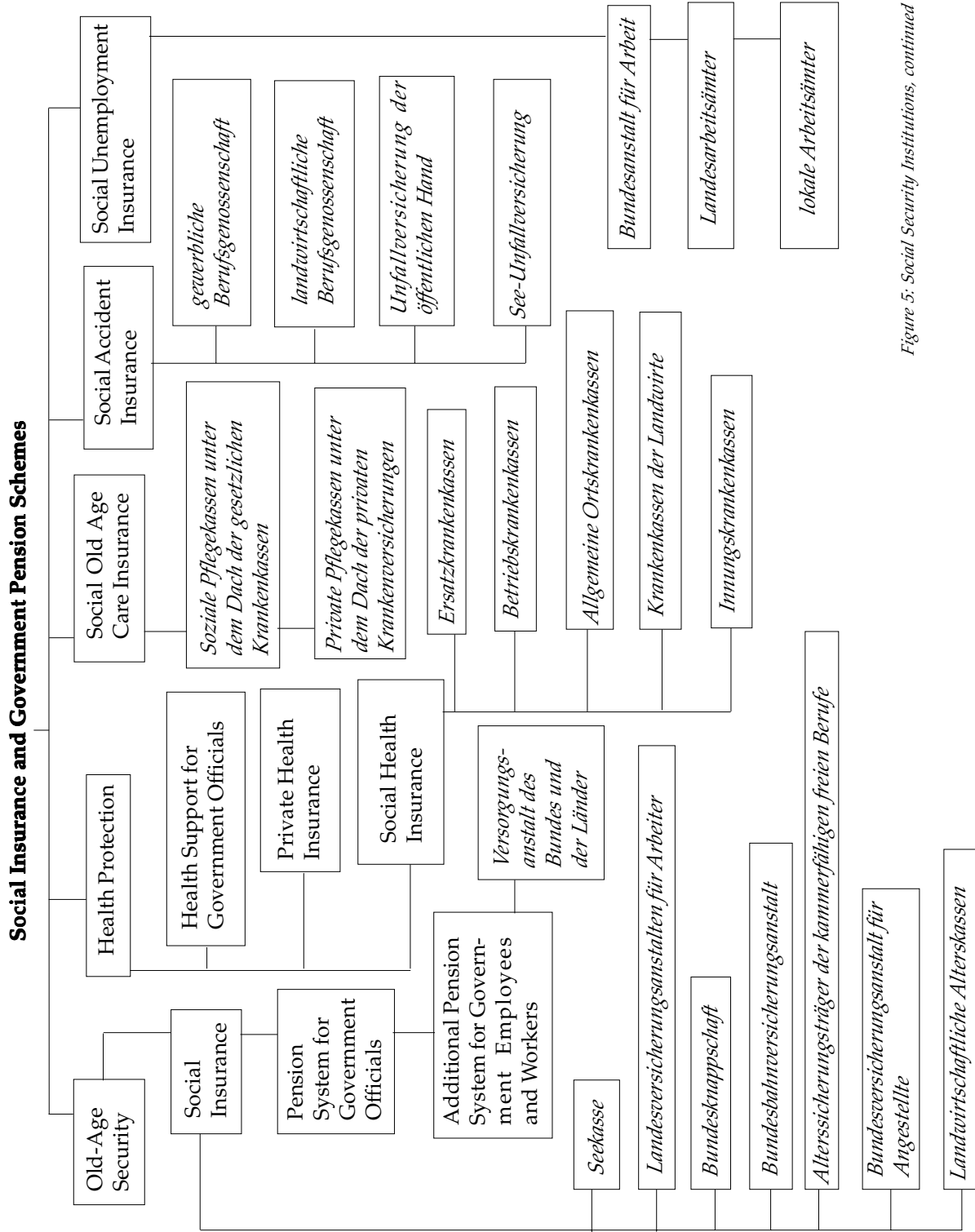


Figure 5: Social Security Institutions, continued

Because the German social insurance system is oriented towards causality factors of social need (the causality principle), and income targets are poorly defined (as in case of the final principle), in many cases benefits from different insurance branches and aid systems can accumulate. In such cases very high replacement income ratios are often realised. On the whole the redistribution process is essentially inefficient because an enormous part of GDP is spent on social policy programs whereas the net redistributive effect remains small. Most of the redistribution that occurs is not directed from the rich to the poor but takes place within the middle income classes – a brilliant example of a welfare state in which income is shifted from the one pocket to another, all the while generating jobs for the welfare bureaucracy.

These trends are clearly reflected in the empirical development of the social budget. Table 2 represents the development of outlays on social welfare after German unification. During the entire post-war period the West German social budget was steadily increased but obviously never solved the poverty problem. Already before unification (in the late 1980s) a new social phenomenon was created connected with the popular image of two thirds of society being well-to-do, with the remaining third living in need and poverty. If such a popular description were correct, it would provide yet more proof of the inefficiency of the welfare state, in which the redistribution process is not directed at those actually in need.

The Social Budget (1256.1 bill. DM or 34.5 per cent of GDP) has reached such a volume that further increases would be met with resistance by taxpayers and the majority of voters, and impair the further growth potential and competitiveness of German society. The current direct tax burden resulting from the highly progressive income tax schedule especially for employees in the middle income brackets who do not have the potential and opportunity for tax avoidance and evasion is only one problem. Much more serious is the high burden of social insurance contributions which, up to some upper income brackets, are proportionally determined. Unlike wage tax, they start being levied from the time the first Deutschmark is officially earned. By the end of 1998, the total percentage of social insurance contributions (employers' and employees' contribution) had reached 42.3 per cent of the payroll,⁹ while employers are also required to pay almost 5 per cent for sick leave compensation.¹⁰ For some social security insurance institutions (especially for old-age insurance) additional federal government grants are applied, and these are financed out of the general tax revenue. Taking these burdens all together, households, and especially companies, in Germany have to face one of the highest wage costs in the world. This has clearly led to disincentives for job creation in Germany.

What we are currently left with is a *welfare state with empty pockets* – unable to fulfil the entitlements promised by politicians, resulting in feelings of annoyance and betrayal, thereby strengthening resistance to tax and the welfare state. This fact might have been one of the motivations for the recent political change, in spite of the fact that the new coalition does not have better policies. Therefore fundamental reform perspectives are as badly needed as they are regrettably absent. One such perspective is a return to the original concept of the German social state. This will be elucidated below.

⁹ See Deutscher Bundestag (1998).

¹⁰ See Prewo (1995, p. 14).

Table 2: Social Budget in Germany 1991 - 1997

| | 1991 | 1992 | 1993 | 1994 | 1995 ^p | 1996 ^p | 1997 ^s |
|--|---------------|---------------|----------------|----------------|-------------------|-------------------|-------------------|
| Social Budget | 883.08 | 999.88 | 1059.04 | 1108.31 | 1177.88 | 1236.15 | 1256.1 |
| General System | 570.9 | 653.95 | 697.69 | 736.31 | 788.04 | 810.87 | 829 |
| Social Old-Age-Insurance ¹⁾ | 260.69 | 287.64 | 309.33 | 334.92 | 361.11 | 375.64 | 384.7 |
| - Old-Age-Insurance for Workers | 134.15 | 146.64 | 157.43 | 170.33 | 182.33 | 189.23 | 193.4 |
| - Old-Age-Insurance for White-Collar Workers | 106.69 | 119.5 | 128.91 | 140.07 | 153.07 | 160 | 164.6 |
| - Old-Age-Insurance for Miners | 19.85 | 21.50 | 22.99 | 24.51 | 25.71 | 26.42 | 26.7 |
| Social Old-Care-Insurance | 0 | 0 | 0 | 0 | 10.32 | 21.35 | 29.3 |
| Social Health Insurance | 181.66 | 208.85 | 209.89 | 227.64 | 239.12 | 247.3 | 244.5 |
| Social Accident Insurance | 14.89 | 17.08 | 18.49 | 19.38 | 19.98 | 20.22 | 20.5 |
| Employment Promotion and Unemployment Benefits | 87.34 | 111.22 | 131.5 | 126.67 | 128.99 | 138.58 | 142.6 |
| Children's Allowance | 20.41 | 21.92 | 21.64 | 21.03 | 21.27 | 0.82 | 0.4 |
| Child-Care Benefits | 5.92 | 7.23 | 6.84 | 6.68 | 7.24 | 6.96 | 7 |
| Supplementary Systems | 6.98 | 7.62 | 8.09 | 8.45 | 9.02 | 9.56 | 9.8 |
| Old-Age Protection for Farmers | 4.81 | 5.3 | 5.6 | 5.81 | 6.21 | 6.6 | 6.7 |
| Add. Pension System for Government Employees | 2.17 | 2.32 | 2.48 | 2.64 | 2.8 | 2.96 | 3.1 |
| Benefits for Government Officials | 69.12 | 74.23 | 77.95 | 80.02 | 84.73 | 87.64 | 89.6 |
| Pensions | 46.84 | 50.02 | 52.46 | 53.8 | 54.42 | 59.8 | 61.5 |
| Income Supplement for Families | 11.52 | 12.22 | 12.66 | 12.89 | 13.18 | 13.2 | 13.3 |
| Health Allowance | 10.77 | 11.99 | 12.83 | 13.33 | 14.13 | 14.64 | 14.8 |
| Employer Benefits | 85.36 | 91.54 | 91.84 | 91.88 | 99.34 | 96.92 | 93.4 |
| Sick Leave Compensation | 47.53 | 51.16 | 50.23 | 49.43 | 55.27 | 52.33 | 47.1 |
| Company Pensions | 21.13 | 22.49 | 23.73 | 24.96 | 26.57 | 26.8 | 28.1 |
| Supplementary Insurance | 11.59 | 12.76 | 12.82 | 12.6 | 12.93 | 13.33 | 13.8 |
| Other Employer Benefits | 5.11 | 5.13 | 5.06 | 4.9 | 4.58 | 4.46 | 4.4 |
| Compensation | 17.29 | 18 | 18.18 | 18.44 | 18.27 | 17.06 | 15.4 |
| Social Compensation | 13.43 | 14.15 | 14.42 | 14.51 | 13.94 | 13.11 | 12.3 |
| Equalisation of War-Burdens | 1.02 | 0.93 | 0.84 | 0.74 | 0.64 | 0.54 | 0.5 |
| Compensation of War-Victims | 1.9 | 1.93 | 2.21 | 2.39 | 3.09 | 2.89 | 2.3 |
| Other Compensation | 0.94 | 0.99 | 0.72 | 0.79 | 0.61 | 0.53 | 0.4 |
| Social Aid and Support | 76.68 | 89.93 | 97.97 | 103.05 | 105.28 | 104.2 | 102.4 |
| Social Aid | 35.72 | 40.14 | 46.03 | 52.35 | 54.39 | 53.12 | 50.8 |
| Youth Aid | 21.32 | 25.04 | 27.68 | 28.53 | 29.19 | 29.33 | 29.5 |
| Education Benefits | 2.59 | 2.49 | 2.24 | 1.96 | 1.86 | 1.79 | 1.8 |
| Housing Benefits | 4.94 | 7.32 | 6.99 | 6.19 | 6.22 | 6.64 | 7 |
| Public Health Services | 2.89 | 3.29 | 3.27 | 3.14 | 3.15 | 3.18 | 3.2 |
| Support of Property Formation | 11.22 | 11.65 | 11.77 | 10.87 | 10.47 | 10.14 | 10 |
| Total Direct Benefits | 828.34 | 836.28 | 991.73 | 1038.15 | 1104.69 | 1126.25 | 1139.5 |
| Indirect Benefits | 54.75 | 63.6 | 67.32 | 70.16 | 73.19 | 109.9 | 116.6 |
| Tax Measures ²⁾ | 54.75 | 63.6 | 67.32 | 70.16 | 73.19 | 66.6 | 66.9 |
| Family Benefits | 0 | 0 | 0 | 0 | 0 | 43.3 | 49.7 |
| ¹⁾ Consolidated | 27 | 29.5 | 30.2 | 31.1 | 32.4 | 41.1 | 41.5 |
| ²⁾ Splitting advantages for the spouse | | | | | | | |
| <i>p</i> - provisional <i>s</i> - estimate or projection | | | | | | | |

Source: Bundesministerium für Arbeit und Sozialordnung. Sozialbericht 1997 (1988, pp. 214-215)

D. Principles, benefits, and marginal rates

As I have already mentioned, the tax and transfer system was not planned rationally. Consequently, the underlying principles are quite diverse, even within single branches of the system. The causal orientation, as mentioned above, forms the essential structure. The family's obligation of maintenance, arising out of the Civil Code, is one strong argument for implementing a 'household' principle rather than an individually-based one. But there are other societal and economic arguments for following a household approach. Firstly, the family is the natural reproduction unit. Furthermore, it is within households that basic decisions are made regarding labour market participation, intra-family specialisation and the division of labour. Synergetic effects within household production is another strong argument in the welfare context.

The German income tax system applies the household, or rather the 'family' principle.¹¹ Spouses are taxed while their dependent children are being educated, with, however, a 'splitting procedure' and child benefits or exemptions guaranteeing a tax-free minimum income corresponding to the social aid ceilings. Within the social aid system, the pure household principle is applied, even for couples who are not legally married, though problems in regulation mean that transfer fraud is common.

In addition, another choice has to be made regarding transfer or benefit calculation: should benefits be wage gross or wage net oriented? The German system does not have a simple answer. Figure 6, which is only a stylised picture, demonstrates how complex the German system is, even in light of numerous simplifications. In this example, a single household has been taken and all the possible cumulative effects have been excluded. The explanations and comments are of general application, and for the purposes of comparison the net-wage has been set at 100 per cent. The social aid system guarantees a socio-cultural minimum standard of living (45-50 per cent of the average net wage). If this amount is taken as a basic security level, it can be seen that the other social insurance branches and public pension schemes are well above that level.

With regard to replacement net wage ratios, sick leave compensation corresponds to the net wage, whereas the sickness benefit is 10 per cent less. After 45 years of employment, the social pension is almost 70 per cent, while the replacement gross wage ratio is slightly below 50 per cent. This is due to the fact that social pensioners only pay a reduced contribution to Social Health Insurance, and the social pension itself is, in fact, income tax-free.¹²

In both the federal and State governments, officials receive the higher replacement gross wage ratio of 75 per cent; and this is received after only 40 years of employment. The pension of civil servants (*Beamte*) is taxed like wages (albeit with a maximum annual exemption of DM 6000), and their replacement net wage ratio is between 75 and 80 per cent. In contrast to civil servants, employees and workers contribute to the social pension system

¹¹ 'Family' principle is more apt because the tax concessions are dependent on a legally formalised marriage.

¹² Because of specific concessions, income tax would only begin to be levied at pensions above DM 52 000 for singles (doubled for couples), but such pensions exist only in theory. For calculation of the old age pensioner's entitlement, see *Bundesministerium für Arbeit und Sozialordnung* (1997, p. 178) and Lampert (1996, pp. 256).

while their supplementary system (which secures the standard of the civil servants system) operates without contributions. Because their pensions are predominantly tax-free, their replacement net wage ratios are correspondingly higher. About ten years ago, however, an upper net wage ceiling of 91.75 per cent was introduced to avoid replacement net wage ratios of over 100 per cent. This limitation is regulated in the supplementary pension system (*Versorgungsanstalt des Bundes und der Länder VBL*), financed only by employers' contributions.

The unemployment pension (the dole) and aid are again net wage oriented and differ for singles and families; replacement net-wage ratios for the dole are 57 per cent for singles and 67 per cent for spouses. The dole is paid for the first twelve months of unemployment, after which unemployment aid is paid. In contrast to the dole, unemployment aid, like social aid, is needs-tested and is also subject to the family maintenance obligation. If the remaining replacement income is below the social aid minimum, the person under consideration falls back under the social aid system.¹³

Within the social insurance system, benefits are household-oriented, insofar as the single institutions guarantee reduced monetary benefit levels or in-kind transfers for non-insured family members. Within the social health insurance system, dependants in single breadwinner families are insured without having to make any contributions, and they receive the same transfers in kind as do the insured. All pension adjustment schemes are dynamic, but they can be partly gross or net wage oriented. If whole life cycles are taken into consideration it is obvious that the replacement ratios and the benefits paid by the public systems greatly favour the publicly employed. The lack of coordination within the income tax system can be seen in the different treatment experienced by those receiving different social benefits, as well as in several complex provisions which have been introduced to avoid the result that temporarily paid benefits counteract the income tax schedule's progression. Nevertheless, net wage orientation and net wage adjustment for individual benefits impair such a progression because benefits (or parts thereof) are burdened with average implicit tax rates which are independent of the actual income situation of the person or family under consideration. If we take, for example, the adjustment of social pensions, then the net adjustment means that an average tax rate of active wage tax payers is used, even though this is often much higher than the correctly estimated average tax rate of the individual pensioner would be. Low income pensioners are especially burdened, though their own total income would fall below the basic exemption of the income tax schedule. Thus we are again confronted with a perverse redistribution measure.

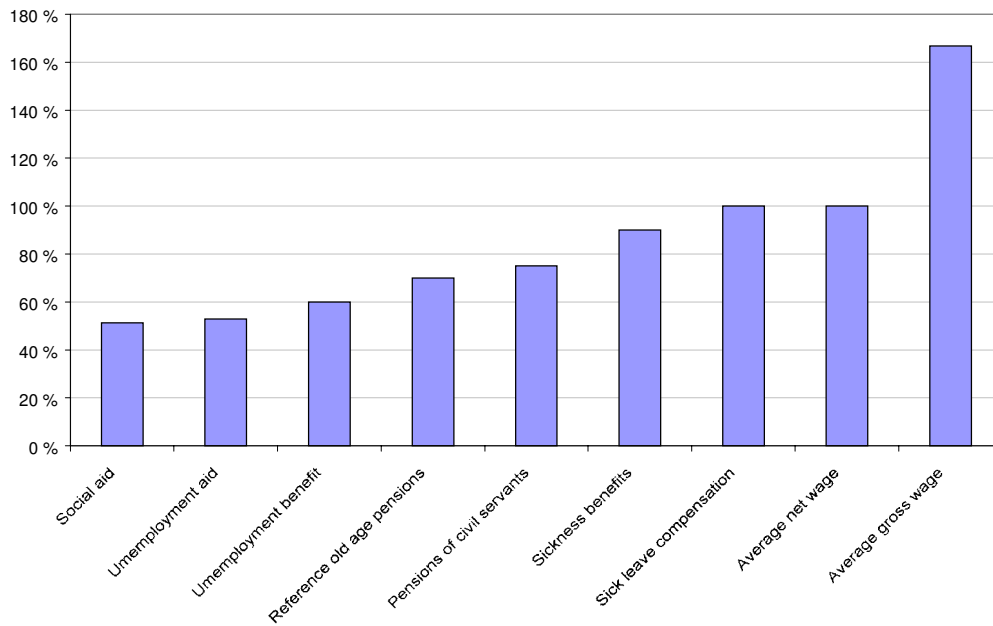
¹³ Unemployment aid is paid by the social unemployment insurance; deficits are financed by the federal budget. As mentioned above, the social aid system is overwhelmingly financed at the local government level. By reducing the replacement net wage ratio, the federal State has produced an increasing number of people whose replacement income has fallen below the social aid minimum. The fiscal burden is then shifted from the federal level and unemployment insurance to local government budgets, thus changing the balance between jurisdictions. Several reform proposals have therefore expressed the demand that the social aid system be organised and financed at the federal level. This would also mean a fundamental change within the fiscal equalisation and revenue sharing system.

Figure 6: Stylized Overview of Social Benefits in Germany

| | | | | | | | |
|----------------------------|---|--|---|--|--|---|---|
| 100% | | | | | | | |
| | basic security | | | | | | |
| replacement net wage ratio | 45-50% | 70% | 60/53% | 100/90% | 75-80% | 75-91.75% | 100% |
| kind of social benefit | Social Aid System (one person) | Social Pension System | Unemployment Insurance (benefit and aid; for families 67/57%) | Social Health Insurance (sick leave compensation and sickness benefit) | Pension System of Civil Servants | Pension System of Public Employees and Workers | Wages (gross, net) |
| employees contributions | no | individual | individual | individual | no | individual | gross wage oriented |
| benefits | household | individual, partly household | individual (benefit), partly household (aid) | individual | individual, partly household | individual, partly household | individual |
| Calculation according to | social cultural minimum | calculation: gross wage; adjustment: net wage increase | Net wage | Net wage | Calculation: gross wage; adjustment: gross wage increase | Calculation: gross wage; net wage ceiling at 91.75%; adjustment: gross wage increase | |
| Comments | depends on family status and net wage, family maintenance obligation, needs based | reference old age pensioner (45 years of contributions), usually income tax free | aid is needs based, provision concerning progression | Sickness benefit individual, non cash benefits: household oriented, provision concerning progression | reference pensioner with 40 years, due to income tax | Supplementary insurance (VBL) without employees' contributions, reference pensioner with 40 years, taxed as social pensions | The average wage tax burden is about 20.0% for singles and 18.6% for families |

For further elucidation of the problem, the replacement ratios for two different types of households are depicted in Figures 7 and 8. Estimates from the German Income and Consumption Survey (EVS 1993) have been used and the net wage was again set at 100 per cent. In both cases the empirical effect of the regulations can be clearly seen.

Figure 7: Comparisons of the Replacement Ratio – One-Person Household



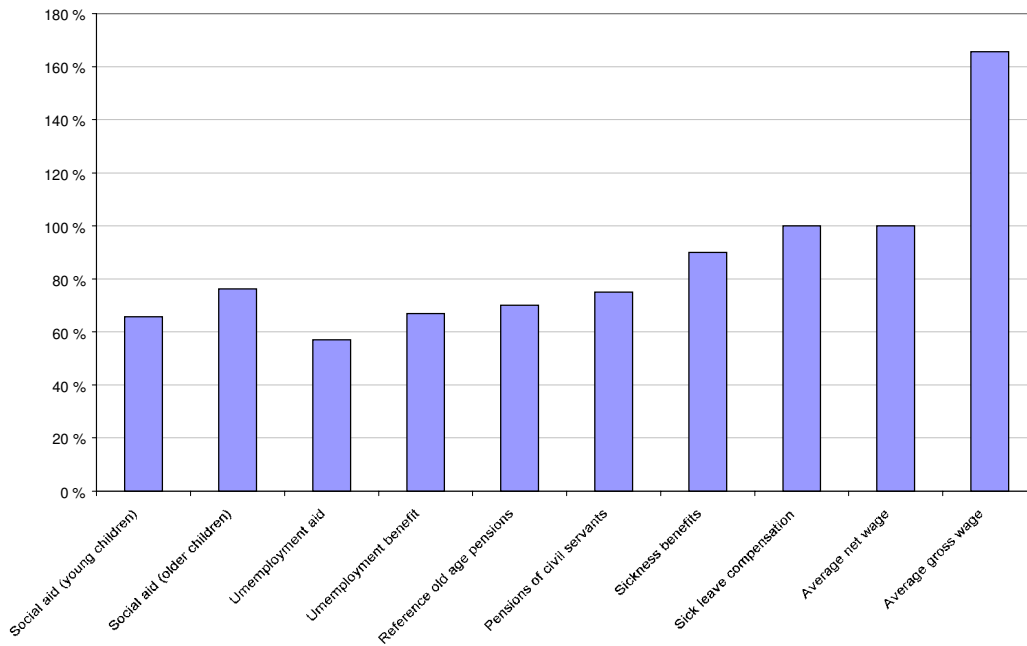
While in the first example, the social aid payment is about 50 per cent of the average net wage, in the four-person household (two income-earners, two children), social aid depends on the age of the children. The social aid payment for families with two children under 13 years of age (social aid I) is less than for a family where the children are over 13 (social aid II). In the first case the social aid payment reaches about 65 per cent of the average net wage for that type of household, while in the second it is about 78 per cent.

If lower gross income groups are taken into consideration, it becomes obvious that the gap between active labour income and social aid diminishes. This is especially true for families living in large cities with high rent rates, since rent and all extra costs are borne by the Social Aid System. In specific cases, especially for families living in Eastern Germany,¹⁴ social aid payments are higher than the active family income, which naturally creates serious disincentive effects for the work supply. This problem is not only dependent on the amount of social aid apportioned, but also on the fact that even low-income groups are heavily burdened by social security contributions (until 1993 also the case in relation to wage tax). But the so-called difference principle, which requires that there be a considerable gap between

¹⁴ For more information, see Petersen (1997, pp. 64).

wages and social aid payments (about 15 per cent in favour of the employees), is at least partially impaired. Additionally, the combination of social aid payments and income from illicit work is often much more attractive than income from a job in the official labour market. Serious disincentives have been set with respect to transfer fraud.

Figure 8: Comparison of the Replacement Ratios of Social Benefits – Four-Person Household with Two Income Earners



The net wage orientation and the lack of coordination are on the one hand the consequence of the different historical developments. On the other hand, in social aid and insurance institutions, political decisions on replacement ratios have to be made. Without any precise explanations, very different replacement ratios have been politically applied. The main purpose was to guarantee average replacement ratios for people of similar social status, a target which was closely linked with the egalitarian principle. In fixing single net replacement ratios, the cumulative effects of the social insurance system and supplementary private provision systems have been totally neglected. In addition to supplementary firms' pension systems and private life-insurance system, the latter group includes all the provisional saving and capital formation made for the retirement period.

Most pensioner households have quite substantial sources of income other than the social pension, so it is often less than a minimum provision.¹⁵ Though households constituted by people over the age of 60 represent less than a third of the total number of German house-

¹⁵ For details, see Petersen (1989, pp. 187) and the more recent empirical investigation of the *Institut der Deutschen Wirtschaft* (1997).

holds, they account for over two thirds of the personal and real property. Obviously income is distributed unequally amongst pensioners, and many do, in fact, fall below social aid standards, but old-age poverty in general is a political myth which has directed all social pipelines in pensioners' favour, thereby further exacerbating adverse redistribution effects. Social policy still adopts traditional patterns in order to promote the interests of 'poor' pensioners, while the employed workforce is heavily burdened, with reactive disincentive effects.

The political determination of net replacement ratios has recently come under intense political pressure because of demographic trends in old-age security and cost explosions within the health system. The new coalition abolished reductions in replacement rates which had been implemented by the old coalition, so Germany once again faces serious discourse on essentially theoretical fixed replacement ratios which not only impair political popularity but also affect trust in the social security system. These poor ratios are predominantly theoretical because the effective replacement ratios are determined by the individual procurements of single pensioner households; additional private provision schemes might lead to much higher ratios. In particular, pensioner households with higher total income profit from private insurance and property, as well as from the fact that they aren't subject to taxation.

Again, I must mention the perverse redistributive effects. Because of structural deficits within the social insurance system, it is often proposed that contributions be linked not only to wages but also to additional income sources (for example, income from rent and leasing), as well as capital income. Obviously such a measure would increase contribution revenue for the total system, but also create extra pension entitlements in the future. Such measures would make no sense, because current burdens are only shifted into the future. But what about entitlement connected to so broadened an income base? It would make no sense that social pensions which have been accumulated for old-age purposes, be spent on capital income. These measures are also irrational, since they once again would only favour groups who, in fact, do not need social assistance. Until now, blind political activism has increased the problems surrounding this issue. Politicians have always cured symptoms while causing increased complexity, and adverse redistribution – in spite of the fact that they often have had the best political intentions; a common German saying goes 'The road to hell is paved with good intentions'. Therefore it is possible – and desirable – that we go back to the roots and develop a more reliable perspective to overcome the current malaise.

E. Integrated system and basic security

Only causal therapy can help to overcome the current problems within the German tax and transfer system. One of the main points is that the income basis and brackets within the tax, transfer and social insurance institutions must be coordinated.¹⁶ The current status quo is expressed in Figure 9. The scope of marginal tax and transfer rates is determined by the abolition of transfers with increasing market income (from wages and other sources) and

¹⁶ The problem of a comprehensive and modern consumption-oriented income tax base is addressed in the Rose article in this volume.

the non-coordinated income limits within the tax and transfer system. For families with children receiving educational benefits, even marginal tax transfer rates of above 100 per cent are possible.

If such irrational tax hikes and perverse redistributive effects are to be avoided, fundamental reform steps are necessary. Within both the income tax and social aid systems, the current *household* principle should be further applied. But within social insurance institutions, contributions and benefits should be linked to the *individual* principle (including, where relevant, individuals' own contributions for the dependent family members). The current net wage orientation needs to be substituted by a gross wage orientation. This would also mean that all benefits would be included in the individual or household income tax base. Accumulated benefits from different sources and entitlements (eg for spouses), together with income from private provision and capital, would be progressively taxed, and thereby reduced. Only then would total income be adequately treated and the ability-to-pay principle once more realised.

Another important step is the reform of the German social aid system. In principle, this system guarantees a basic security standard to every German citizen. It is the social net people can fall back into in times of need, whatever the cause of that need might have been. Coming back to Figure 6, we can see that the various social insurance schemes guarantee replacement levels which are clearly above the basic security level. While social aid is paid without any individual contribution from the general budget or tax revenue, employees have paid a substantial part of their annual or lifetime market income in the form of employees' and employers' contributions towards basic security within social insurance institutions.

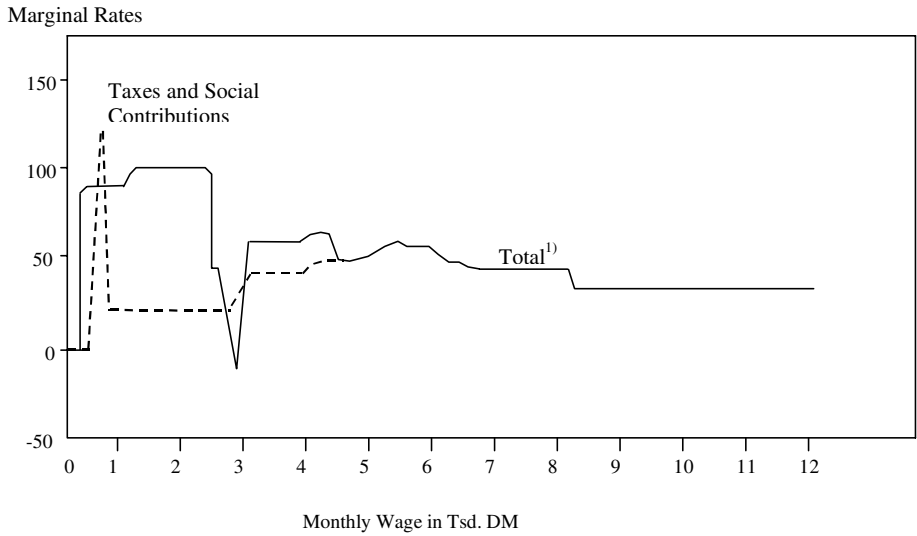
An illustrative example is provided by comparing the social aid payment of an old-age social aid recipient with the net pension payment of an unskilled worker who has worked all his life in a low-wage group. During his retirement period the single unskilled worker gets – again depending on housing costs – nearly the same amount as he could have got from the social aid system. The only difference is that his income was substantially reduced by contributions made to the social pension system throughout his active life. The fact remains that the basic security guaranteed by the social insurance institutions is financed by contributions which especially burden lower income groups. This does not only hold true for replacement income but also for transfers in kind from social health insurance, which are granted to social aid recipients without any contribution being made.

Hence the notion of a basic security strategy¹⁷ has often been discussed, one which would guarantee that all contributors to social insurance institutions receive the socio-cultural minimum of the social aid system. Consequently the component of social insurance expenditures which is needed in order to secure the basic income or care levels should be borne by a grant from the federal government, financed by general tax revenue. The task of the social insurance institutions would be reduced to financing the insured amounts above the basic security level via individual contributions.

¹⁷ In Germany, like elsewhere in the world, many basic security proposals exist; some of the literature can be found in Petersen, Hüther & Müller (1992) and Petersen (1997).

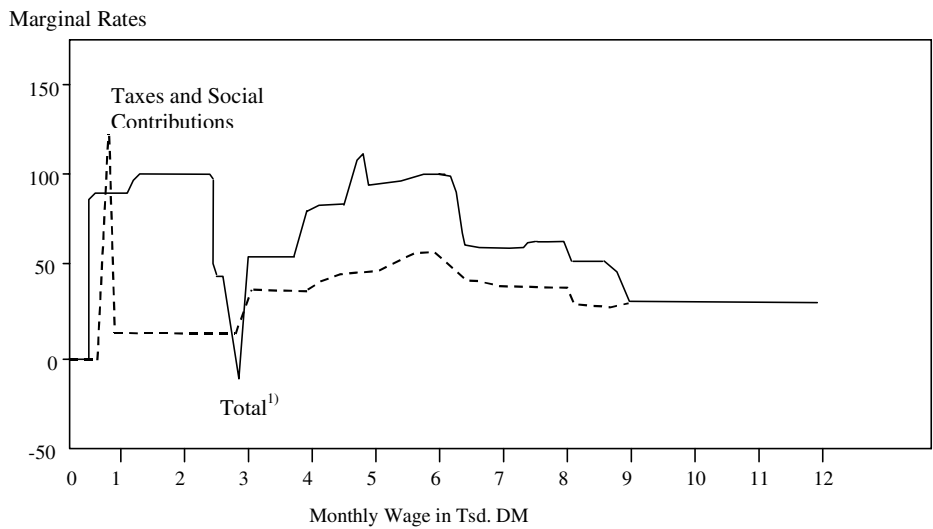
Figure 9: Marginal Tax and Transfer Rates in Germany

Tax and Transfer Rates for Spouses - One-Income-Earner, Two Children



¹⁾Income Tax, Solidarity Surcharge, Employee Contributions to Social Insurance and Withdrawal of Income Dependent Social Benefits

Marginal Tax and Transfers Rates for Spouses - One Income Earner, Child-Care Benefit and Education Benefit



¹⁾Income Tax, Solidarity Surcharge, Employee Contributions to Social Insurance and Withdrawal of Income Dependent Social Benefits

Source: Institut für Weltwirtschaft (1996, pp. 6 and 9)

Obviously such a fundamental reform would mean considerable adaptive measures during the transitional period, and a lot of research still needs to be undertaken to estimate possible aid and benefit levels as well as the costs of both the transition and the new system.¹⁸ Since unnecessary redistribution and institutional inefficiency could be avoided, while strengthening the revenue dynamics of income tax revenue, the overall effect for the federal budget and the social insurance institutions would very likely be positive. But in the mid-term perspective the reform process could even go further; because the basic security would be guaranteed within the social aid system, and contributions individually oriented, the social insurance institutions would to a large extent be liberated from their former task of redistribution. If wage-related contributions could then also cover the individual risk situation,¹⁹ benefits could be calculated according to the equivalence principle as it is applied in the private insurance system.

Similar to the reform process in the cases of German Post and German Railway, a step-by-step strategy could be developed to put the social insurance institutions into competition with the private insurance system, creating competitive advantages in the form of efficiency gains. Existing legal regulations as well as price control mechanisms within the private insurance sector would, however, need some reconsideration. In addition, compulsory membership within the social insurance system would have to be discussed, as well as the necessity of a compulsory private insurance. In principle, liberal solutions might be better at giving back to citizens much of their consumer sovereignty and control over their lifetime income. Real competition between the public and private systems is only possible if employees – perhaps under a compulsory insurance membership and sensible income limits – are themselves able to choose their preferred insurance.

Such choice would have to be supported by self-determination of the insurance contract, for example, the choice of the extent of insurance and replacement ratio. Such self-determined contracts would give the insured clear information about the costs and the services they receive, thereby further strengthening the equivalence relations and avoiding the disincentives of the current social security contributions. Such individual solutions would even have positive effects politically: while in the current system politicians in the context of ethical dilemmas are pressed to define replacement ratios for benefit and care levels, such decisions in a liberal system would be made individually by self-responsible behaviour. Political interventions and social policy then would be limited to those in real need, thus even enhancing the conditions for better social assistance.

E. Further political patterns

In Germany, the erosion of political influence has been obvious for over a decade; this is especially true of the tax and transfer system. Almost all substantial interventions in the social network can be attributed to rulings by the Constitutional Court - further evidence of

¹⁸ Some estimates have already been made in Petersen, Hüther & Müller (1992) and in Hüther (1990).

¹⁹ The adverse selection problem as well as the problem of relative poverty can be solved by an individual subsidisation of people with bad risk structures or those in need; for details see Petersen (1989) and Petersen & Müller (1999).

the lack of concepts or courage on the part of tax and social politicians. Their lack of courage is obviously the result of fears that the bureaucrats and interest groups engaged in the numerous welfare institutions might strike back by disinforming the public, thus diminishing politicians' popularity and causing them to lose votes.

But there is another reason why such political behaviour is rational. Assuming the politicians to be the most important group in society, then the success of a politician today is dependent on society's prevailing picture of them. Politicians' popularity depends mainly on whether they maximise their interventions in public or - even worse - private sector activities. Even if politicians were to be fully aware of the limitations of their power to intervene - an assumption which is, in view of those currently involved in this arena, slightly too optimistic - no rational incentives exist to abolish the failures of the system by means of a fundamental reform. To the contrary, such behaviour would be a serious mistake. On the one hand, politicians have to intervene into the people's personal affairs, which impairs their popularity. On the other hand, fundamental reform would mean that politicians would have to diminish the scope of their very *raison d'être* - that is, the necessity for permanent intervention. From the politicians' point of view, it is rational to remedy the symptoms rather than the causes, and this strategy is in accordance with moral hazard theory.²⁰ Their alleged preference for market solutions is merely lip-service.

Instead of a fundamentally market-oriented reform, temporarily effective measures to decrease the costs of the social security system are much more promising. These will only work until all involved parties have adapted their behaviour to the new regulations. If such reforms were coordinated with the re-election cycle, the short-term effects would be calculated to increase personal popularity. The cost explosion that would follow several months later would not terrify experienced politicians, as they could demonstrate their importance and renew their popularity in interviews and TV talk shows, etc. If such political behaviour cannot be traced back to a lack of information, ignorance, indolence or simply stupidity - none of which are very attractive attributes for a politician - it must follow a certain system. And that can be seen in the fact that politicians are able to exploit systemic failures for their own interests. Every fundamental reform would block their opportunity to cast themselves in a positive political light. Therefore, because of political self-interests²¹ efficient and frictionless tax and transfer systems are politically counterproductive. To sum up: we are surrounded by a political moral hazard.

The basic security and integrated tax and transfer approach is in accordance with a revival of *Ordnungspolitik* - namely a reformulation of institutional settings to obtain a reduction in discretionary interventions via a strategy of de-politicisation. Improving the institutional framework also includes strengthening responsible authorities' ethical behaviour. Institutional ethics have a higher degree of universal acceptance than individual ethics; therefore politicians and bureaucrats, acting in social institutions, should have greater societal obligations than private individuals. Corruption and scandals point to the fact that these obligations can be stressful. The consequence of these cases of moral turpitude can only be immediate re-privatization.

²⁰ See Petersen (1996a) and Petersen & Müller (1999).

²¹ Note the discussions on formula flexibility instead of discretionary interventionism in connection with business cycle policy some decades ago, ending in the latter's favour.

Is the time right for such de-politicisation strategies? This is a general question of feasibility. Politicians are gradually facing the fact that during the last few decades they took over too many duties formerly performed autonomously by families or market participants. Because of increases in the information that politicians must digest and a growing discontent and annoyance on the part of citizens, politicians are increasingly unable to solve complex societal problems. The arrogance of knowledge (Hayek) of what is good for the people or what is allegedly unnecessary, the merit and demerit argument, is recognised by well-educated citizens who acknowledge the limited abilities of political planning procedures. Any remnants of euphoria should have been destroyed by the fundamental political change of recent years, but interventionists among the politicians continue to dominate. Some politicians have, however, become aware that they would like to be able to rid themselves of the ghosts they have called into existence. International discussion on privatisation and improving the efficiency of a reduced public sector is but one piece of evidence. The standard role of a successful politician should be changed from one of interventionism to one of causal treatment of imperfect contemporary institutions and instruments. Permanent and overwhelmingly blind activism is no attribute or political proof of the quality of democratic leaders.

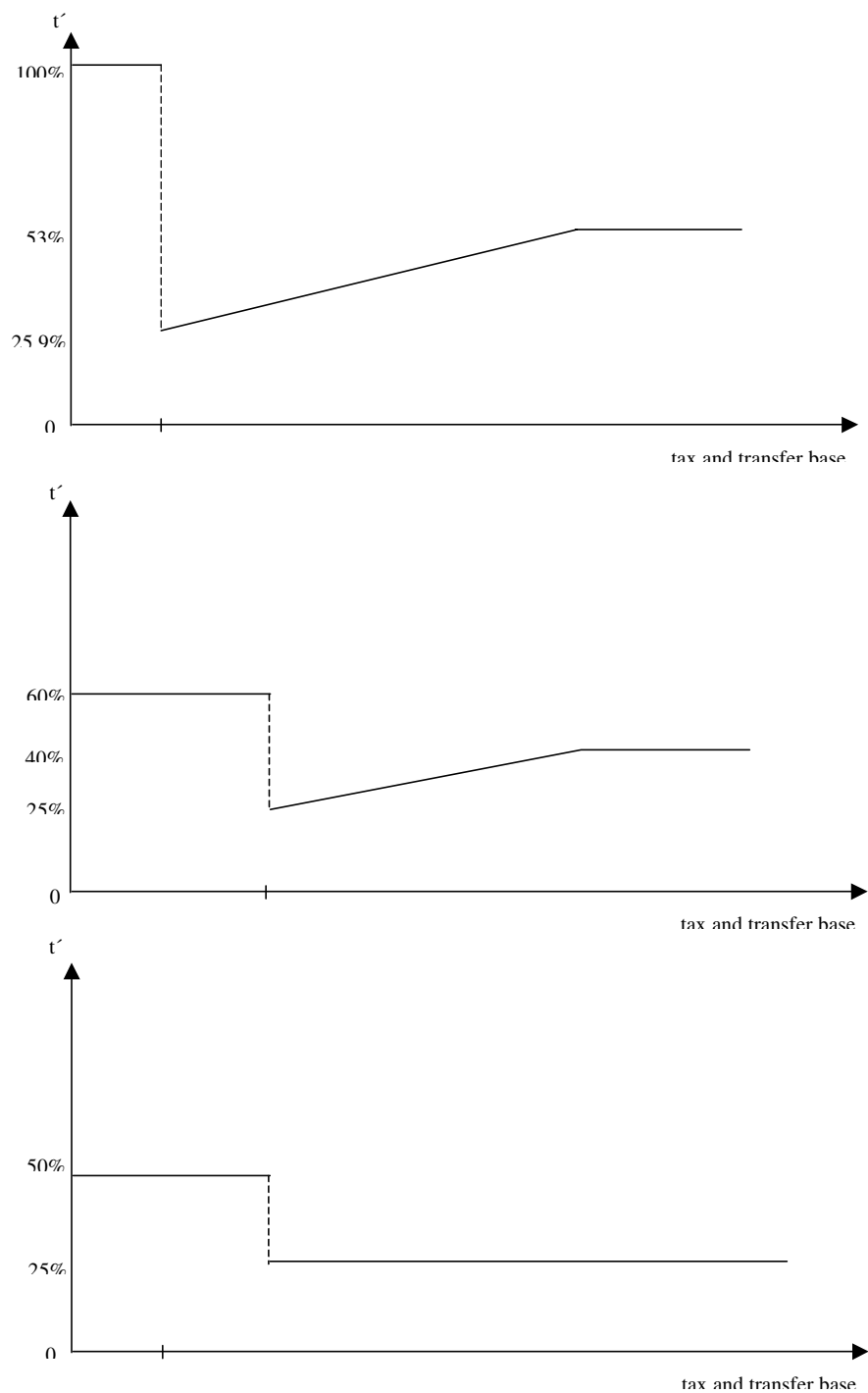
G. Summary

A change in political perspectives and behavioural patterns would allow substantial fundamental reforms to overcome current and future malaise. According to a broader and unique tax and transfer base, Figure 10 demonstrates in stylised form the direction that further developments could take; the marginal tax and transfer rates for 1996 were given above. By successively broadening the current tax base and integrating all those transfers which are necessary to avoid abrupt changes, especially for social aid recipients, and to give all citizens some time for self-responsible behavioural adaptations, a clear decrease in the marginal transfer reduction rate as well as in the maximum marginal tax rate is possible. In the long term, even the introduction of a flat rate seems possible, thus avoiding all the disadvantages and disincentives which are now connected with direct progression (without having any clear impact on the net income distribution). The progressive marginal income tax schedule mainly serves to feed the sentiment of social envy, which is then misused by politicians for campaign purposes. The redistributive power of this instrument is negligible, as many empirical studies have shown.²² Due to the numerous concessions and loopholes, it is not the 'rich', but the lower and middle income classes who are hit by income tax progression. The erosion of the tax base has impaired what is often referred to as 'the truth of the tax schedule'. Thus reliance upon a progressive marginal rate structure - the falsehood and deceit of the progression - has become a key element in political dishonesty.

Are the bottom two illustrations in Figure 10 real world options or simply utopian ones? The question is hard to answer. But one might gain insight from directing one's view away from Germany (and some other European states) towards the East or Far-East; these are new, flexible, and dynamic societies which are not burdened by the elements of an inefficient welfare state - namely egalitarianism and constructivism - which have entered and

²² See, eg, Petersen (1988).

Figure 10: Current and Possible Marginal Rate Development



will enter the world stage. Old Europe not only has to compete with these countries on the world market, but they may also be the home of choice for capital and the rich themselves. If illusions that a welfare state can be financed by taxing the rich were to continue to work, prospects for the future would be gloomy. Competition from low-wage countries will force the old welfare states into a slimming diet. By means of the abolition of redistribution from one pocket to another, enough reserves exist for a substantial reduction of ancillary wage costs. If all citizens were to realize that transfers have to be financed and do not fall from heaven like manna, current entitlement behaviour could be overcome. If one promotes the basic goals of the justice of need and the necessity for a certain personal redistribution, it is a question of honesty not only in order to close the poverty gap but also to keep the burden on the taxpayers in mind - which also determines international competitiveness. From this point of view and in a mid-term perspective, the integrated tax and transfer concept is one of the last resorts.

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Chapter 3:

Impact of Taxation and Tax Reform

3.1.

Impact of the Tax System. Federal Republic of Germany

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3.2.

Marginal Tax Burden - A Case Study of Austria and the Federal Republic of Germany

Co-author Johann K. Brunner

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3.3.

Further Results on Income Tax Progression

(Zeitschrift für Wirtschafts- und Sozialwissenschaften, Berlin, 101. Jg. 1981, pp 45 – 59)

3.4.

The German Tax and Transfer System: A Problem Oriented Overview

(Hans-Georg Petersen and Patrick Gallagher (Eds): Tax and Transfer Reform in Australia and Germany. Australia Center Potsdam, Berlin 2000, pp 13 – 40)

3.5.

Globalisation, Capital Flight and Capital Income Taxation

(Tax Notes International, Vol. 33, No. 10, March 2004, pp 887 – 897)

Globalisation, Capital Flight and Capital Income Taxation: A European Perspective

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I. Introduction

The collapse of the Iron Curtain as well as the free mobility of persons and capital have strengthened international competition, which recently has also increased the pressures on the national tax and transfer schemes to reduce costs by abolishing existing inefficiencies. Even there is not much fear on a “race to the bottom”,¹ at least more or less large groups within the societies favoured by the old systems inevitably will become losers, loudly complaining in the public on the unjustified social dismantling. Globalisation pressures, recessions and accelerating structural problems have also forced several European and other extra-European countries to reform their direct tax systems, especially the taxation of capital income and companies.² Sole traders, partnerships and legal entities but also capital income from capital investment, renting and leasing, and other entrepreneurial activities are or at least have been burdened by a whole basket of taxes, which are (were) more or less closely related to capital ownership or the connected income: income tax (for natural persons), corporation tax (for legal entities), property tax, business tax (or similar taxes), capital gains tax, and inheritance tax are taxes, which are levied on the earnings or the capital stock itself. Beside such general taxes on capital income and property further taxes do exist, which burden specific kinds of real and financial assets like land taxes, second habitation tax, motor vehicle tax, stock exchange tax, insurance tax, etc. By comparatively simple transformations all these taxes can be related to capital income, so that the total burden on capital income can be easily derived.³

Taking the growth performance of different countries into consideration, obviously Germany is seriously lagging behind and recently France as the second core country of the EU is also confronted with stronger growth retardation.⁴ Other EU countries like Austria, Belgium, Denmark, Finland, Greece, Italy, Ireland, the Netherlands, Portugal, Spain, Sweden, and last but not least the United Kingdom have been much more successful, partly dependent on fundamental economic reforms which have been applied since the mid 80s, the latter especially true for Denmark, Finland, Ireland, the Netherlands, Sweden, and the UK. In other countries like Austria, Luxembourg and Switzerland relatively stable economic framework conditions have successfully worked, while in Greece, Italy, Portugal and Spain the European Stability and Growth Pact (SGP) has created positive incentives for fiscal discipline.

¹ See, e.g., *Sinn* (2002 and 2003). Such fears are overwhelmingly unsubstantiated because much of the current income redistribution is not directed to the real poor but to middle and higher income brackets, which do not require public assistance; for more detail see *Petersen* (1989 and 2003).

² Under the term capital income all kinds of income from real and financial assets are subsumed. Following the traditional income definitions of most of the existing income tax laws, capital income consists of profits from agriculture and forestry, trade and self-employment, income from financial assets, rents and leasing as well as capital gains. In a modern and simple income tax system principally only two main income sources do exist: beside capital income the income of the employees (wages) are the second source. For more details see *Rose* (2002) and *Petersen/Rose* (2003).

³ See *Anton/Petersen* (forthcoming).

⁴ Since 1995 the growth performance in France has been much better than in Germany; see *OECD* (2003): Economic Outlook No. 73, Annex Table 1.

On the whole fundamental reforms in the tax and transfer systems have led to a growth stimulation, which often were closely connected with tax privileges for foreign direct investment (e.g., Ireland and the Netherlands) or at least with a more favourable taxation of capital income (Austria, Denmark, Finland, Luxembourg, Netherlands, and Sweden).⁵ In the same period these countries and the UK have substantially reduced the transfers and implemented measures against the poverty trap phenomenon, which enforced the reintegration of unemployed into the official labour markets.⁶ The more efficient taxation of capital income and companies have improved capital formation as well as the assumption of risk, both being the most important prerequisites for a stable and increasing pattern of private investment.

Especially the dual character of the Scandinavian tax systems, the box system of the Netherlands and low source taxes on interest payments in Austria, Luxembourg, and some other EU countries have especially met critical scepticism of German and French politicians, obviously prejudiced by their thinking in patterns of traditional income taxation. Non-EU countries with a similar favourable taxation of capital income like Switzerland, Liechtenstein, countries in the Caribbean, Singapore, Hong Kong or at least partly Australia and New Zealand etc. have often be blamed as tax shelters due to their reserved and often comparatively low tax burdens on capital income and business profits. Obviously those countries have profited by enormous capital inflows, while the high tax countries are increasingly confronted with capital outflows. But even within the EU beside Ireland and the Netherlands some regions like Jersey, Guernsey, and Gibraltar do exist, which set similar tax incentives without being blamed by the high tax countries within the EU, perhaps because they play more a role as collecting bank than as competitor for productive investment.⁷ However, the detour of capital to EU external or internal tax shelters increases capital costs.

The most effective way to avoid thus additional transaction costs would be to reform the own tax and transfer systems in the high tax countries at least to narrow the gap between low and high tax countries.⁸ A total harmonisation in the direction of the lowest existing tax rates connected with an inevitable dismantling of the social security system is not necessary, because the high tax countries in the EU are the largest countries with big internal markets and good infrastructures, which allow a higher level of taxation than in the small tax shelters, at least because of their advantages in scale and scope.⁹

II. Problems of Traditional Income and Profit Taxation

II.1. Basic Principles

Mobility of persons and of capital are basic components of human rights; consequently the tax basis of wage and capital income taxation (both bases linked to traditional income and corporation taxes) are mobile as well. While high tax burdens push potential taxpayers away, high trans-

⁵ For details see *Bach/Seidel/Teichmann* (2000).

⁶ This is especially true for the Netherlands, which has developed the most efficient integration of direct taxation and social security contributions; see *Petersen* (forthcoming).

⁷ Malta as EU accession country 2004 is often named as most favourable tax shelter; but in the accession negotiations Malta has not been obliged to change its tax policy patterns. Therefore, inside the EU Malta might become a much stronger competitor for Switzerland and especially Liechtenstein.

⁸ For an international comparison of tax pressures see *Lafay/Périvier* (2003).

⁹ As mentioned above, such fears of inevitable downgrading in the social security systems due to the globalisation process are expressed by *Sinn* (1997, 2002, and 2003). This argumentation becomes invalid if differences in between risk sharing (insurance) and redistribution are taken into consideration, which are totally neglected by *Sinn*; see *Petersen* (2003, pp. 212).

fer payments attract potential transfer recipients. Due to the residence principle (unlimited tax liability) and the world income principle as cornerstones of direct taxation and (at least partly) for social protection, tax burdens and transfer generosity at residence determine the behavioural adaptations of citizen. In a world of almost legally unlimited mobility – or in other words in a globalised world – the outcome is local, regional and international competition of tax and transfer systems, setting pressures on efficient regulation and limiting the always threatening Leviathan.¹⁰

Obviously the mobility is dependant on the individual endowment with human, monetary, and real capital. Because of free movement of capital, monetary capital has doubtlessly the highest mobility, even if physical persons are not mobile.¹¹ Regarding physical persons, people with overwhelming capital income are highly mobile, whilst employees with lower qualifications and mainly dependant on their wages have a comparatively low mobility. Realities and buildings are immobile by definition. In case of tax increases or transfer reductions the mobile owners naturally can sell real estate, but the additional burden is then shifted by lower prices as consequence of tax (and transfer) amortisation to the former owners.¹² Therefore, the actual behavioural adaptations of the citizen are determined by tax and transfer policy patterns of the past and their expectations for the future burden developments. If their individual projections will make them to believe in further burden increases, then even immobile citizen will reconsider the location advantages (in form of personal and public infrastructure) and disadvantages (in form of factual or at least presumed future burden increases).

Lafay (2003) has correctly pointed to the problem that the absence of tax revolts in France as well as in Germany does not mean that the electorate are completely inactive. In the contrary, since decades they are active in the informal sector and increasingly voting by feet, even accelerated by the fastened globalisation as consequence of the changes after 1989. Already at the end of the 70s and the beginning 80s growing shadow economies have been observed with a permanent increase until today.¹³ Increased voting by feet is an expression of inefficiencies within the tax and transfer systems especially of high tax countries leading at least in short and mid term to expatriation of capital and in the long run even to migration of persons (especially the well-to-do). In spite of the above mentioned necessary adaptations in the national tax and transfer policy patterns, usually tax and social politicians in the respective countries are blaming the countries with immigration of capital and high skilled persons as tax havens or shelters, which they often denote as immoral political strategies. Such tax shelters with an obviously more attractive environment for capital income and investment are often ask to make any necessary adjustments for a harmonisation on the level of their inefficient regulations, neglecting the fact that because of the avalanche effects¹⁴ described below their own capital income taxation by the existing traditional income and corporation taxes is highly questionable and immoral itself. The hope for an increased national and global capital formation partly due to overcome problems within the PAYGO pension systems at higher tax burdens on capital income is a contradiction in terms.

¹⁰ See *ibid.* and *Petersen* (1998).

¹¹ The shift of monetary capital and connected interest payments into foreign countries implies a breach of the world income principle and is to classify as tax evasion. The very limited control possibilities for the fiscal administrations as well as the lack in awareness and illusions on side of the taxpayers limit the factual and moral costs of such illegal behaviour; for the uninformed electorate with regard to taxation see *Lafay* (2003, pp. 10).

¹² For details see *Petersen* (1993, pp. 309 and 324).

¹³ See *Feige* (1979 and 1984), *Petersen* (1981, 1982, and 1984), and *Schneider* (2000).

¹⁴ See *Petersen* (2003a) and *Petersen/Rose* (forthcoming).

II.2. Consequences of the Existing Traditional Tax and Transfer Schemes

The existing tax and transfer schemes in Germany as well as in France include numerous regulations, which create enormous inefficiencies and behavioural adaptations connected with tax avoidance and tax evasion – apart from the complexity that on the one hand discourages the taxpayers and impairs the compliance and on the other hand overstrains the fiscal administration. As result an increasing number of tax assessments are false, thus inducing arbitrariness, impairing equity and creating state sullenness (*Staatsverdrossenheit*) – all connected with harmful consequences for tax mentality and morality. Spreading moral hazard behaviour yields in accelerating tax evasion and transfer fraud.

Lifetime avalanche effects and the cumulative burdens of multiple capital income taxation (by income, corporation, firm, property, capital gains, and potentially inheritance taxes) cause behavioural adaptations: Capital, large enterprises (especially multinational corporations), and well-to-do people leave the high tax countries due to a strategy of tax optimisation. This double and multi-burdening of capital income has been justified for generations by the extra security, which is connected with property and funded income, and additionally with the fact that capital income at least in a very specific literature was characterised as “unearned”. Such justifications were overwhelmingly accepted as long as the property of real and financial assets was heavily concentrated on the happy few rich. Nowadays a majority of taxpayers dispose of different forms of capital income and property has become a usual income source of almost everybody; beyond that property was not created by overnights miracles but heavily earned by own hands work and personally saved by abnegation of consumption. No wonder that double and multi-burdening today is evaluated quite differently and has led to an enormous spectrum of behavioural adaptations from tax avoidance to tax evasion. Additionally capital risks are often comparable to labour market risks, so that the additional security of capital ownership is also very limited.

The negative impacts of high burdens on interest payments and profits have led many countries to overcome old ideological positions, which at least today still motivate many tax politicians to demand additional property taxes and surcharges on capital income. But in spite of such lip services, in many countries the corporation tax rates have been seriously decreased and source taxes on interest payments have been introduced with flat rates formerly only typical for the heavily hated tax havens. Dual income tax systems like in Scandinavia or even triple box systems with different tax schedules like in the Netherlands have been implemented, which favour interest payments, dividends and profits from real and financial assets compared to the marginal tax rates applied already for lower and middle wage earners. Connected with serious social and labour market reforms such measures have been comparatively successful, especially if the unemployment figures are taken as performance measure.

At least with regard to corporate taxation, in Germany the tax burden for legal entities was drastically reduced especially if the scheduled tax rates are taken into consideration. While in the mid 90s of the last century the average corporation and business tax burden (including the solidarity surcharge) was often above 70 %, the reforms of 2000 have reduced that burden to about 43.5 %.¹⁵ But even this tax cut has not yielded the expected expansive impacts on growth and labour markets, and this negative outcome is not only caused by the necessary but also heavily delayed social and labour market reforms.

¹⁵ See *Bundesministerium der Finanzen* (2003).

II.3. Avalanche Effects

Due to historical reasons within the German income and corporation tax system many tax concessions and loopholes did exist, overwhelmingly motivated to reduce the effects of high marginal tax rates on certain kinds of profits and capital gains. For individual savings comparatively generous saving exemptions left a considerable amount of financial assets untaxed and especially favoured were (and are) different expenses for old age provision. Especially many tax theorists made the diagnose that the income and corporation tax base was heavily eroded and the switch to a more comprehensive tax base would yield that additional revenue, which would allow for a substantial decrease of the marginal tax rates. This argumentation, obviously in accordance with the mainstream theories of efficient taxation, overlooked the fact that many of the existing concessions have functioned like spiracles and mitigated the long-term burdens on capital income, which are connected with traditional income taxation. If such concessions are abolished, the tax burden on such income parts remain an additional one even if the newly applied marginal rates are much less than the rates levied before on other kinds of (non-favoured) capital income.

Beyond that many of the abolished concessions were connected with long-term investment perspectives. Obviously many entrepreneurs at least partly invest in their companies in the intent to withdraw the invested amounts and the connected interest or profit in case of old age. Therefore, at least in case of long term investment and old age provision, the periodically orientated ability to pay argumentation seems not to be appropriate.¹⁶ Instead, the accumulated burden over the whole investment period or active life span is of utmost relevance for such investment decisions. A simple example should shed some light on this argumentation.

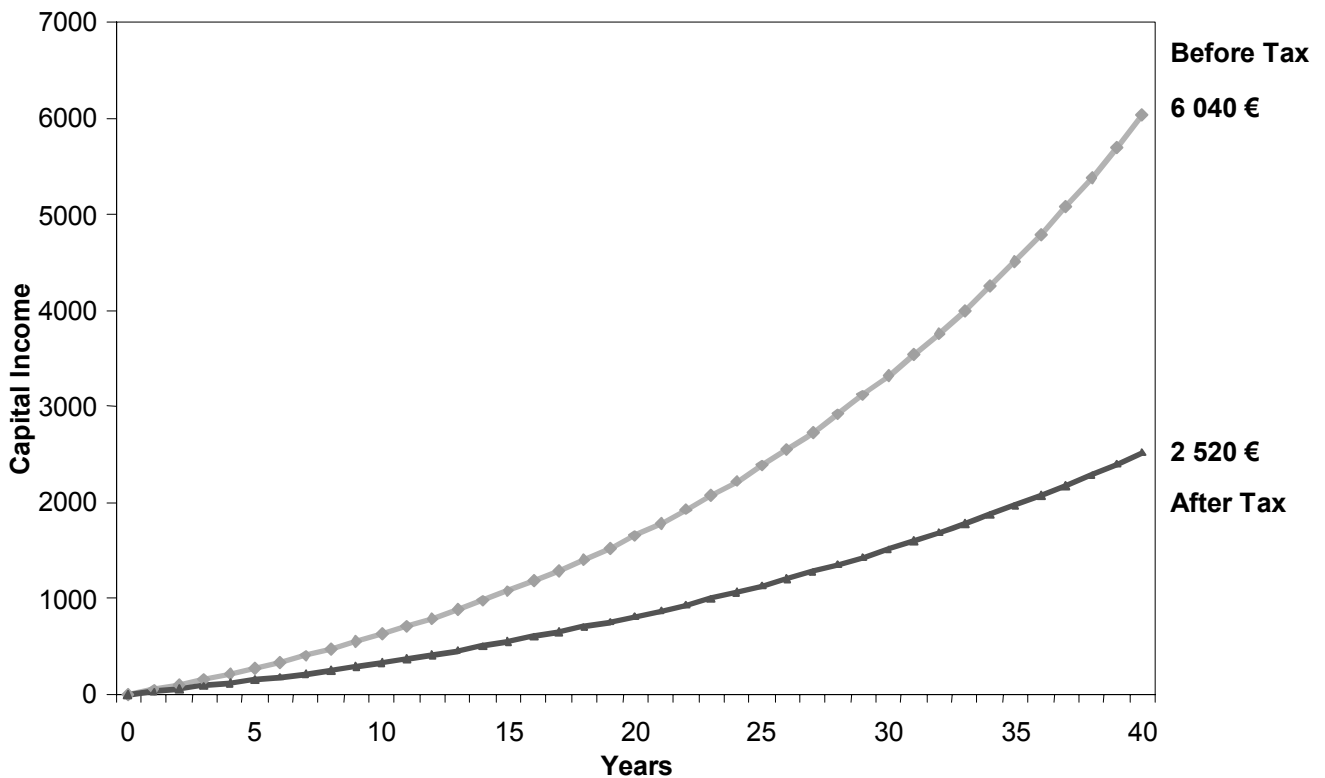
Precautionary measures within private companies or insurance schemes are principally connected with capital formation and capital income. If a standard (traditional) income tax system is applied, this system exclusively depends on annual incomes. The previous history of the backgrounds of capital formation does not play any role. Therefore, capital formation is usually made from taxed income. In the following periods this capital itself forms a new tax base and the interest payments (or profits, dividends, rent, etc.) on that capital are taxed again. Capital itself and capital income is consequently several fold burdened.¹⁷ Chart 1 demonstrates this so-called avalanche effect of capital income taxation in a simple example.

An income tax rate of 25 % (e.g., flat-rate) is assumed; an entrepreneur (or employee) is saving 1,000 Euro and invests that amount profitably at an interest rate of 5 % for 40 years in his company (or on the capital market). Without any taxation his interest earnings would grow to 6,040 Euro (see chart 1) and be to the disposal for his old-age consumption. In case of a traditional income tax saving is accumulated from taxed income, so that at the assumed wage tax rate of 25 % only 750 Euro can be invested for that 40 years period.

¹⁶ See *Petersen* (2003a).

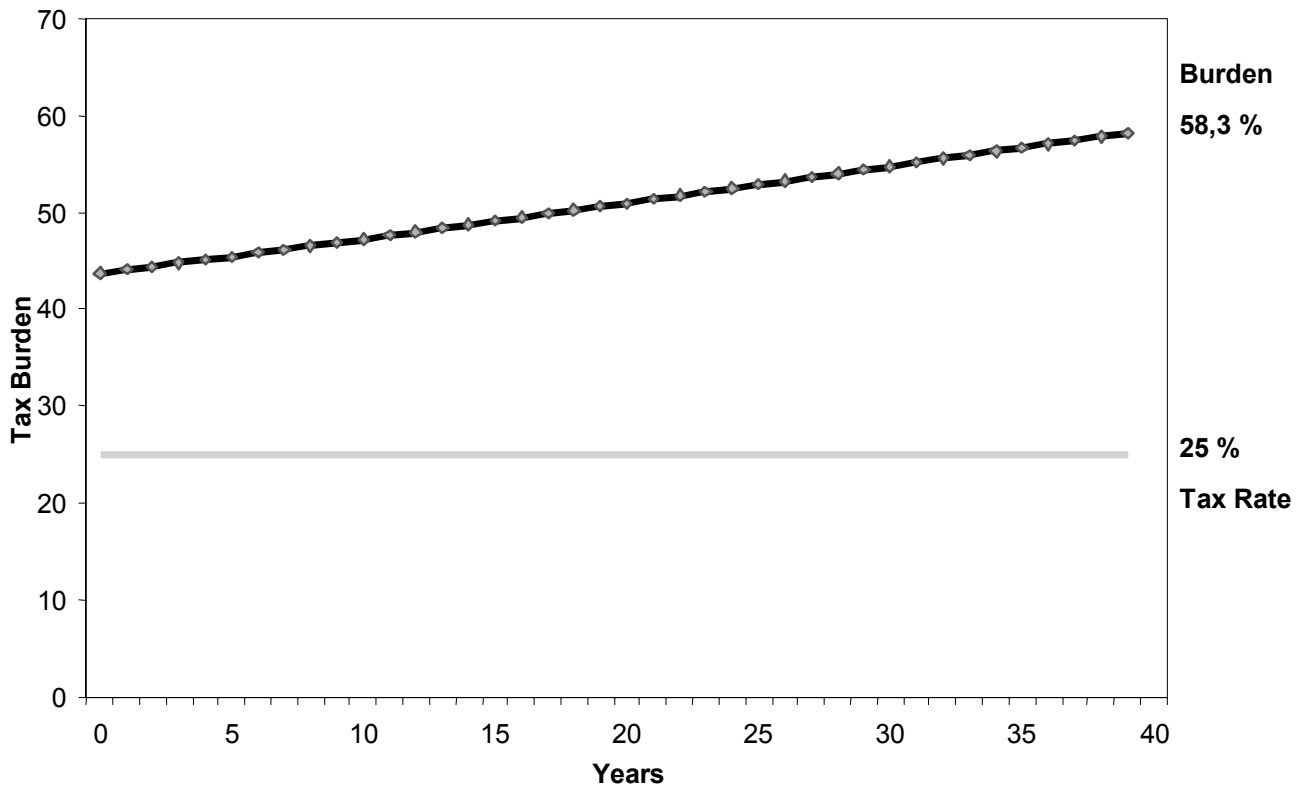
¹⁷ See for more details *Petersen/Rose* (*forthcoming*).

Chart 1: Income Tax Burden of Interest Income in an Traditional Income Tax System (Flat-rate 25 %)



Due to the tax reduced investment amount, the interest payment for the first year is not any longer 50.00 Euro but only 37.50 Euro. In spite of that original 25 %-burden the gross interest payment of 37.50 Euro is taxed again by the 25 % flat-rate mentioned above; consequently his saving account is only growing by 28.13 Euro. The effective tax burden including the originally already paid amount is then after the first year 43,7 %. In all the following 39 years income tax has to be paid on the annual interest income as well, so that his disposable amount for his old-age consumption is reduced to 2,520 Euro. Compared to the 6,040 Euro in the situation without any income tax, the effective lifetime tax burden on the interest income is 58,3 % (see chart 2), which is more than twice as much as the annual 25 % flat-rate.

Chart 2: Lifetime Burden on Interest Income of a Traditional Income Tax (Flat-rate 25 %)



In fact in most of the current traditional income tax systems small saving amounts are protected by special saving allowances or other tax privileges, but for savings beyond the exemptions much higher income tax rates are applied, so that the avalanche effects are even more severe. If we take the current German tax burden on corporate profits as estimated by the *Bundesministerium der Finanzen*, the above-mentioned average rate is about 43.5 %. For a 40 years investment period then the accumulated burden is with 80.8 % much higher than in the simple example – and this burden is not the end of the flagpole. Compared to the situation before the tax reform, at least for such investments the decrease of marginal rates has played no role, in the contrary an enormous increase in tax burdens has taken place. Dependent on the relevance of such investment at least a certain restraint with regard to long-term investments might be a likely consequence.

II.4. Cumulative Effects

The above described avalanche effects are even more intense if beside an income and corporation tax an additional property tax is levied on the personal property or equity capital. Due to reasons of simplicity we neglect all possible exemptions and deductions and argue just with flat-rates on capital income or property beyond such basic amounts. Problems of the appropriate definition of different kinds of property are also not taken into consideration. In the annual perspective the tax revenue of a property tax T_p results from

$$T_p = t_p \cdot C,$$

where t_p is the property tax rate and C the total amount of wealth or equity capital. The capital income (profit) tax revenue is defined as follows:

$$T_c = t_c \cdot C \cdot r$$

with t_c as flat-rate on capital income ($C \cdot r$). In case of identical tax revenue ($T_p = T_c$) it follows for the two tax rates:

$$t_p = t_c \cdot r$$

and

$$t_c = t_p / r .$$

If we assume an interest rate of 5 %, a property tax rate of 1 % on total wealth corresponds with an income tax rate of 20 % on interest payments and profits. For lower effective interest rates this burden is even higher. Like the capital income tax also the property tax is connected with the above-mentioned avalanche effects. While in the annual perspective the property tax burden of a 1 % rate on investment returns is 20 %, in a lifetime perspective (over 40 years of investment) this burden increases to 38.6 %.

Capital gains taxes¹⁸ and inheritance taxes create additional burdens, which in a lifetime perspective again show elements of the avalanche effects.¹⁹ If in addition to the above-mentioned flat-rate of 25 % a 1 % property tax on total property is levied, the annual burden on capital income is increasing by 20 percentage points. The avalanche effect then produces a lifetime burden of both taxes, which is clearly above 70 %; in case of an additionally levied capital gains tax and in consideration of the burdens of inheritance taxes the total lifetime burden of all income and property taxes often reaches more than 90 %.²⁰

Hence, in many contemporary tax systems capital income would be obviously overburdened if the numerous existing loopholes were abolished. It also becomes obvious that the frequently made proposal to broaden the tax base is a very dangerous advice, because the long-term burden of capital income taxation is heavily increased even if the annual tax rates are strongly decreased. The avalanche effects overcompensate short-term tax rate cuts as longer the investment period is. Therefore, one should not wonder that in countries with an extreme long-term burden on capital income, saving and capital formation is increasingly impaired. If in such countries (like Germany) comparatively high saving ratios still exist, this overwhelmingly depends on the fears of the working generations that in view of the demographic development the social pension system has a very gloomy perspective and a sufficient level of retirement income can only be secured by own capital formation. While capital formation at least in the short run might still be satisfactory, especially long term investment is avoided, so that the number of jobs is decreasing, thus creating an ever increasing number of unemployed people.

¹⁸ Capital gains are often taxed within the income and corporation tax systems (like in Germany) or by specific capital gains taxes (like in the UK and US).

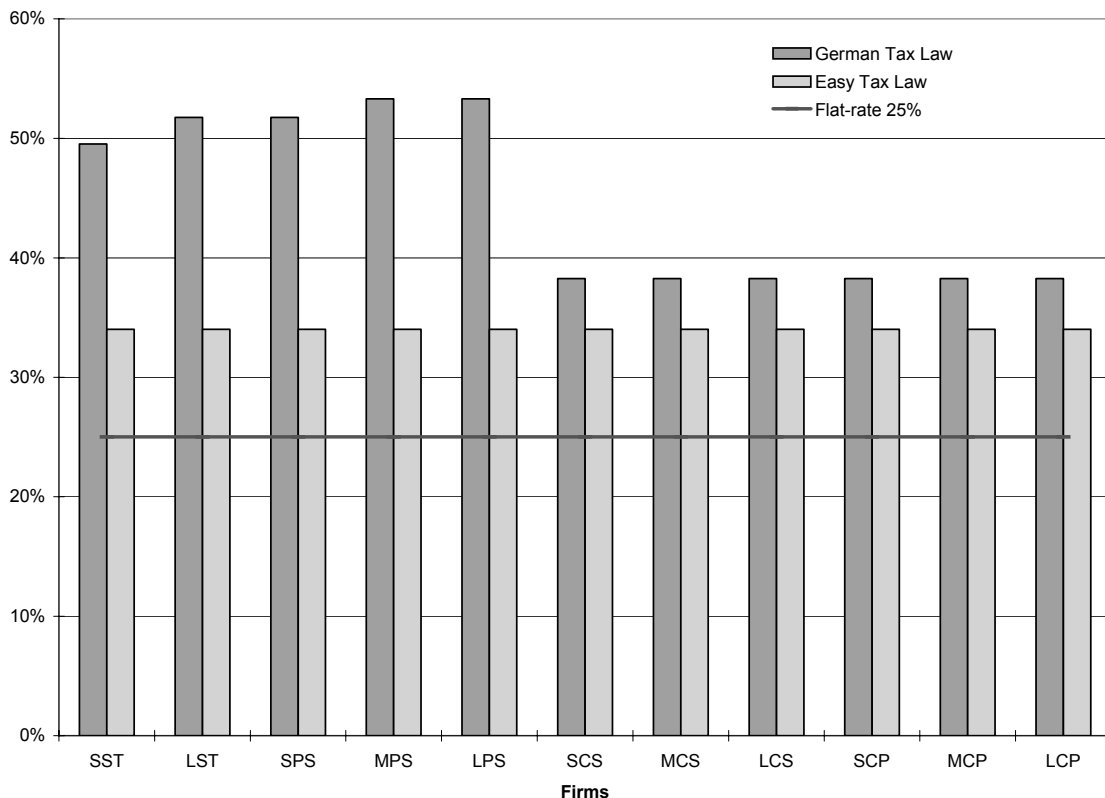
¹⁹ Not to forget the specific property taxes like the land taxes, motor vehicle taxes, etc.

²⁰ See, e.g., *Anton/Petersen* (2003) und *Petersen* (2003a).

II.5. Arbitrary Companies Taxation

For the assessment simulation of the tax burden on the firm sector a data file of the German Institute for Economic Research (DIW Berlin) has been used, which contains the information of 51,458 small and large sole traders (SST and LST), 28,450 small, medium sized and large partnerships (SPS, MPS, and LPS) and 50,504 small, medium sized, and large limited liability companies and corporations (SC, MC, and LC).²¹ Sole traders and partnerships are burdened by the personal income tax (PIT), corporations by the corporation income tax (CIT), whilst both also have to bear the firms tax levied on the local level. Within the assessment simulation the single interrelations between the income, corporation and firms tax have to be taken into consideration; the comparison is done on the basis of the 2004 tax law, assumed that the last steps of the current tax reform process will be implemented.²² For a correct comparison, the personal characteristics of the taxpayer (married, one child, voluntarily insured within the social insurance schemes, no other income sources) are kept constant for all firm types and the average local firm tax rate is applied. For sake of simplicity it is assumed that profits are not distributed but retained in the firms.²³

Chart 3: Marginal Tax Burden of the Model Enterprises



²¹ For the pros and cons of that data file see *Petersen/Fischer/Flach (2003)*.

²² For details on the German tax reform process see *Petersen (2000)* and *Petersen/Bork (2000)*.

²³ Due to the fact that half of the dividends are treated as income within the PIT, the marginal and average tax burden of corporations also depends on the part of distributed profits to total profits; see *Petersen/Fischer/Flach (forthcoming)*.

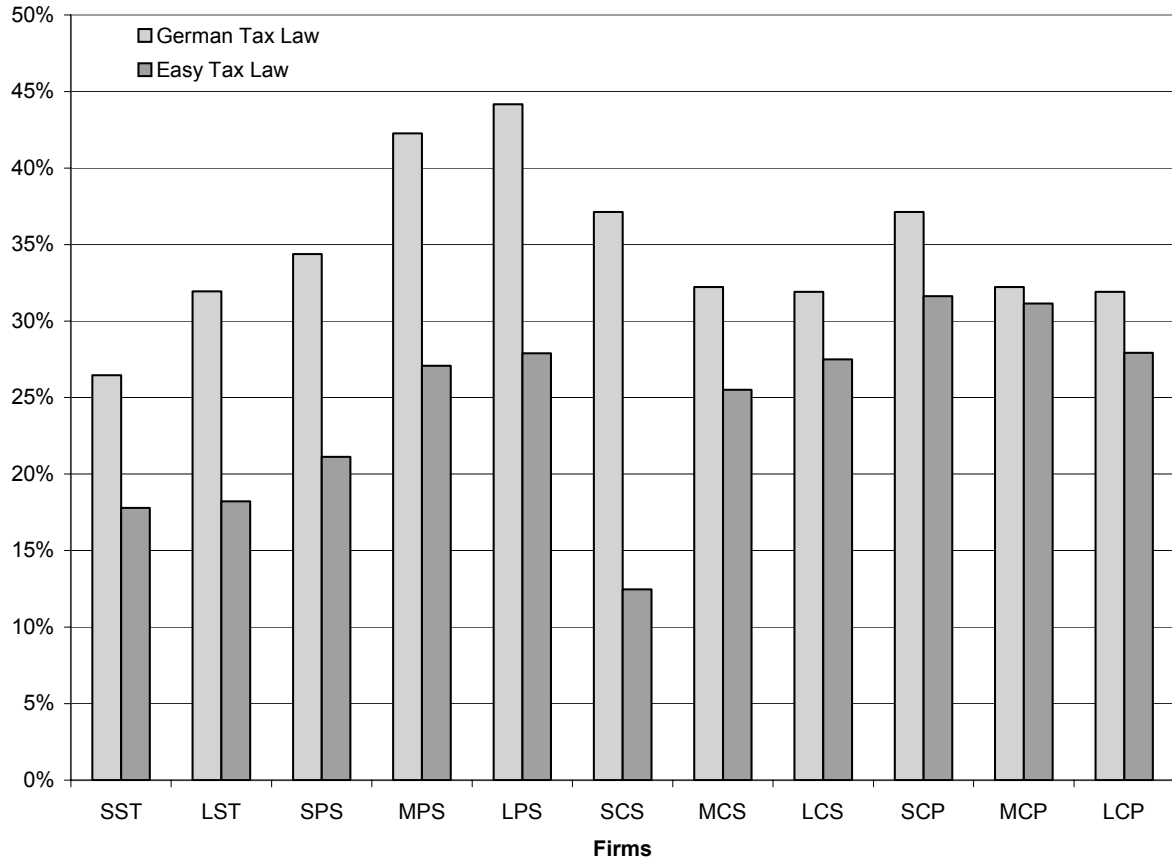
Chart 3 represents the marginal annual tax burden of the different average firm types as defined above for the 2004 tax law (dark-grey columns).²⁴ While the profits in case of sole traders and partnerships are taxed by the PIT and firms tax at marginal rates of about 50 percent and more, the profits of corporations are burdened with marginal rates of the CIT and firms tax of less than 40 percent.²⁵ Hence, it becomes obvious that the average marginal burden of small sole traders (SST) and small as well as medium partnerships (SPS and MPS) is much higher than in case of corporations at completely retained profits. In case of fully distributed profits the marginal burden for the corporation increases but still remains more or less below the levels for the partnerships.²⁶ Therefore the 2004 tax law discriminates firms due to the different legal status and between the corporations those ones, which are distributing a remarkable part of their profits.

Chart 4 displays the average tax rates for the different firm types under consideration. If the average tax burden on sole traders is compared to that of small corporations, it becomes obvious that in spite of lower marginal tax rates the latter do have a higher average tax rate. This result partly depends on the lower profits of the small corporations compared to the small sole traders, but also on the fact that the corporations are taxed on the firms level by the CIT; consequently the individual deductions of the PIT system do not apply, which leads to the higher average tax burden. Even within the same firm size, extreme discriminations due to the different legal status exist, which are especially turned against small and medium corporations.

²⁴ The light-grey columns represent the corresponding marginal rates for the Easy Tax System, which will be discussed below.

²⁵ All tax rates also reflect the solidarity surcharge and the business tax.

²⁶ For more detail see *Petersen/Fischer/Flach* (forthcoming).

Chart 4: Average Tax Burden of the Model Enterprises

If all the problems of the traditional PIT and CIT are summarized, the fact remains that in spite of the long-termed almost constant macroeconomic tax ratio and a middle position within the usual OECD tax burden rankings the burden of ancillary wage costs and profit taxation has reached or even exceeded a critical level. This is especially true because the current firms tax burden is much more unequally distributed than before. The burdens have been shifted from the highly mobile large multinational corporations, which use all tax saving instruments, on the much more immobile small and medium enterprises (SME). Consequently the SME, whichever have been the backbone of the German economy, are more and more unable for positive net investment, so that new jobs are not created in Germany in a sufficient dimension. Therefore, a fundamental reform of capital income taxation is a necessary prerequisite for additional growth dynamics, which is also inescapable to promote increasing capital formation to overcome the future demographic problems.

III. The Last Resort: Easy Tax

Almost all of the currently discussed proposals to reform the existing PIT and CIT systems in Germany do not address the above described problems of capital income taxation; despite the

enormous long termed burdens on capital income especially in Germany certain political groups are still discussing the reintroduction of the 1997 abolished property tax or at least a strong increase in the inheritance tax rates. Political illusions and shady promises that the “rich” will be more severely taxed are clear signals for behavioural adaptations. Therefore, it is not astonishing that the mobility of capital and persons is further increased. If such political patterns would become dominant, the German perspective would become really gloomy. However, a sustainable relief from growth retardation and increasing unemployment figures is only possible if the above-mentioned problems are really tackled.

As mentioned above, many countries (like the Netherlands and the Scandinavian countries) have introduced a so-called dual income tax system, which taxes wages and capital incomes with different tax schedules.²⁷ While for wages overwhelmingly the traditional directly progressive tax schedules (with strongly increasing marginal rates) are applied, for capital gains usually a much lower flat-rate has been adopted, or like in Austria and Luxembourg a withholding tax on interest payments with a comparatively low flat-rate was introduced. The outcome is that at least middle and higher wage income is marginally taxed with rates, which are often much higher than for individual capital income or profits. Therefore, equal income amounts consisting of different sources are often unequally treated, so that the equality of treatment is hurt. Obviously the efficiency target (growth enhancement, capital formation, and job creation) is dominating fairness and justice of ability.

Such a fundamental breach of equality would at least in Germany raise serious constitutional problems. Thus alternative political patterns have to be developed. Because of the close relations between the tax and transfer schemes, an integrated approach is necessary to develop a long-term reform perspective. If for instance the pension system is reformed by expanding capital funding and at least partly substituting the PAYGO system, a harmonisation with the tax system (treatment of contributions as well as pension payments) is inevitable. A simplification of tax and transfer law is much that necessary to improve the information and knowledge of the electorate, which also will lead to a more efficient control over political actions.

But the core aims of tax reform for the household sector are equal treatment of lifetime incomes (from wages and capital), independent from the respective source, and the intertemporal neutrality on consumption. Within the enterprise sector neutrality is the most important target, so that at the end of the reform process all enterprises would be confronted with an equal marginal burden. Compared to the current German situation that would mean a lower marginal burden for sole traders and partnerships as well as for small corporations (the so-called S-corporations) and a strong decrease in the average tax burden for SME.²⁸

Therefore, the “Heidelberger Steuerkreis” has developed an “Easy Tax Proposal”,²⁹ which on the one hand integrates income and corporation tax into one law and on the other hand secures an equal treatment of wages and capital income as far as ever has been possible. The conflict between efficiency and justice is reduced to an absolute minimum. Here only the basic elements for

²⁷ For details see *Bach/Seidel/Teichmann* (2000).

²⁸ See *Petersen/Fischer/Flach* (forthcoming).

²⁹ The members of the „Heidelberger Steuerkreis“ are *Joachim Lang* (Köln), *Hans-Georg Petersen* (Potsdam and DIW Berlin), *Bernd Raffelhüschen* (Freiburg and Bergen), and *Manfred Rose* (Heidelberg); the permanently updated draft law and additional information are to be found under www.einfachsteuer.de.

capital income treatment are presented.³⁰ If the above-implied lifetime perspective for undistorted preferences is striven for, consequently an integrated income and corporation tax system has to be developed, which for wages and capital income applies the same tax criteria. The Easy Tax has two specific forms of tax collection: the personal income tax and the profit tax. The taxable income is composed of three sources: income from wages, income from self-employment, and retirement income. The expenses for vocational education are to be subtracted. The profits of the so-called small corporations, which are corporations with a small number of shareholders, are taxed as income from self-employment. The S-corporation is an element of the US corporation tax; the profits of the S-corporations, named as pass-through companies in the Easy Tax draft law, are distributed on the shareholders and taxed as their other personal incomes.

The integration of profits as far as possible into the personal income tax due to the pass-through company has the overall important feature that small and medium firms are taxed equally independent from their legal construction (neutrality of the legal construction). The big corporations (public companies) are taxed with the highest marginal rate of the income tax, whereas no personal deductions apply. For the equal treatment of wages and capital income in a lifetime perspective, the above-mentioned avalanche effects, in other words the multi-burdening of savings, have to be avoided. Two different methods could be applied, which in their impacts on capital income taxation are equivalent but would heavily influence the periodical distribution of the tax revenue. In case of the *interest adjustment method* a standard market interest rate must be subtracted from all capital income. If the *saving adjustment method* is applied, the saving itself has to be tax-free while the latter earnings in the payment period must be taxed. Consequently the saving adjustment procedure shifts the taxable base into the future, so that the fiscal administration at least for a longer chain of periods would be threatened by large tax revenue losses.

However, the Easy Tax provides pragmatic solutions: in case of all sources of capital income (interest, profits, rents, etc.) a basic rate of return – for instance the interest rate for a two years government bond – remains as remuneration for the abnegation of consumption tax-free. Consequently only capital incomes above this basic rate of return (also called protective interest rate) are taxed whereas a steady tax base on capital income remains. The protective interest rate avoids the avalanche effects, and in the dynamical perspective the equal treatment of wages and capital income is assured. The calculation of profits follows a modified cash-flow method, which defines the profit as (cash) surplus of earnings to business expenses. The modifications are related to the expenses for depreciations and the discount for the protective interest rate.

In case of retirement income (all forms of pensions) the saving adjustment method is preferable in which the premiums and contributions to old-age protection are tax-free. Interest and saving adjustment are the measures for a dynamical design of the annual taxation which necessary remains the basic tax period due to pragmatic reasons. Both methods assure that all components of lifetime income are taxed once and only once, independent from their sources. At the same time the equal burden on the whole lifetime income and the intertemporal neutrality for the consumption decision is guaranteed, which abolishes the discrimination of saving as consequence of the traditional income tax systems.

A consumption orientated enterprise taxation following the interest adjustment method is often objected to leave profits tax exempt; consequently the firm sector would be widely untaxed. In view of the return on equity within the firm sample for the assessment simulation such presumptions are totally unrealistic.³¹ For sole traders and partnerships the deduction of the protective

³⁰ A short description is to be found in *Petersen (2002)*; for more detail see *Petersen/Rose (forthcoming)*.

³¹ For the sample of 130,412 model firms the return on equity is between 314 % for the average SST, 40 % for the LST, 48 % for the SPS, 38 % for the MPS, 33 % for the LPS, 84 % for the SC, 68 % for the MC and 29 % for the LC; obviously this high rates of return are at least partly the result due to behavioural adaptations to the German

interest rate (interest adjustment) amounts to a reduction of the profits between 2 % (SST) and 15 % (LPS); for corporations the reduction is between 6 % (SC) and 17 % (LC). If the firm sample would be taken as representative for the German firm sector, the deduction of the protective interest rate (adopted with 5 %) would reduce the taxable base in case of the Easy Tax by 7.4 % if the weighting is done with the respective fractions of firm types in the whole sample. The interest adjustment connected with the elimination of the avalanche effects is therefore much less costly than all the loopholes and tax concessions within the existing income and corporation tax systems, which have led to a strong erosion of the tax bases.³²

Regarding the enterprise taxation, the Easy Tax draft law also establishes the above-mentioned neutrality of the legal status for small and medium sized enterprises. Chart 3 above demonstrates that the marginal tax rate of the Easy Tax is equal for all legal forms, where the S-corporations are marked with S (SCS, MCS, and LCS) and the public companies with P. In case of the small corporations in chart 4 it becomes obvious that the average burden for the SCS is substantially reduced compared to their treatment as public companies (SCP). Furthermore in the annual perspective the average tax burden for all SME is strongly decreased so that the overall enterprise tax burden is shifted in the direction of the large public companies, which also would pay less profit tax than under the old regime.³³ Additionally the deductible protective interest rate secures neutrality for investment and financing as well as inflationary neutrality. The latter prevents from any taxation of pure inflationary windfall profits. Obviously, the Easy Tax is still a pragmatic approach, which enables the practical implementation but also corresponds to the theoretical demands of a second-best tax.

IV. Summary

In an efficient, integrated and consumption orientated tax and transfer system PAYGO financing has to be reduced to the basic security elements (social aid, minimum pensions, basic health care), which are financing the necessary redistribution to prevent society from in-acceptable poverty. Consequently capital shortage is avoided, which is one essential prerequisite for future growth. In the final stage upgrade insurance above the basic provisions has to be assured within the private insurance scheme. Because then basic security in all existing branches of social insurance would be tax financed, social security contributions can be substantially reduced and non-distortable indirect taxes be increased. Consequently ancillary wage costs are strongly reduced, which sets incentives for higher employment and additional investment.

Tax optimisation is a rational behaviour of well-informed individuals within the private sector, having also in mind the equivalence in between tax burdens and the efficient supply of public goods and services. In the sphere of private enterprises it is not an illegal behaviour, because capital owners, shareholders as well as the management have no national obligation but to secure the future existence of their equity capital (and the connected jobs for their employees). Pleas of

income and corporation tax law, which favours a comparatively low input of equity capital. For more details see *Petersen/Fischer/Flach* (forthcoming).

³² The "Heidelberger Steuerkreis" also recommends to replace the current German business tax by a surcharge for the local communities on the Easy Tax yield. If the business tax revenue at an average effective tax rate of currently 385 % should be substitute by such a surcharge, the necessary surcharge rate on business enterprises would be 29 %. If the tax base would be extended to self-employed and employees, the surcharge rate could be reduced to below 10 %. Such local surcharge would comprehend all local citizen and firms and could also be connected with a local surcharge rate autonomy. For more details see *Rose* (2002, pp. 29).

³³ The assessment simulation does not hold the tax revenue constant. This can only be done by an approach using microsimulation models, see e.g. *Anton/Brehe/Petersen* (2002). Because of the lack of micro data on the firms level in Germany, up to now such simulations cannot be realised.

politicians to remind the entrepreneurs for their national obligations are reminiscences of nationalism, which today should have been overcome at least in open societies, which are seriously profiting by their international relations and cooperation.

Politicians should not complain about the alleged costs of globalisation, but have to face the challenge of systems competition to take the full advantages from a global free trade and mobility of production factors. This challenge has to be put into practice by a fundamental tax and transfer reform, which improve the advantage of location of their countries in a sustainable manner. Politicians also have to become aware that tax and social security systems competition is a positive and necessary element of a fair global cooperation, thus limiting state activities to an efficient level and preventing from always possible developments in the direction of the Leviathan (more or less totalitarian tax state³⁴) with permanent rising tax burdens and ever increasing numbers of transfer recipients being on a drip of the state. The countries, which are falling back, will temporarily loose but also be given incentives for future reforms.

The notion reform should be limited to really fundamental changes; the many centennial reforms of the past have overwhelmingly stand for curing symptoms instead of sustainable therapy. The Easy Tax proposed by the “Heidelberger Steuerkreis” is such a fundamental reform. The integration of the PIT and the CIT would guarantee an equal treatment of wage and capital income in a lifetime perspective and make ad hoc interventions and political manipulations into income taxation far more difficult. The Easy Tax Proposal would guarantee neutrality of legal status, investment, financing, profit distribution and inflation as well.³⁵ Therefore, this proposal considers the most important elements of modern tax theory. At the same time this proposal gives evidence that modern theory can be implemented in realistic tax drafts. In some European countries discussions for an implementation are already flourishing and even in Germany the number of supporters is steadily increasing. If the Easy Tax as core element of a fundamental tax and transfer reform would be implemented, the signals could be set for another German economic miracle.

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³⁴ See Schumpeter (1918).

³⁵ See Petersen/Rose (forthcoming).

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