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**Working Paper**

## Incentives to work: The case of Germany

Kiel Working Paper, No. 1237

**Provided in Cooperation with:**

Kiel Institute for the World Economy – Leibniz Center for Research on Global Economic Challenges

*Suggested Citation:* Boss, Alfred; Elendner, Thomas (2005) : Incentives to work: The case of Germany, Kiel Working Paper, No. 1237, Kiel Institute for World Economics (IfW), Kiel

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**Kiel Working Paper No. 1237**

**Incentives to Work:  
The Case of Germany**

**by**

**Alfred Boss and Thomas Elendner**

February 2005

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# Incentives to Work: The Case of Germany

## *Abstract:*

Based on a description of the German system of taxes and transfers, the incentives to work are analyzed for several groups of the labor force. The effects of the “Hartz IV” reform (effective from 2005 onwards) on the incentives receive particular attention. It turns out that the marginal (explicit and implicit) tax rates for most groups of the labor force remain high. It is concluded that employment probably will not be affected significantly by that part of the reform which aims at strengthening the incentives to work. Other elements of “Hartz IV” are only touched on.

*Keywords:* Income tax rates, contributions to social security, unemployment benefits, implicit tax rates, incentives to work

*JEL classification:* H24

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## **A. Introduction**

### **I. The Problem**

Labor is insufficiently used in Germany. Unemployment is high, especially for low-skilled people. The low level of employment in general is—to some extent—due to the high tax burden. The excessively high rate of unemployment for low-skilled people is due to the disincentives to work stemming from the transfer system and to a lack of wage differentiation (e.g. as to regions and qualifications). One reason for the insufficient degree of wage differentiation is the small difference between the net wage for low-skilled people and the available social transfers together with the rules of granting social assistance in general (Boss 1999a). Quite generally, the incentives to work are strongly impaired by the tax-transfer system (for recent publications about the system see BMF (2004), Boss (1999a, 1999b, 2000, 2001, 2002), Boss and Elendner (2003, 2004a, 2004b), Deutsche Bundesbank (2004), Kaltenborn (2003) and Sachverständigenrat (2002, 2003, 2004)).

The German government conducted a number of reforms in order to strengthen the incentives. The income tax rates were lowered in several steps. In order to reduce the contributions to social security the health insurance system was reformed with effect in 2004. Most recently, the rules for determining the transfers for the unemployed were changed. The so-called “Arbeitslosengeld II” was introduced in January 2005 (BMWA 2004b; *BGBl. I* 2003a; *SGB II und SGB XII* 2005). The period for which normal unemployment benefits are granted will be shortened for those becoming unemployed in February 2006 or afterwards (*BGBl. I* 2003c).

The purpose of the paper is to clarify what the reform measures mean in detail. In addition, the effects of the reform on the disposable income of specific types of households and the consequences for the incentives to work are analyzed.

## **II. Outline**

The German wage income tax system is described and the marginal as well as the average tax rates for specific groups of employees are derived. The tax rates include the personal income tax rate and the rate of contributions to social security. Thus, the rates are personal income tax rates in the OECD definition (OECD 2004). The system of benefits for the unemployed is described, too. A special interest is devoted to the rules for those people who are poor in a sense and who are—if able to work—entitled to unemployment benefits II (“Arbeitslosengeld II”). The specific government transfers for this group and their changes in case of an increase of the net wage income are deduced in order to measure the implicit tax rates which together with the explicit tax rates determine the incentives to work. The overall tax rates are calculated only under certain assumptions which are thought to characterize the general conditions. Otherwise, the results would be too complex and could not easily be assessed. For singles in West Germany, the new system of unemployment benefits II is compared with the old system of social assistance and unemployment aid.

## B. The Development of the Wage Income Tax Burden until 2005

The marginal income tax rates in Germany were reduced in several steps since 1998 (Table 1). Despite of the tax rate reductions, typical taxpayers in Germany

*Table 1:*

Selected Income Tax Rates in Germany, 1998–2005 (in percent)

Year	Lowest marginal rate <sup>a</sup>	Top marginal rate
1998	25.9	53.0 <sup>b</sup>
1999	23.9	53.0 <sup>b</sup>
2000	22.9	51.0 <sup>b</sup>
2001	19.9	48.5
2002	19.9	48.5
2003	19.9	48.5
2004	16.0	45.0
2005	15.0	42.0

<sup>a</sup>For income above the standard exemptions. — <sup>b</sup>For business income of non-corporations (excluding mainly the agriculture sector and the “freie Berufe”): 47, 45 resp. 43 percent.

*Source:* DATEV (various issues).

bear a heavy tax burden, in particular if the contributions to social security are taken into account. In 2004, the average income tax burden for an unmarried (male) skilled worker in West Germany (with a monthly wage income (excluding employer’s contributions to social security) of 2,864 euro) amounted to 16.3 percent (Table 2). Adding the contributions to social security (34.7 percent), the average burden was 51 percent. Even for a wage of two thirds of the skilled workers’ gross wage (1,909 euro) the tax burden was 45.7 percent (11.0 plus 34.7 percent) in 2004. Married workers paid lower taxes than unmarried workers if there was only one income earner in the household or if the second earner’s income was small. The rate of contributions to social security is inde-

pendent from the marital status and from the wage level (exceptions: very low wages up to 800 euro and wages beyond an upper limit (2004: 5,150 euro resp. 3,488 euro for West Germany depending on the branch of social security); details are described below).<sup>1</sup>

*Table 2:*

Average Wage Income Tax Burden for Typical Groups of Employees (West Germany), 1977–2005 (percent of gross wages including employer's contributions to social security)

Year	Single		Married couple, one income <sup>b</sup> earner, two children	Single and married couple, wage low <sup>a</sup> or high <sup>b</sup>
	Low wage <sup>a</sup>	Wage of a skilled worker <sup>b</sup>		
	<i>Wage income tax<sup>c</sup></i>			<i>Contributions to social security<sup>e</sup></i>
1977	11.4	17.1	10.8	27.9
1982	11.9	16.5	10.3	29.1
1986	12.6	17.9	8.8	30.0
1990	11.4	15.2	7.0	30.2
1995	13.8	17.8	8.2	32.8
1996	13.1	17.9	8.3 <sup>d</sup>	33.7
1997	13.1	17.9	8.3 <sup>d</sup>	34.6
1998	12.9	17.7	8.3 <sup>d</sup>	34.8
1999	12.9	17.9	8.2 <sup>d</sup>	34.3
2000	12.6	17.9	8.0 <sup>d</sup>	34.0
2001	11.6	16.9	7.3 <sup>d</sup>	34.0
2002	11.7	17.0	7.5 <sup>d</sup>	34.2
2003	11.9	17.2	7.8 <sup>d</sup>	34.8
2004	11.0	16.3	6.8 <sup>d</sup>	34.7
2005	11.0	15.9	6.9 <sup>d</sup>	34.7 <sup>f</sup>

<sup>a</sup>2004: 1,909 euro, excluding employer's contributions to social security. — <sup>b</sup>2004: 2,864 euro, excluding employer's contributions to social security. — <sup>c</sup>Including solidarity surcharge: 1995–1997: 7.5 percent in principle, from 1998 onwards: 5.5 percent in principle. — <sup>d</sup>Excluding fixed transfer for children; 2004: 308 euro. — <sup>e</sup>Employer's and employee's shares. — <sup>f</sup>34.5 percent for couples with children.

*Source:* Luchterhand (various issues); DATEV (various issues); own calculations.

<sup>1</sup> Measured in the usual way (gross wage excluding the employers' share in the contributions as a denominator), the rate of contributions to social security was 42.0 percent in West Germany in 2004 on average. The rate has increased in a very pronounced way since 1960 (Deutsche Bundesbank 2004: 20; BMGS 2004). In 1960, the rate was only 24.4 percent.



As to the incentives to work, the marginal rather than the average tax rates are decisive. In 2004, the marginal tax rate for an unmarried skilled worker was 64.6 percent (29.9 plus 34.7 percent), i.e. nearly two thirds of the gross wage adequately measured (Table 3). The marginal tax rate amounted to more than 59 percent even for singles earning two thirds of a skilled worker's wage. For a couple with two children, the marginal tax rate was 58.6 percent if there was one (high) income earner.

*Table 3:*  
Marginal Wage Income Tax Burden for Typical Groups of Employees (West Germany), 1977–2005 (percent of gross wages including employer's contributions to social security)

Year	Single		Married couple, one income <sup>b</sup> earner, two children
	Low wage <sup>a</sup>	Wage of a skilled worker <sup>b</sup>	
1977	18.1	32.7	15.3
1982	18.9	31.6	16.9
1986	23.3	32.9	16.9
1990	22.7	24.8	18.0
1995 <sup>c</sup>	23.8	28.9	19.2
1996 <sup>c</sup>	26.5	29.5	24.1
1997 <sup>c</sup>	26.4	29.3	23.6
1998 <sup>d</sup>	26.1	29.2	23.2
1999 <sup>d</sup>	26.6	30.2	23.5
2000 <sup>d</sup>	26.4	31.2	26.4
2001 <sup>d</sup>	24.9	30.2	24.6
2002 <sup>d</sup>	25.0	30.3	25.3
2003 <sup>d</sup>	25.1	30.7	25.7
2004 <sup>d</sup>	24.5	29.9	23.9
2005 <sup>d</sup>	24.1	28.1	24.8

<sup>a</sup>2004: 1,909 euro. — <sup>b</sup>2004: 2,864 euro. — <sup>c</sup>Including solidarity surcharge (7.5 percent in principle). — <sup>d</sup>Including solidarity surcharge (5.5 percent in principle).

*Source:* Luchterhand (various issues); DATEV (various issues); own calculations.

In 2004, the average tax rates for the types of employees considered were somewhat less than in 1998 when a new coalition came to power; however, the marginal tax rates for two of the groups considered were somewhat higher than

in 1998. Of course, the marginal tax rates were lower for a given wage, but wages have increased since 1998, and—given the steep increase of the marginal tax rates—the bracket creep effect has been strong. In 2004, the marginal rates were significantly higher than in 1990, the year of the German unification. For all the years referred to, the average as well as the marginal tax rates were somewhat lower in East Germany—due to the lower level of wages in connection with the smaller tax rates resulting from the progressive system of income taxation.

In 2005, the marginal tax rates for singles went down slightly. For the married couple considered this is not the case due to the progressive structure of the solidarity surcharge in the relevant income range.

The input of labor is not only impeded by high personal income tax rates. The value added tax (VAT) is important, too. Actually, the VAT mainly is a tax on wage income because wage income is the main component of its base.<sup>2</sup> As to the taxation of the foreign trade, it has to be borne in mind that the VAT—generally—is levied according to the destination principle;<sup>3</sup> the contributions to social security are levied according to the origin principle.

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<sup>2</sup> The other component of the base of the VAT is—crudely stated—pure profit.

<sup>3</sup> One exception refers to direct purchases abroad (e.g. purchases of tourists).

## **C. The Situation in 2005**

### **I. Outline of the Section**

In the following, the tax burden and the incentives to work induced by the tax and transfer system are analyzed for different groups of employees and unemployed persons in 2005.<sup>4</sup> Before doing so, some basic properties of the German income tax system, the system of levying contributions to social security and the system of transfers in case of unemployment are explained briefly. Finally, the new and the old system of accounting for wage income when calculating means-tested unemployment benefits are compared.

### **II. The Relevant Groups of Employees or Unemployed Persons**

The incentives to work are investigated for employees and recipients of social security (esp. unemployment) benefits. The employees are the most important group (Table 4). However, the recipients of different kinds of benefits cannot be neglected. In addition, the number of recipients of the different kinds of benefits has increased. The figures for the different groups considered do not add up to a figure for the total labor force; e.g., it is possible to be employed and to receive unemployment aid and/or social assistance.

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<sup>4</sup> As to the situation for the employees, the rules are not described for the “Beamte” and for the judges; these groups underlie a specific status with respect to some rules of the income tax law and with respect to the system of contributions to social security. The tax burden for the self-employed is not considered, too; otherwise the description of the German tax system would have to be much more detailed than below. Furthermore, mainly the situation in West Germany is dealt with. However, the rules are only slightly different for East Germany; thus, the general conclusions are roughly the same for West and East Germany.

Table 4:

Employees and Recipients of Specific Social Security Benefits in Germany (mill. persons)

	2001	2002	2003	2004
Employees	34.786	34.545	34.096	34.080 <sup>e</sup>
“Low wage” employment (exclusively employed in this way)	.	4.145	4.320	4.760 <sup>e</sup>
Employees without those employed at a “low wage”	.	30.400	29.776	29.320 <sup>e</sup>
Recipients of unemployment benefits <sup>a</sup>	1.728	1.909	1.915	1.845 <sup>e</sup>
Recipients of unemployment aid <sup>b</sup>	1.484	1.702	2.005	2.202 <sup>e</sup>
Recipients of social assistance (aged 15–64) <sup>c</sup>				
Employed	0.142	0.143	0.147	.
Not employed because of illness, disability etc.	0.151	0.153	0.131	.
Not employed for other reasons (education, personal circumstances)	0.385	0.395	0.418	.
Potential labor supply	.	0.990	1.084	.
Total	1.632	1.681	1.780	.
<i>Addendum:</i>				
Unemployed	3.853	4.061	4.377	4.381 <sup>d</sup>
Population	82.340	82.482	82.520	82.500 <sup>e</sup>

<sup>a</sup>Financed by contributions to the unemployment insurance system. — <sup>b</sup>Means-tested, financed by taxes. — <sup>c</sup>End of the year. — <sup>d</sup>Restrained definition (effect: 0.080). — <sup>e</sup>Estimated.

*Source:* Statistisches Bundesamt (2004a; 2004b); Haustein et al. (2003; 2004); Bundesagentur für Arbeit (various issues); Sachverständigenrat (2004).

### III. The German System of Taxing Wage Income

In Germany as in many countries, in order to derive the taxable income gross wages are reduced by some kinds of exemptions and deductions (Rosen 2002). Deductions are allowed for expenses related to work (e.g., expenditures for specific working clothes, commuting costs) and for certain other expenses (e.g. health care expenses, insurance premiums, charitable contributions or saving for old age). In the following, it is assumed that only the standard deductions which require no documentation (Table 5) are relevant.<sup>5,6</sup>

<sup>5</sup> The rules for measuring the deductions are somewhat different for specific groups of the employees (“Beamte”, judges).

<sup>6</sup> Effective from 2005, contributions to the pension system as well as pensions are treated according to new rules which will be gradually introduced (Sachverständigenrat 2004: 222–

Table 5:

Standard Deductions from Gross Wages for Wage Income Earners in Germany in 2005 (euro per year)

	Singles	Single parents	Couples	
			one earner	two earners
Wage related expenses (“Werbungskosten“)	920	920	920	1,840
Other deductible expenses (“Sonderausgabenpauschbetrag“)	36	36	72	72
Expenses related to contributions to social security (“Vorsorgepauschale“)		wage related, upper bounds		
Exemption of income (“Entlastungsbetrag für Alleinerziehende“)	–	1,308	–	–

Source: Boss and Elendner (2004a, 2004b); DATEV (various issues).

The income reduced by the deductions is taxed if it exceeds a specific tax-free amount (“eligible personal exemption”). The amount of tax-free income for singles was 7,426 euro per year in 2004. It was raised to 7,664 euro in 2005 (DATEV, various issues). In 2005, income slightly above this amount is taxed by 15 percent at the margin. The marginal tax rate increases from 15 to 42 percent according to three formulae defined for three income ranges (7,665 to 12,739 euro; 12,740 to 52,151 euro; 52,152 euro or more) (Boss and Elendner 2004a, 2004b). Taxable income above 52,151 euro is taxed at the marginal top rate. Of course, the marginal tax rates are different if they are measured against gross wage income.

Couples can choose to be taxed jointly, i.e. to file tax returns jointly (“joint-returns”). In this case, the incomes of the individuals are added and taxed using the splitting procedure (with the factor 2). Thus, taxable incomes up to 15,328 euro per year are tax-free in 2005. The top marginal income tax rate applies for couples’ incomes above 104,302 euro.

224). The effect is not important in 2005. In addition, opting for the old rules is possible for some time. Thus, the new rules are neglected.

The splitting procedure is not extended to the income of the children living in a family. Instead, there is a tax-free income for every child; it is 3,648 euro per year. In addition, 2,160 euro per year are tax-free if the age of a child is below 17.<sup>7</sup>

According to the rules described, the tax advantage from having children depends on the marginal tax rate. However, there is a special rule in the income tax law which guarantees that the tax advantage for families with children is at least 154 euro a month (1,848 euro per year) per child in general and even 179 euro (2,148 euro per year) for the fourth, fifth, etc. child. A tax computing routine is used to compare the tax burden in case of non-deduction of the allowances for children with the tax burden in case of deduction. If—for a given number of children—the difference is smaller than the fixed transfer (“Kinder-geld”), the transfer takes the place of the potential tax advantage. Given the tax rate structure described and the size of the guaranteed transfers, for most wage income earners the marginal tax rate does not determine the tax advantage from rearing children.

In addition to the income tax, there is a solidarity surcharge (“Solidaritätszuschlag”). The surcharge (NWB 2002: 453–456; DATEV, various issues) was introduced to finance a part of the costs of the German unification. Since 1998, it is 5.5 percent of the income tax for taxpayers having no children; for other taxpayers it is 5.5 percent on the income tax resulting if the allowances for children are deducted from the tax base (i.e. leaving aside the potential effect of the fixed transfer for children). However, the surcharge is not levied if the tax base thus defined is 81 euro or less for singles or single parents resp. 162 euro or less

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<sup>7</sup> In the following, it is assumed that the age of a child or the children whenever relevant is above 7, but below 14. The lower age limit will become relevant only in the section on the unemployment benefits II.

for couples. Without an additional constraint this would result in excessively high marginal tax rates for tax bases slightly above 81 resp. 162 euro; thus the tax rate is not allowed to exceed 20 percent of the difference between the tax base and the fixed amounts of 81 or 162 euro (NWB 2002: 455; Kaltenborn 2003: 39).

#### **IV. Additional Taxes on Wages: Contributions to Social Security**

Apart from the wage income tax there are other “taxes” on wages: contributions to social security. These contributions are different from genuine taxes; for all the subsystems of social security, there is some degree of equivalence between contributions and (monetary or real) transfers. However, in general the contributions to social security are similar to taxes or became similar to taxes in the course of time; the contributions to the health insurance system even can be considered to be a tax in the normal sense.<sup>8,9</sup> The OECD considers the contributions to social security to be a part of the personal income tax burden (OECD 2004).

The contributions to social security are split into the employer’s and the employee’s contributions. From an economic point of view, it does not make

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<sup>8</sup> Probably, this is the reason why there are many reform proposals which would result in an increased financing of the expenditures of the health insurance system by a tax in the formal sense.

<sup>9</sup> As to the contributions to the pension system, the following aspects are important if it is to be decided if the contributions are taxes or not (cf. Breyer et al. 2004: 54, 59–61): If the pensions are related to the contributions, the latter are a tax only to the extent that there is a difference between the long-term interest rate (the rate of return in a funded system) and the rate of change of the sum of wages (the rate of return in a pay-as-you-go system). Moreover, contributions paid early in a job career contain a larger tax element than contributions paid later if—as in Germany—the pensions do not depend on the time profile of the contributions. From a subjective point of view, the tax element can even be higher than suggested by these factors.

sense to distinguish these kinds of contributions. Standard theory of taxation (e.g. Rosen 2002) says that the burden of a tax (e.g. on labor income) does not depend on who actually pays it but on the supply and demand conditions on the specific market and the repercussions on other markets. Thus any shift away from a given sharing of the payments between employers and employees<sup>10</sup> does not change anything as to the bearing of the burden (at least under the normal assumptions concerning e.g. price or wage flexibility). Nevertheless, the differentiation is used in the specific laws. Thus, it is helpful in describing the system.

Contributions are paid to the old age insurance (pension) system, the health insurance system, the unemployment insurance agency and the nursing care system. The regular overall rate for employers and employees together probably will be 41.7 percent in 2005; it is the sum of 19.5 percent for the pension system, 14.0 percent (on average) for the health insurance system,<sup>11</sup> 6.5 percent for the unemployment insurance and 1.7 percent for the nursing care system.<sup>12</sup> All these rates are defined in relation to gross wages excluding the employer's contributions. Calculated vis-à-vis the gross wage including the employer's contribution the overall rate is 34.5 percent in 2005.<sup>13</sup>

Contributions to social security are paid on individual wages; each wage income earner is taxed separately. There is nothing like a "joint taxation" of couples or families. In general, wages earned in different occupations are added

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<sup>10</sup> Cf. Sachverständigenrat (2004) for a specific case of interest in Germany. It refers to the health insurance system.

<sup>11</sup> This is an estimate based on the development of the rate until October 2004. The shift from employer's to employee's contributions which will become effective in July 2005 has no long-term economic consequences given the view just described.

<sup>12</sup> In this system, an additional rate for employees without children and aged more than 23 (0.25 percent) became effective in January 2005. It is neglected here.

<sup>13</sup> The rate is 34.7 percent if the additional rate for the nursing care system is relevant (see also Table 2).



and taxed as a sum according to the normal rules. However, it is allowed to have one mini job apart from the normal job and thus to profit from extra rules (see below). The structure of the rates of contributions is different for four income intervals.

If the wage income is very small specific rules of taxation are relevant.<sup>14</sup> For wages up to 400 euro (until April 2003: 325 euro) per month, there is only an employer's contribution; it is 25 percent of the gross wage. The payment is split by a special administration agency (situated in Cottbus, East Germany) into a 12 percent contribution for the pension system, an 11 percent contribution for the health insurance system and a 2 percent (standard wage income) tax component; there is no share for the unemployment insurance system and for the nursing care system. The overall tax is independent from taxes which potentially have to be paid due to income from another job or to income of the spouse; this was different until April 2003. There is an incentive to have a second job with a wage below 400 euro. Contrary to the situation before April 2003, low wage income employment is not restricted to jobs with a working time of 15 hours a week at most.<sup>15</sup> Jobs for which these rules do apply are called mini jobs.<sup>16</sup>

As to mini jobs in private households, the overall tax rate is 12 percent (5+5+2 instead of 12+11+2=25 percent); in addition, the private household as an employer is granted a specific deduction from the base of the income tax (10 percent of the wage paid, with an upper limit of 510 euro per year).

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<sup>14</sup> The following description refers to regular employment (DATEV 2004). The rules are different for short-term employment.

<sup>15</sup> As to the detailed rules before April 2003 cf. VDR (2002).

<sup>16</sup> The individual worker is free to pay personal contributions in order to increase the claim on a pension (additional tax rate of 7.5 percent) (Sachverständigenrat 2003, text number 247).

For wages above 400 euro but below 801 euro, the total (employer's and employee's) tax rate steadily increases from 25 to 41.7 percent, the normal rate which is relevant for wages above 800 euro but below a ceiling (Table 6). Technically, for a wage marginally above 400 euro the employer's contribution is defined to be 20.85 percent whereas the employee's tax rate is to be 4.15 percent. The rate attributed to the employee is steadily increasing for higher wages until it reaches 20.85 percent at a wage of 800 euro.<sup>17</sup> The rate remains 41.7 percent until one of the upper limits for the bases of the contributions to social security is reached.

*Table 6:*  
Elements of the Normal Contributions to Social Security in West Germany in 2005

	Tax rate (%)	Lower limit (euro)	Ceiling (euro)
Pension system	19.5	800	5,200 <sup>a</sup>
Unemployment insurance	6.5	800	5,200
Health insurance	14.0	800	3,525
Nursing care system	1.7 <sup>b</sup>	800	3,525
Total	41.7	.	.

<sup>a</sup>Except for wages earned in the sector "coal mining". — <sup>b</sup>Excluding a special (0.25 percent) surcharge for wage income earners without children (introduced in January 2005).

*Source:* DATEV (2005: 184); *Handelsblatt*, Höhere Sozialbeiträge für Gutverdiener, October 14, 2004: 3; *Frankfurter Allgemeine Zeitung*, Im neuen Jahr sinken die Steuersätze, aber die Sozialabgaben steigen, December 30, 2004: 20.

<sup>17</sup> The contributions of an employee can be calculated by interpolation. First, a modified wage is calculated, then the normal tax rate is used (see Sachverständigenrat 2003, text number 248).

The upper limit for the basis for calculating the contributions to social security is adjusted year by year in line with the development of the wages on average; in 2005, it is 5,200 euro per month for the pension system and for the unemployment insurance system (4,400 euro in East Germany) and 3,525 euro per month for the health insurance system and for the nursing care insurance system (with no difference for East Germany for each of them) (DATEV 2005).

## **V. Unemployment Benefits**

### **1. Unemployment Benefits I**

The unemployed receive “normal” benefits (benefits I) if they are registered as unemployed, if they are able and willing to work at least 15 hours a week and if they were employed for at least 12 months (and contributed to the financing of the system of unemployment insurance) over a certain period of time before becoming unemployed. This period of time was reduced from three years to two years in 2004 (*BGBI. I 2003b: 2858*).

The duration for which benefits are paid depends on the length of the period of employment before becoming unemployed and on the age (Table 7). The duration for which benefits are granted will be shortened for those becoming unemployed after January 2006 (*BGBI. I 2003c: 3004*; Heller und Stosberg 2004: 101). It will be normally 12 months; for the elderly it will be 18 months (Table 8).

*Table 7:*

Duration of Being Entitled to Claims on Unemployment Benefits and its Determinants in Germany (up to January 2006)

Minimum time of insurance before becoming unemployed (months)	Minimum age (years)	Duration of receiving benefits (months)
12	.	6
16	.	8
20	.	10
24	.	12
28	45	14
32	45	16
36	45	18
40	47	20
44	47	22
48	52	24
52	52	26
56	57	28
60	57	30
64	57	32

*Source:* DATEV (2004: 237).

*Table 8:*

Duration of Being Entitled to Claims on Unemployment Benefits and its Determinants in Germany (from February 2006 onwards)

Minimum time of insurance before becoming unemployed (months)	Minimum age (years)	Duration of receiving benefits (months)
12	.	6
16	.	8
20	.	10
24	.	12
30	55	15
36	55	18

*Source:* *BGBl. I* (2003c: 3004).

The amount of the unemployment benefit I which is not means-tested depends on the net wage earned before. The benefits are higher than those from the (means-tested) unemployment aid which were granted until the end of 2004 after the expiry of a claim on unemployment benefits.

The (nominal) replacement rates (Table 9) do not necessarily reflect the changes of the disposable incomes due to becoming unemployed. The effective replacement rates for recipients of unemployment benefits I result from the interaction of the system of unemployment benefits with the total system of transfers. The unemployed receive support for children (“Kindergeld”) as it is the case for the employed. In addition, support to the financing of housing costs is possible. As a rule: the lower the vocational qualification of an unemployed person and the lower the wage earned before becoming unemployed, the higher the effective replacement rate for the recipient of unemployment benefits I (Breyer et al. 2004: 32).

*Table 9:*  
Replacement Rates in Germany (percent of net wage)

	Unemployment benefits	Unemployment aid
Recipients with child/children	67 <sup>a</sup>	57 <sup>a,b</sup>
Recipients without child/children	60 <sup>a</sup>	53 <sup>a,b</sup>

<sup>a</sup>Upper limit for the absolute amount of benefits (due to the upper limit for the contributions to unemployment insurance). — <sup>b</sup>Until the end of 2004.

*Source:* DATEV (2004 : 236); *SGB III* (2004); Franz (2003: 268–269).

The procedure according to which earned income reduces the unemployment benefit I was changed at the beginning of 2005. Only 165 euro are not accounted for (Heller and Stosberg 2004: 102). This means that the implicit marginal tax rate is 100 percent even for very low wages. Until the end of 2004, 20 percent of the benefit, but not more than 165 euro were not accounted for (*BGBI. I* 2003b: 2861).

## 2. Unemployment Benefits II (“Arbeitslosengeld II”)

### a) *Overview on the System*

In January 2005, for those who are unemployed but able to work<sup>18</sup> and who are aged 15 up to 64 the (means-tested) unemployment benefit II (“Arbeitslosengeld II”) substituted the (means-tested) unemployment aid or/and the (means-tested) social assistance.<sup>19</sup> “Arbeitslosengeld II” probably will be claimed mostly after the expiry of a claim on normal unemployment benefits.<sup>20</sup> However, the benefit is available in other cases, too (e.g. if somebody did not yet work or if he did but did not gather a claim on unemployment benefits because of a short period of employment). In general, “Arbeitslosengeld II” will be granted to those who are able to work, aged 15 up to 64 and in need of support (because of unemployment and a lack of means to care for oneself or for the members of a family) (BMWA 2004b: 4).

Children living together with a recipient of unemployment benefits II are granted a comparable transfer (“Sozialgeld”) if the children are not old enough to be able to work and to care for themselves and if no other means are available (BMWA 2004b: 5). More or less, the “Sozialgeld” is the social assistance as it was granted until 2004 in the system of social assistance in case of neediness of a family.

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<sup>18</sup> “Ability to work” is defined as being not hindered (by illness or disability) to work for at least three hours a day under the general labor market conditions (BMWA 2004b: 4).

<sup>19</sup> In the system effective until 2004, the unemployment aid could be low due to a low net wage when being employed. In this case, social assistance filled up the gap between the guaranteed minimum income (social assistance) and the unemployment aid.

<sup>20</sup> This seems to have been the reason for choosing the name.

**b) The Benefits**

*aa) The Components of the Benefits*

The benefits consist of regular means, the reimbursement of housing costs, supplementary support and transfers paid irregularly for specific purposes. Regular benefits for a single person (e.g., a head of a family) amount to 345 euro (West Germany including Berlin) or 331 euro (East Germany) per month. Additional regular transfers are granted depending on the marital status, the number and the ages of the children in a household (Table 10).

*Table 10:*

Unemployment Benefits II (Regular Transfer) for Different Types of Individuals in West and in East Germany in 2005 (euro per month)

	Singles	Children		Spouses/ partners aged 19 or more
		aged up to 14	aged 15 up to 18	
West Germany (including Berlin)	345	207	276	276 <sup>a</sup>
East Germany	331	199	265	265 <sup>a</sup>
<i>Addendum:</i>				
Grading (percent)	100	60	80	80

<sup>a</sup>In addition to the transfer for the head of a household.

*Source:* *BGBI. I* (2003a); BMWA (2004b); Bundesversicherungsanstalt für Angestellte (2003).

A specific rule applies for single parents (“Alleinerziehende”). They receive an extra regular benefit depending on the number and the ages of the children in a complicated way. In order to have not to consider too many cases it is assumed that all the children living in a household (“Bedarfsgemeinschaft”) are aged 7 at least and 14 at most. Under this assumption the additional regular means granted

to single parents are clearly related to the number of children in a household (Table 11).

*Table 11:*

Additional Regular Transfers for Single Parents in Germany in Dependence on the Number of Children in 2005

	Number of children			
	one	two	three	four
	<i>Percent of regular (basic) means</i>			
West Germany	12	36	36	48
East Germany	12	36	36	48
	<i>Euro per month</i>			
West Germany	41	124	124	166
East Germany	40	119	119	159

*Source: SGB II (2005); own calculations given specific assumptions on the structure of the households of single parents (child or children aged 7 at least and 14 at most).*

The benefits are adjusted each year at the beginning of July. The rate of adjustment is the rate used for the adjustment of the pensions.

A surcharge on the regular means is paid in the first two years of receiving unemployment benefits II if there was a claim on normal unemployment benefits which expired and if these benefits were high compared to the unemployment benefits II. The surcharge is calculated using the difference between the unemployment benefit I (potentially raised by support for housing costs) and the unemployment benefit II (BMWA 2004b, 2004c); it is  $\frac{2}{3}$  of the difference in the first year and  $\frac{1}{3}$  in the second year. However, there are upper bounds for the surcharges (160 euro for singles; 320 euro for couples; 60 euro for every child).



Apart from the regular benefits the costs for housing (including the heating costs) are refunded. However, the dwelling has to be adequate<sup>21</sup>; otherwise the costs are not reimbursed. Given this general rule, the transfer resulting from the reimbursement of the housing costs (including heating costs) depends on the region the recipient of unemployment benefits II lives in. In the following it is assumed that—on average—the transfer for singles equals 320 euro per month in West Germany and 250 euro per month in East Germany. Certain fractions of these amounts are imputed to the different members of a household or a family. For the calculations to be presented below, these fractions are determined according to a procedure which proved to be useful with respect to the analysis of the system of social assistance (Boss 2002); the fractions for the single members of specific types of households are the same for West and East Germany.<sup>22</sup> The total amount of the reimbursement of housing costs is a multiple of the transfer for singles (Table 12).

*Table 12:*

Housing Cost Equivalents for Different Types of Households in Germany (percent of housing costs for a single person)

	No child	One child	Two children	Three children
Single	100	.	.	.
Single parent	.	120	140	160
Couple	140	160	180	200

*Source:* Own calculations based on Boss (2002).

The sum of the regular transfer and the reimbursement of the housing costs depends on the size and the structure of a household. Singles in West Germany

<sup>21</sup> For a couple without children, 60 square meters are considered to be adequate; for singles, the norm is 45 to 50 square meters (Löschau 2005: 26; BMWA 2004g: 93).

<sup>22</sup> The fractions used in the federal government's pattern calculations for certain types of households (BMWA 2004c) are similar.

receive 665 euro; a couple with three children receives a transfer of 1,882 euro (Table 13). The transfers paid in East Germany are generally lower. This was the case—for good reasons—in the system of social assistance, too; there was even a differentiation between the states in West Germany and between the states in East Germany.<sup>23</sup>

*Table 13:*

Unemployment Benefits II for Different Types of Households in West and in East Germany (euro per month)

	Regular transfer		Reimbursement of housing costs		Total	
	West	East	West	East	West	East
Single	345	331	320	250	665	581
Single Parent						
One child <sup>a</sup>	593.40	569.32	384	300	977.40	869.32
Two children <sup>a</sup>	883.20	847.36	448	350	1,331.20	1,197.36
Three children <sup>a</sup>	1,090.20	1,045.96	512	400	1,602.20	1,445.96
Couple						
No children	621	595.80	448	350	1,069	945.80
One child <sup>a</sup>	828	794.40	512	400	1,340	1,194.40
Two children <sup>a</sup>	1,035	993.00	576	450	1,611	1,443.00
Three children <sup>a</sup>	1,242	1,191.60	640	500	1,882	1,691.60

<sup>a</sup>Aged 7 at least and 14 at most.

*Source: BGBl. I (2003a); BMWA (2004b, 2004c, 2004d); own calculations.*

Supplementary support is granted to disabled people, to pregnant women and to some other groups entitled to unemployment benefits II. Extra benefits are paid e.g. for clothing in case of pregnancy or for furniture for a new dwelling.

Social security was extended for many of those who receive unemployment benefits II (Löschau 2005: 28–29). In the new system, contributions to the health insurance system (125 euro per month, SGB V, §232a), the nursing care system

<sup>23</sup> For the arguments against a centralized social policy in general see Vaubel (1996).

(14,90 euro per month) and the pension system (contribution based on a fictitious income of 400 euro (SGB VI, § 166): 78 euro per month assuming a 19.5 percent rate for the pension system (Sachverständigenrat 2004: text number 235)) are paid by the government. As to children in a household, contributions to the pension system are not granted (BMWA 2004g: 96).

*bb) Comparison with the Old System*

Leaving aside two new rules described below, the level of the unemployment benefits II is equivalent to the income level guaranteed in the former social assistance system (Boss 2001, 2002), at least in principle (Löschau 2005: 28); however, the unemployment benefits II are in some cases lower than the unemployment aid would have been.

Additional benefits result from two new rules. A temporary supplement to the benefit was not granted in the old system if the previously received unemployment benefits exceeded the amount of social assistance. In addition, contributions to social security are paid by the government for every recipient of unemployment benefits II. The recipients of social assistance generally did not obtain a claim on pensions up to 2004; as to health insurance, there was in-kind support. The recipients of unemployment aid were insured like employees.

The amount of “Arbeitslosengeld II” for the eligible unemployed on average probably will be higher than the transfer in the old system; the difference depends on whether a surcharge is available or not and on the length of the time which expired since the time of receiving unemployment benefits. The number of the recipients of the unemployment benefits II will be somewhat smaller than the number of those who had received unemployment aid or social assistance in the old system. Unfortunately, there are not yet data to check these judgments.

c) *The Relation Between the Gross Wage, the Net Wage and the Disposable Income of a Recipient of Unemployment Benefits II*

The claim on unemployment benefits II (“Arbeitslosengeld II”) is reduced if there is income from other sources or if the spouse of a potential recipient earns income or if there is net worth defined in a specific way.<sup>24</sup> The rules according to which the income of the spouse reduces the claim on “Arbeitslosengeld II” (BMWA 2004a) are a bit more restrictive than the rules in the old system. The same is true for the rules concerning property available (e.g. shares).

In the following it is assumed that the individual considered has—with one exception—neither income nor net worth that has to be taken account of when calculating the claim on benefits. It is also assumed that the spouse/partner does not earn any income and that there is no net worth of the spouse/partner. The exception relates to labor income of the recipient (or recipients) of unemployment benefits II.

In this case the net wage income reduces the benefits (excluding the surcharge potentially granted in the first two years after becoming unemployed) according to complicated rules (*BGBI. I* 2003a: 2958–2959; BMWA 2004a; *BGBI. I* 2004: 2622–2623). Actually, a part of the net wage income is accounted for. Thus, the disposable income of an individual or a couple is the sum of the net wage or net wages and the benefit reduced according to a procedure used to measure the “accountable income” (BMWA 2004a; 2004b). If the “accountable income” is so high that it is equal to the unemployment benefits II in case of a lack of income, a benefit will not be granted; from that income on, the disposable income is identical to the net wage or the sum of the net wages in a household.

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<sup>24</sup> The language in the law is used here. From an economic point of view, net worth is the discounted value of future income. Thus, there is no income without net worth; there is no net worth if there is no income.

The terms used can be defined as follows:

***Disposable Income***

=  
net wage or net wages  
+  
(benefit II minus accountable income) if the difference in brackets is positive

***Net Wage***

=  
gross wage income  
–  
wage income tax  
–  
solidarity surcharge (based on the wage income tax)  
–  
employee's contributions to social security

***Benefit II***

= fixed amount (given the marital status; neglecting a potential surcharge on the benefit)

***Accountable Income***

= net wage  
–  
premiums for “necessary” private insurances (e.g. household contents insurance; 30 euro a month as a standard amount for some of the insurances (BMWA 2004a: § 3))  
–  
specific savings for old age (“Altersvorsorgebeiträge”) defined in the income tax code<sup>25</sup>  
–  
specific expenses incurred to earn wage income (income related expenses e.g. for commuting)  
–  
deduction of a part of the wage income defined with respect to

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<sup>25</sup> 1 percent of the gross wage income is the maximum amount possible in 2005. The rate of tax-favored savings will rise to 4 percent in some steps until 2008.

- the ratio between the difference resulting so far (“adjusted net wage”) and the gross wage (excluding employer’s contribution to social security) on the one hand and
- the gross wage components (of wages of 1,500 euro as a maximum) weighted by specific exclusion rates (according to § 30 SGB II) on the other hand

For the calculations presented below, it is assumed that a recipient of unemployment benefits II uses 1 percent of the gross wage for private insurances (except the standard amount) and for savings for old age.

The specific expenses incurred to earn income are defined in relation to the income tax rules; the standard deduction is 15.33 euro.<sup>26</sup> Extra expenses for commuting (0.06 euro per kilometer<sup>27</sup>) can be subtracted, too. In the following, it is assumed that the distance between the location of the firm and the lodging of the recipient is 4.4 kilometers and that the distance is 95 kilometers per month (with 4.35 weeks on average). Thus 5.7 additional euros can be deducted as a “compensation” for commuting costs. The sum of the expenses is 21 euro per month.

The rates which are used in defining the deductible amount of earned income (“Freibetrag”) are 15, 30 or 15 percent depending on the level of the gross wage income up to 1,500 euro. If the gross wage exceeds 1,500 euro a month the rate is 0 percent instead of 15, 30 or 15 percent (*BGBl. I* 2003a: § 30).

The total calculation procedure is formalized in Scheme 1.

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<sup>26</sup> To derive standard expenses per month, the standard deduction according to the income tax code (920 euro per year) is divided by 12 and multiplied by a standard tax rate (20 percent) (BMWA 2004a: § 3). This leads to a deduction of 15.33 euro.

<sup>27</sup> 0.06 euro are 20 percent (standard tax rate) of 0.30 cent, the amount in the income tax law which can be deducted from the tax base by the taxpayers (BMWA 2004a, § 3).

The rules apply for a couple without children in the same way.<sup>28</sup> If there are two wage income earners each recipient (single earner) is entitled to use the accounting procedure separately; this helps to maintain the incentive to work. In the following, it is assumed that the spouse or the partner living together with a recipient of unemployment benefits II neither owns net wealth for covering the costs of living nor has any income (e.g. interest income). One exception refers to labor income in double income earner households.

*Scheme 1:*

Components of the Disposable Income of a Recipient of Unemployment Benefits II in Germany

$$Y = W - t(W) + \max(0; B - Z)$$

$Y$  = Disposable income  
 $W$  = Gross wage  
 $t$  = Taxes (including contributions to social security) depending on the gross wage  
 $B$  = Unemployment benefits II in case of zero income  
 $Z = W - t(W) - (30 + 0.01 W + 21) - \left[ \frac{W - t(W) - (30 + 0.01 W + 21)}{W} \right] \cdot X$

$$X = \begin{cases} 0.15 \cdot W, & \text{if } W \leq 400 \\ 0.15 \cdot 400 + 0.30 \cdot (W - 400), & \text{if } 400 < W \leq 900 \\ 0.15 \cdot 400 + 0.30 \cdot 500 + 0.15 \cdot (W - 900), & \text{if } 900 < W \leq 1,500 \\ 300, & \text{if } W > 1,500 \end{cases}$$

In defining the claim on unemployment benefits II and the accountable income of a family, the children are treated separately. Taking into account the potential

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<sup>28</sup> For a couple, the benefit in case of zero income is higher (1,069 instead of 665 euro in West Germany).

claims of a child or of the children (not able to work because of young age), four cases can be distinguished (Scheme 2).

*Scheme 2:*

Unemployment Benefits II: The Cases of Parents and/or Children Being Entitled or Not

	Child/ children	entitled	not entitled
Parents			
entitled			
not entitled			

A child is or the children are not entitled to “Sozialgeld” if there is sufficient income or other financial support. In this case the parents themselves can have a claim or not. The former case is that just considered. In the latter case no benefit is granted because there is no lack of financial means; the system of taxation alone is relevant as to the incentives to work. The cases interesting now are given if a child or the children is or are entitled to benefits (“Sozialgeld”). The parents may have a claim on support or not. These two cases are investigated in the following.

In these cases the rules for measuring the accountable income become very complicated. The benefit granted to the parents or the single parent is reduced until—at a certain wage level—it is cut to zero according to the calculation procedure described (critical net wage income). Up to this critical income, the benefits (including the (fractional) housing costs) for every child<sup>29</sup> do not depend on the wage income of the head of the household resp. the partner; they

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<sup>29</sup> There is a small difference between the benefits in West and in East Germany.



are granted as long as there is still a claim of the parents and—as assumed—no own income or net worth of the child.<sup>30</sup> If the parents do not receive any longer unemployment benefits II because the net wage or the sum of the net wages of two income earners is or are too high and if there is a claim of a child or the children because of a lack of income, net wealth or other support, the benefits for a child or for the children (“Sozialgeld”) are not paid in the usual way (BMWA 2004b: 10). Instead, apart from the “Kindergeld” a surcharge (“Kinderzuschlag”) is granted (*BGBl. I* 2002; *SGB II und SGB XII* 2005). The surcharge amounts to 140 euro per child.<sup>31</sup> At the critical income level of the parents, the surcharge together with the “Kindergeld” is higher than the “Sozialgeld” paid up to this critical income.<sup>32</sup> The surcharge is reduced in line with the income or the wealth of a child—a case not discussed here. It is also reduced if the income of the head of the household resp. the parents together exceeds the income limit defined for the parents’ or the single parent’s claim on unemployment benefits II. The exceeding income is accounted for by 70 percent until there is not a claim on support (“Kinderzuschlag”) any longer (BMWA 2004b: 10). The computing procedure is formalized in Scheme 3.

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<sup>30</sup> Technically, the normal transfer for children (“Kindergeld”) and the difference between the claim and the “Kindergeld” are paid. The distinction does not seem to make sense. However, different public institutions bear the burden of financing. The “Kindergeld” is financed by the federal government, the states and the local authorities; the difference is financed by the federal government and the local authorities (which are compensated by the federal government for any additional expenditures in relation to the system prevailing until 2004).

<sup>31</sup> The surcharge is paid—for at most 36 months—by an institution (“Familienausgleichskasse”) which had been created for administrating the transfers for children (“Kindergeld”) many years ago. The reason for introducing the surcharge is that the number of children defined as “poor” because of receiving “Sozialgeld” is to be reduced. Apparently, being dependent from general transfers from the government (“Kinderzuschlag”) is not thought to indicate poverty.

<sup>32</sup> Of course, this generates jumps of the marginal implicit tax rate.

*Scheme 3:*

Components of the Disposable Income of a Recipient of Unemployment Benefits II in Germany if Children who are themselves Entitled to Benefits Live in the Family of the Recipient

$$\begin{aligned}
 Y &= W - t(W) \\
 &+ ((B_1 - Z) + (KG + (B_2 - KG))) X_1 \\
 &+ (KG + \max(0; B_3 - 0.70 [(W - t(W)) - (W_c - t(W_c))])) (1 - X_1)
 \end{aligned}$$

$Y$	=	Disposable income
$W$	=	Gross wage
$t$	=	Taxes (including contributions to social security) depending on the gross wage
$B_1$	=	Benefit for the single parent or the parents
$Z$	=	Term in Scheme 1
$KG$	=	“Kindergeld”
$B_2$	=	Benefit for the child/children (fixed amount)
$X_1$	=	$\begin{cases} 1, & \text{if } (B_1 - Z) > 0 \\ 0, & \text{if } (B_1 - Z) \leq 0 \end{cases}$
$B_3$	=	Surcharge for the child/children (“Kinderzuschlag”), fixed amount
$W_c$	=	Critical net wage of the parents

Given the rules described, there are critical wage levels, i.e. wages at which the claims on unemployment benefits II for adults or for children expire. The critical wage levels depend on the type of the household (Table 14). In East Germany, the critical values are lower due to the lower claims on unemployment benefits II.

*Table 14:*

Wages at which a Claim on Unemployment Benefits II Expires (“Critical Wages”) by Type of Household in West Germany (euro per month)

Type of household	Unemployment benefits II			
	of adults		of child or children	
	Gross wage <sup>a</sup>	Net wage	Gross wage <sup>a</sup>	Net wage
Single	1,463	907	.	.
Single parent				
One child	1,526	957	1,964	1,157
Two children	1,735	1,055	2,660	1,455
Three children	1,735	1,055	3,145	1,655
Couple, one income earner				
Without children	2,085	1,362	.	.
With a child	2,085	1,362	2,451	1,562
With two children	2,085	1,362	2,852	1,762
With three children	2,085	1,362	3,285	1,962
Couple, two income earners				
Without children	2,324	1,506	.	.
With a child	2,324	1,506	2,707	1,706
With two children	2,324	1,506	3,119	1,906
With three children	2,324	1,506	3,587	2,106

<sup>a</sup>Including employer’s contribution to social security.

*Source:* Own calculations (using the assumptions described above).

#### *d) Additional Aspects*

The recipients of unemployment benefits II profit from the contributions to social security paid by the government (in addition to the unemployment benefits II). With a rise of the wage income, the contributions are more and more paid by the wage income earner himself/herself according to the rules described; the government’s contributions decline. The contributions are not part of the disposable income as defined here for the employees as well as for the unemployed.

In addition, specific financial incentives were introduced. A specific transfer (“Einstiegsgeld”) may be granted if it is thought to be necessary in order to let a recipient accept a job offered (*BGBI. I* 2003a: 2963–2964). The transfer is paid in addition to the unemployment benefits II, but for 24 months at most. The amount of the transfer is to depend on the duration of unemployment and on the size of the household of the recipient; details are decided upon by the administration. The transfer “Einstiegsgeld” is not included in the disposable income as defined here.

*e) Other Changes of the System*

Some other rules of the system were also changed. The efforts of the administration (Labor Agency, local authorities) to find jobs for the recipients of unemployment benefits will be intensified (Koch und Walwei 2004: 14). Those recipients who refuse to accept a job (or a qualification measure) or a “secondary” job offered are punished by a reduction of the unemployment benefits II by 100 euro for three months and by a reduction of the surcharge by 100 percent; for young people (up to 25 years) the benefits are even reduced to zero for three months. A sanction was possible in the old system, too; however, the rule in the law does not seem to have been applied normally.

Every job—independently from wages contracted by the unions and the employers’ associations for specific branches and independently from the regional level of wages—is assessed to be reasonable for a recipient of unemployment benefits II and has to be accepted by the recipient. However, there is a lower limit for the wage. It is not given by law, but by the practice in the decisions of the labor courts: Wage income losses up to 30 percent are thought to be possible at most (BMWA 2004g: 44, 87). Nevertheless, this is a major change of the rules.

The effect on employment will be restricted because there is no change in another respect; firms committed by wage contracts cannot offer jobs to the recipients of “Arbeitslosengeld II” at a wage below the contractual wage. Nevertheless, the relevant reservation wages will come under pressure (Christensen 2004). This can be expected for another reason, too. The recipients of normal unemployment benefits will increase the search activities. They have to fear income losses, means tests etc. in the period after the expiry of the claim on benefits (Michaelis and Spermann 2004).

## **VI. Wage Income, Disposable Income and Marginal Tax Rates for Employees and Unemployed Persons**

### **1. Preliminary Remarks**

Depending on the gross wage, the disposable income and the marginal tax rate are measured for several groups of employees. In the following, four groups are considered: singles, single parents, couples (with one or two income earners). In addition, it is assumed that there are up to three children in the households. Overall, there are 12 groups of employees.

Specific transfers which can be relevant (e.g. reimbursement of housing costs (“Wohngeld”) for those who do not receive unemployment benefits II, subsidy for education (“BAFÖG”)) are neglected for the sake of simplicity. The child-rearing benefits (“Erziehungsgeld”) are not accounted for when calculating the unemployment benefits II. They are additional income and, thus, have to be neglected.

In order to measure the marginal tax rates for households with two income earners specific assumptions are required. It is assumed that the total wage is

distributed uniformly and that the additional income results from additional work of both income earners in the same amount.

To some extent, the marginal tax rates depend on the length of the income interval which is investigated. This is especially true for households with children at some specific income levels. In the following, the marginal tax rates are generally presented for wage income changes of 50 euro for singles and single parents and for income changes of 100 euro for couples. The tax rates are presented for incomes up to 7,000 euro per month for individuals resp. 14,000 euro for couples at most. At specific incomes below these limits only the top marginal income tax rate and the solidarity surcharge are relevant. The upper limits for calculating the contributions to social security have been passed; thus the marginal tax rate for these contributions is zero for such incomes. Of course, the limits are different for double income earner households.

Every figure shows the disposable income in relation to the gross wage for those employees who are entitled to unemployment benefits II and for those employees who are not (lower part of the figure). The marginal tax rates which can be derived from the data on disposable incomes and gross wages are presented for both groups of employees, too (upper part of the figure). Gross wages are defined as including employer's contributions to social security. The following description concentrates on the marginal tax rates in relation to gross wages. It focuses on the conditions in West Germany.

## **2. The Marginal Tax Rates for Employees Receiving no or full Unemployment Benefits II**

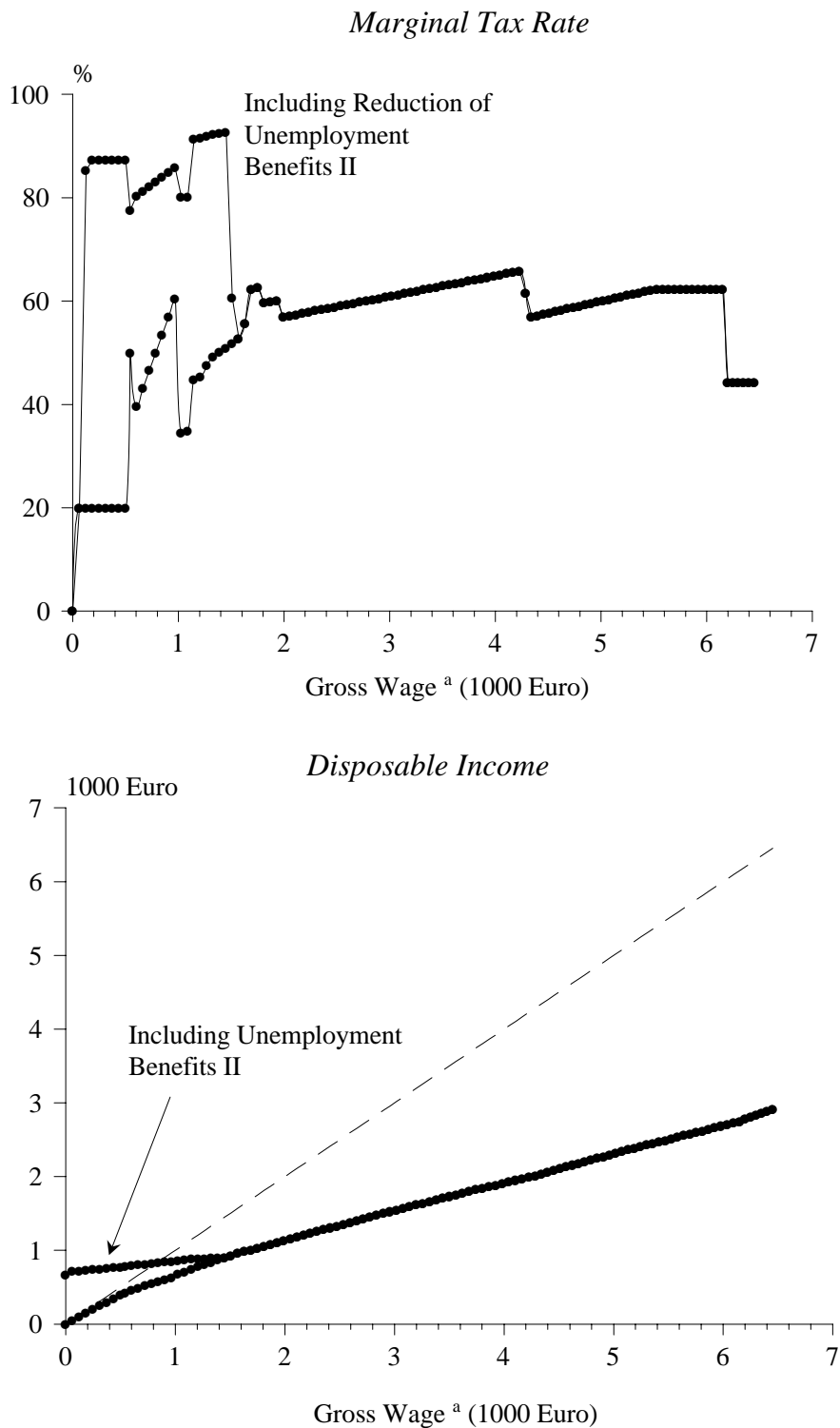
### ***a) General Remarks***

The marginal tax rates for employees without a claim on unemployment benefits II rise strongly with an increase of the wage income. There are some differences with respect to the marital status and the number of children living in a household. The marginal tax rates for recipients of unemployment benefits II are extremely high irrespective of the type of household.

### ***b) Singles***

For very low gross wages (up to 500 euro) the marginal tax burden (as defined above) is 20 percent (Figure 1). It increases to 60 percent at wages of about 1,000 euro (including employer's contributions to social security); this is due to the phasing-in scheme for the determination of the employee's contributions to social security ("midi jobs"). For wages which are somewhat higher than 1,000 euro the marginal tax rate is much lower than 60 percent; the wage income tax is still zero. With wages rising, the tax rate increases because the wage income tax and the solidarity surcharge become relevant. The marginal tax rate falls when the first and the second ceiling for determining the contributions to social security have been reached. For wages above 6,200 euro the marginal income tax rate is 42 percent with respect to the taxable income and—because of the assumption of fixed standard deductions—with respect to the gross wage; including the solidarity surcharge (5.5 percent on 42 percent), the overall rate is 44.31 percent.

Figure 1:  
Taxation of Wages of Singles in West Germany





For recipients of unemployment benefits II, wages up to 100 euro are taxed by 20 percent at the margin (the employer's contribution to social security). The marginal tax rates amount to about 90 percent on average for wages between 200 and 1,500 euro. After the expiry of the claim on unemployment benefits, the marginal tax rates are the same as the rates for the employees who are not entitled to unemployment benefits II.

*c) Single Parents*

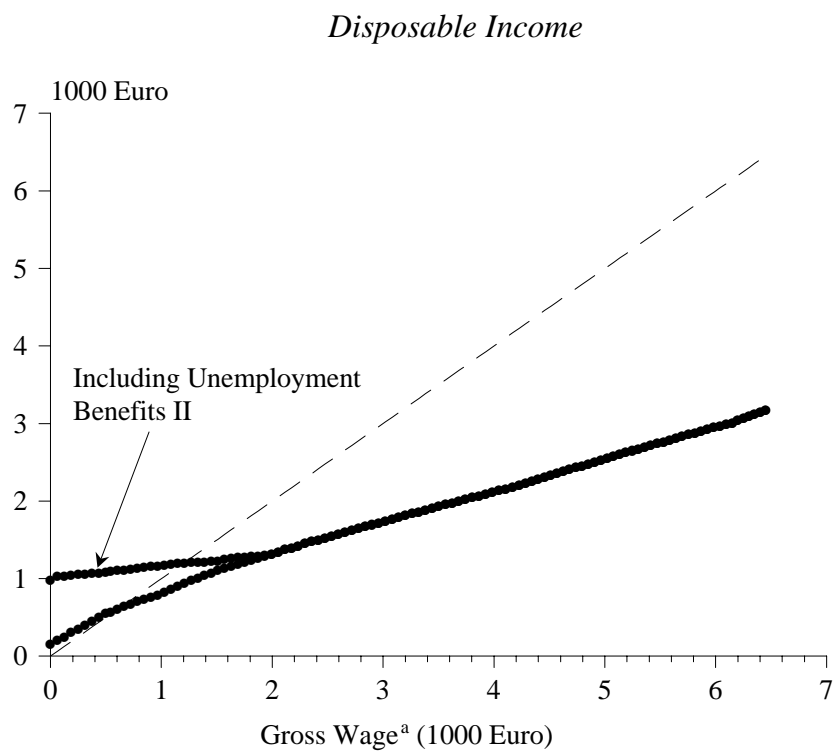
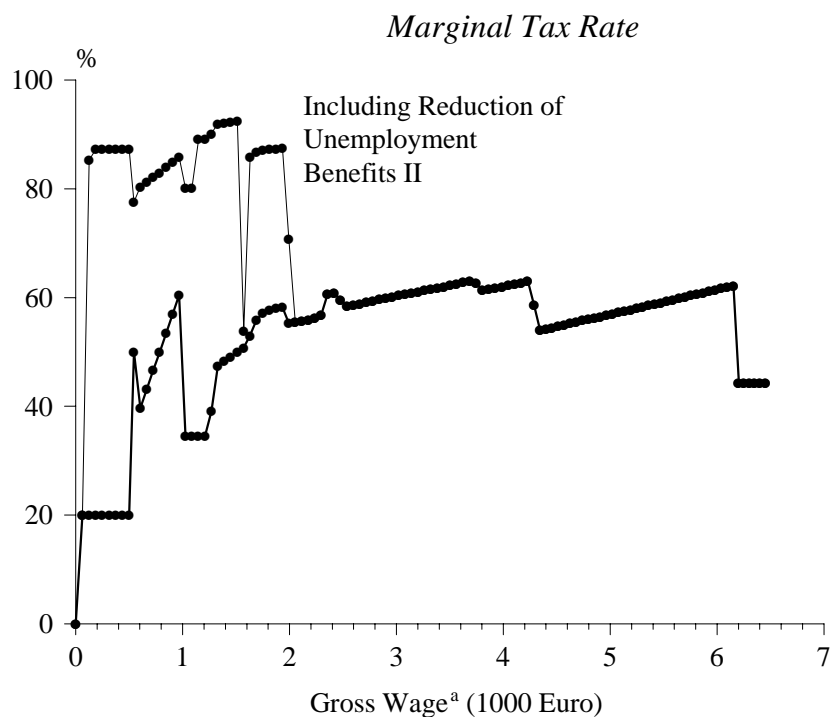
The structures of the marginal tax rates for single parents without a claim on unemployment benefits II (Figures 2, 3, 4) are very similar to the structure of the rates for singles. However, the rates are generally relevant for somewhat higher wage levels. This is due to the specific tax deduction for single parents.

For single parents receiving unemployment benefits II the marginal tax rates are about 90 percent over a wide income range. This income range is the larger the higher is the number of the children living in a household. The jump of the marginal tax rate for a specific income level is caused by the rule concerning the "Kinderzuschlag".<sup>33</sup> The size of the jump of the tax rate depends on the width of the underlying income interval.

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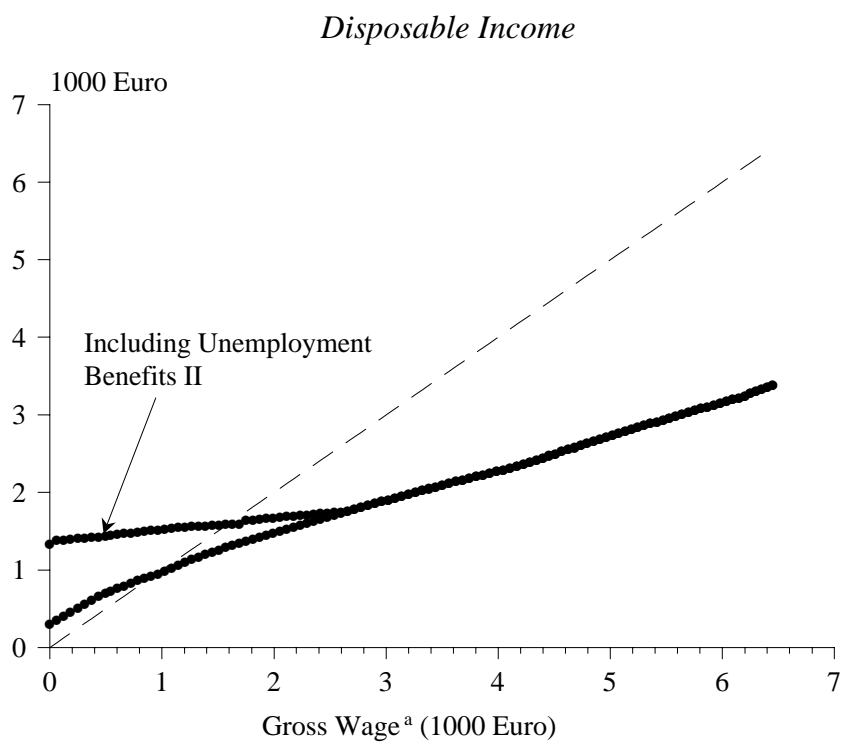
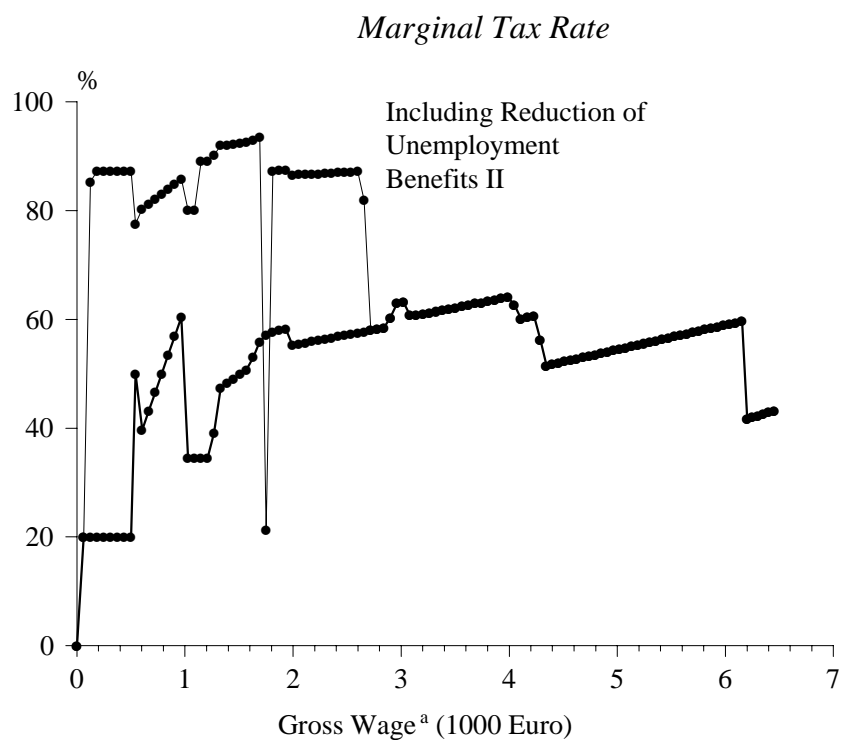
<sup>33</sup> The rule is described in Scheme 3.

Figure 2:  
Taxation of Wages of Single Parents with one Child in West Germany



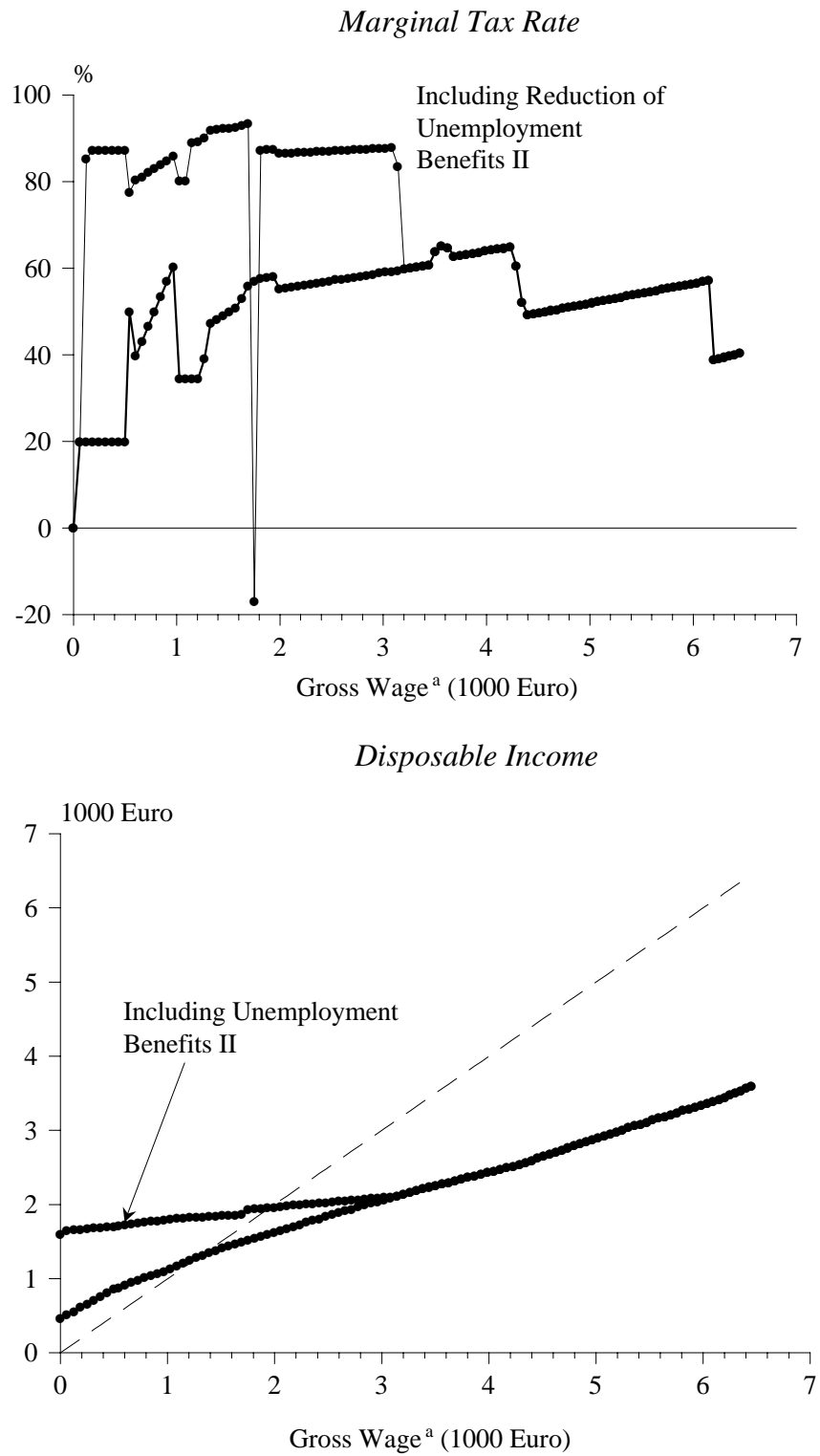
<sup>a</sup>Including employer's contribution to social security.

Figure 3:  
Taxation of Wages of Single Parents with two Children in West Germany



<sup>a</sup>Including employer's contribution to social security.

Figure 4:  
Taxation of Wages of Single Parents with three Children in West Germany



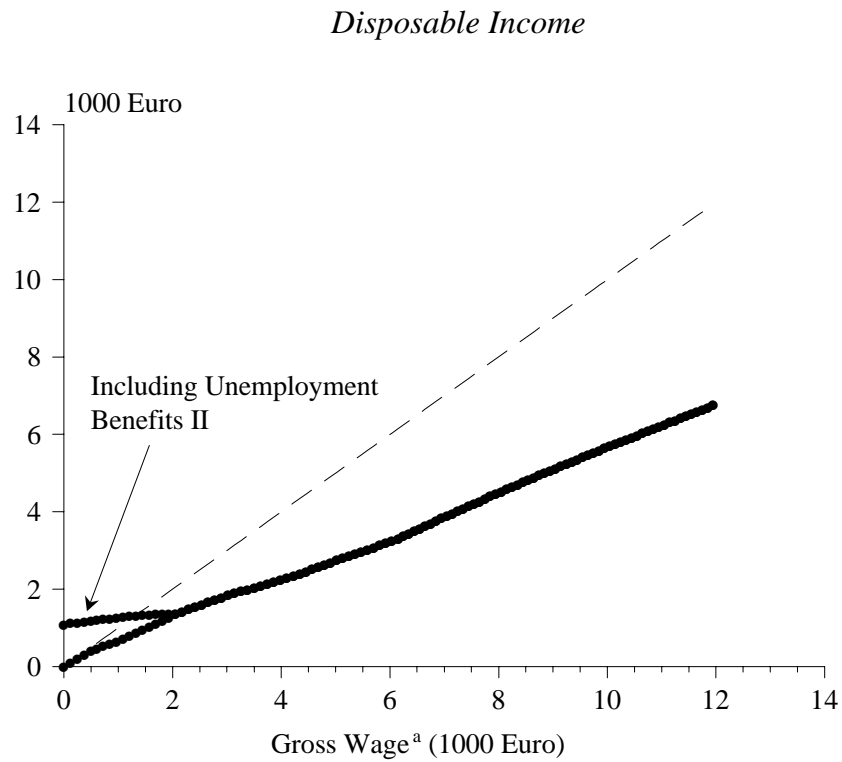
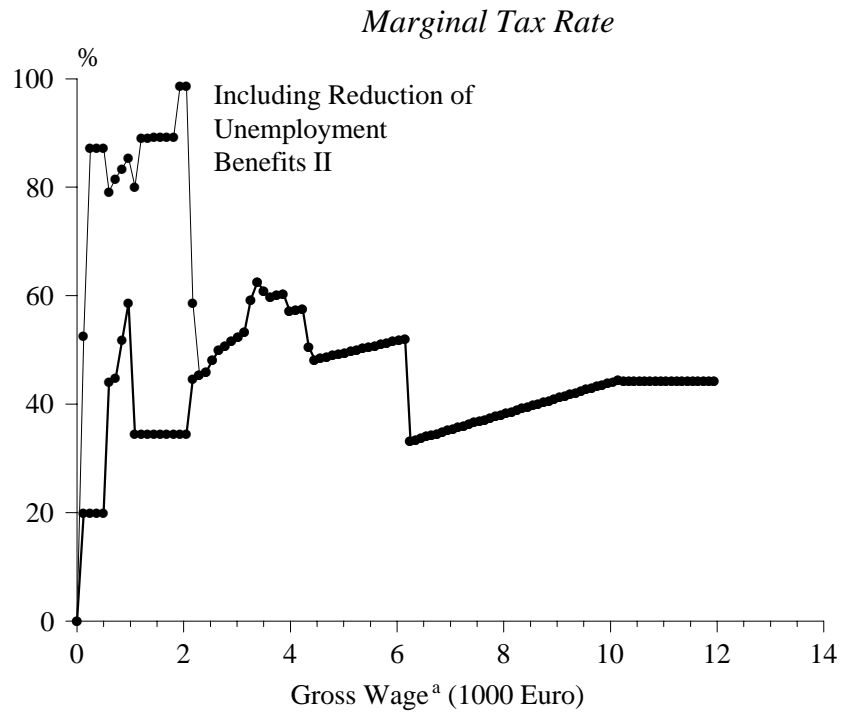
<sup>a</sup>Including employer's contribution to social security.

*d) Couples*

For a couple with one income earner, no children and no claim on unemployment benefits II, the structure of the marginal tax rates (Figure 5) is also similar to the structure of the tax rates for singles. However, the specific rates are only arrived at gross wages which are about 100 percent higher than the corresponding wages of singles. If there are children in a household with one income earner the pattern of the marginal tax rates (Figures 6, 7, 8) does not differ very much from the pattern of the marginal tax rates for households without children. The most important reason for differences is the rule for determining the solidarity surcharge.

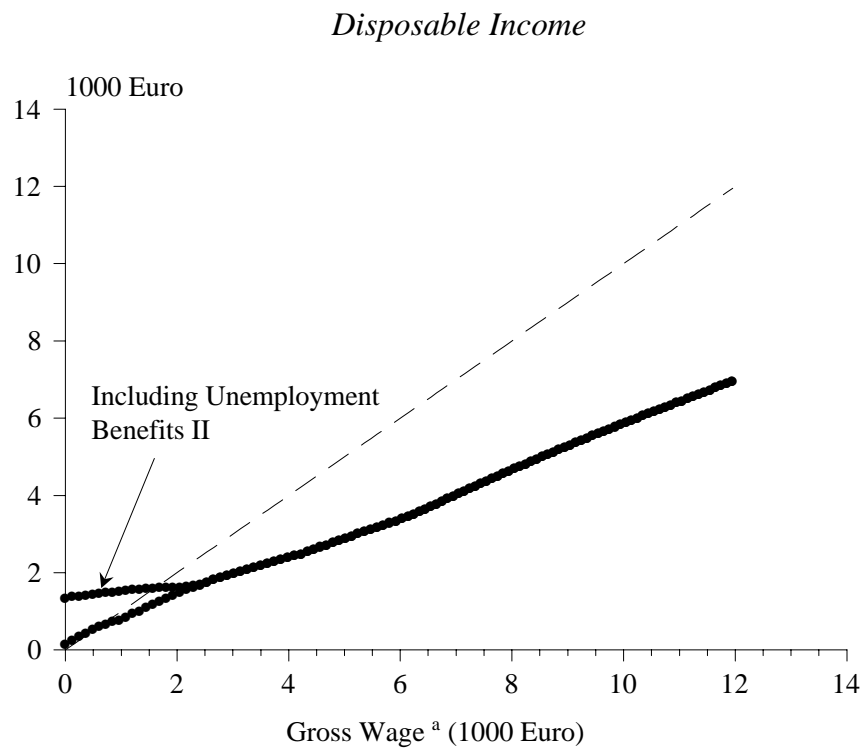
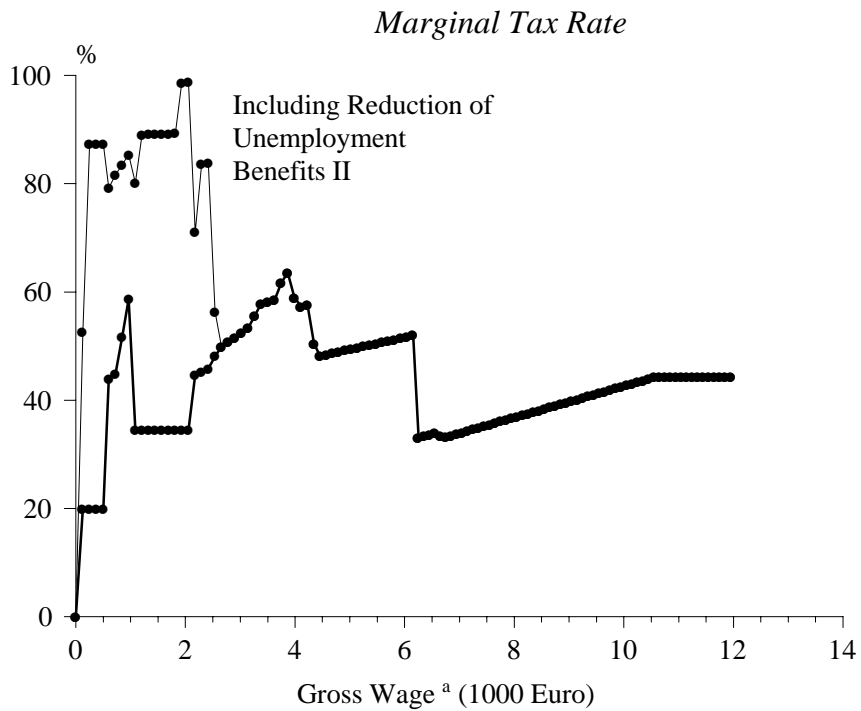
For “one income” couples receiving unemployment benefits II the marginal tax rate lies between 80 and 99 percent over a wide range of wages. The width of this range depends on the number of children. The marginal tax rate jumps at specific wage levels if children live in a household. This is due to the “Kinderzuschlag”-rule. For wages above the limits at which the claims on unemployment benefits II expire, the marginal tax rates are the same as the rates for non-recipients of unemployment benefits II.

*Figure 5:*  
Taxation of Wages of Couples without Children (one Income Earner) in West Germany



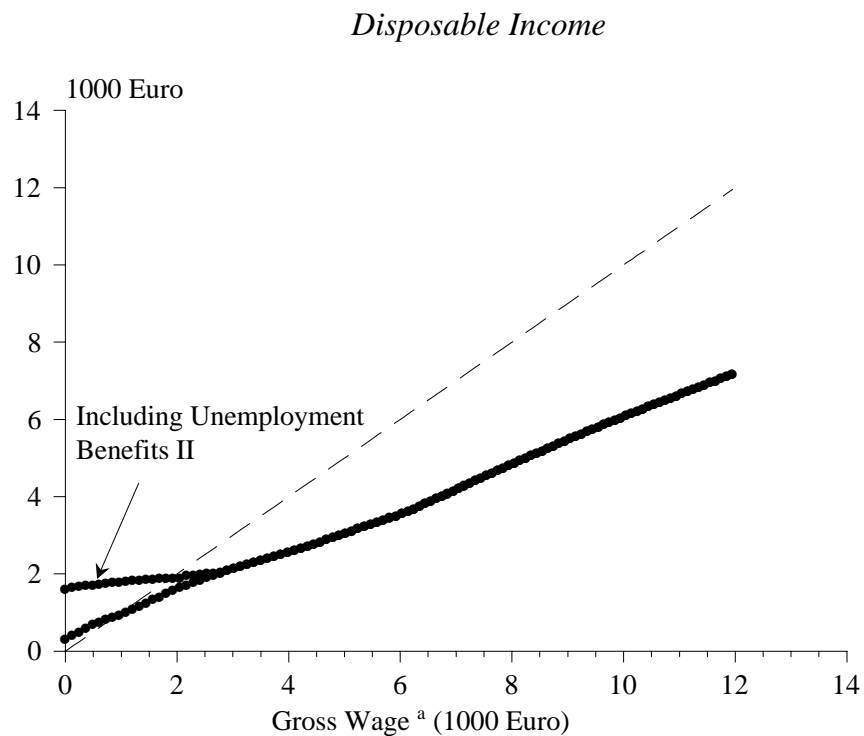
<sup>a</sup>Including employer's contribution to social security.

*Figure 6:*  
Taxation of Wages of Couples with a Child (one Income Earner) in West Germany



<sup>a</sup>Including employer's contribution to social security.

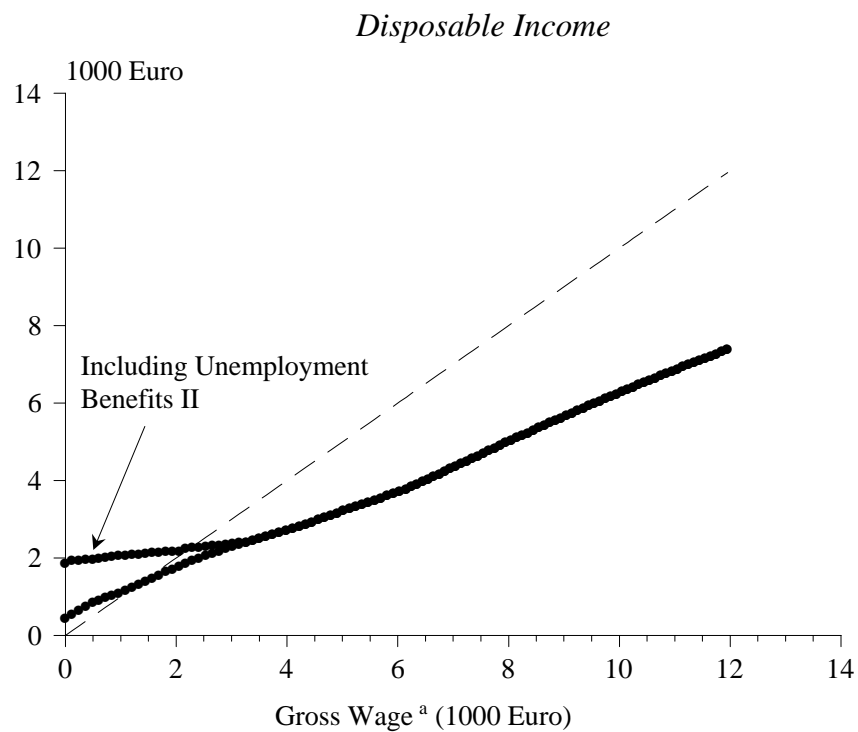
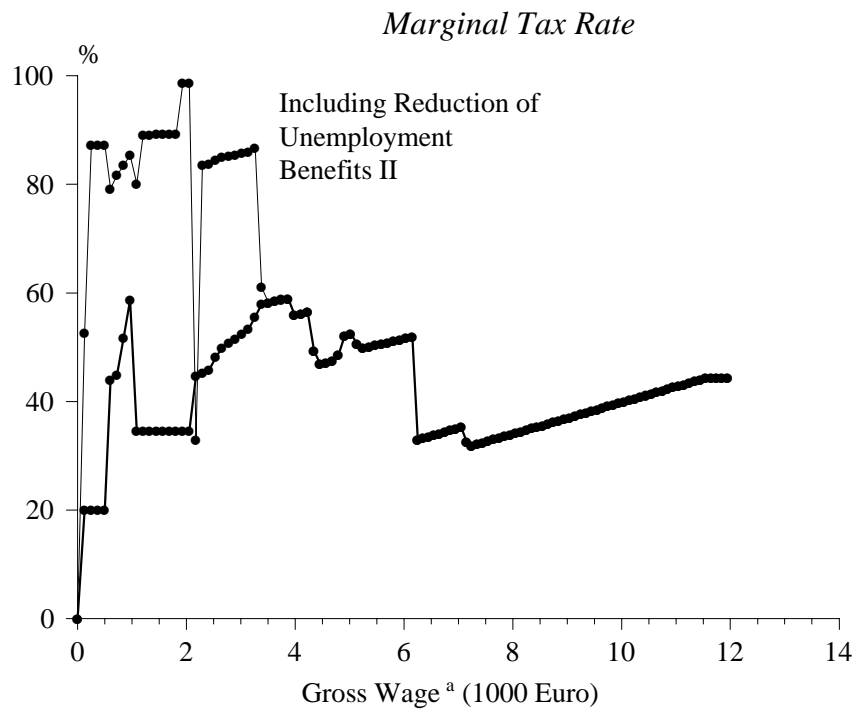
*Figure 7:*  
Taxation of Wages of Couples with two Children (one Income Earner) in West Germany



<sup>a</sup>Including employer's contribution to social security.



Figure 8:  
Taxation of Wages of Couples with three Children (one Income Earner) in West Germany



<sup>a</sup>Including employer's contribution to social security.

For couples with two income earners and no claim on unemployment benefits II the patterns of the marginal tax rates (Figures 9, 10, 11, 12) are similar to the pattern for singles if it is taken into account that the scales of the axes are different from the scale of the axis in the corresponding figure for singles. This is the consequence of the assumptions that the household income is split evenly on both income earners and that additional wage income is distributed uniformly between the two income earners.

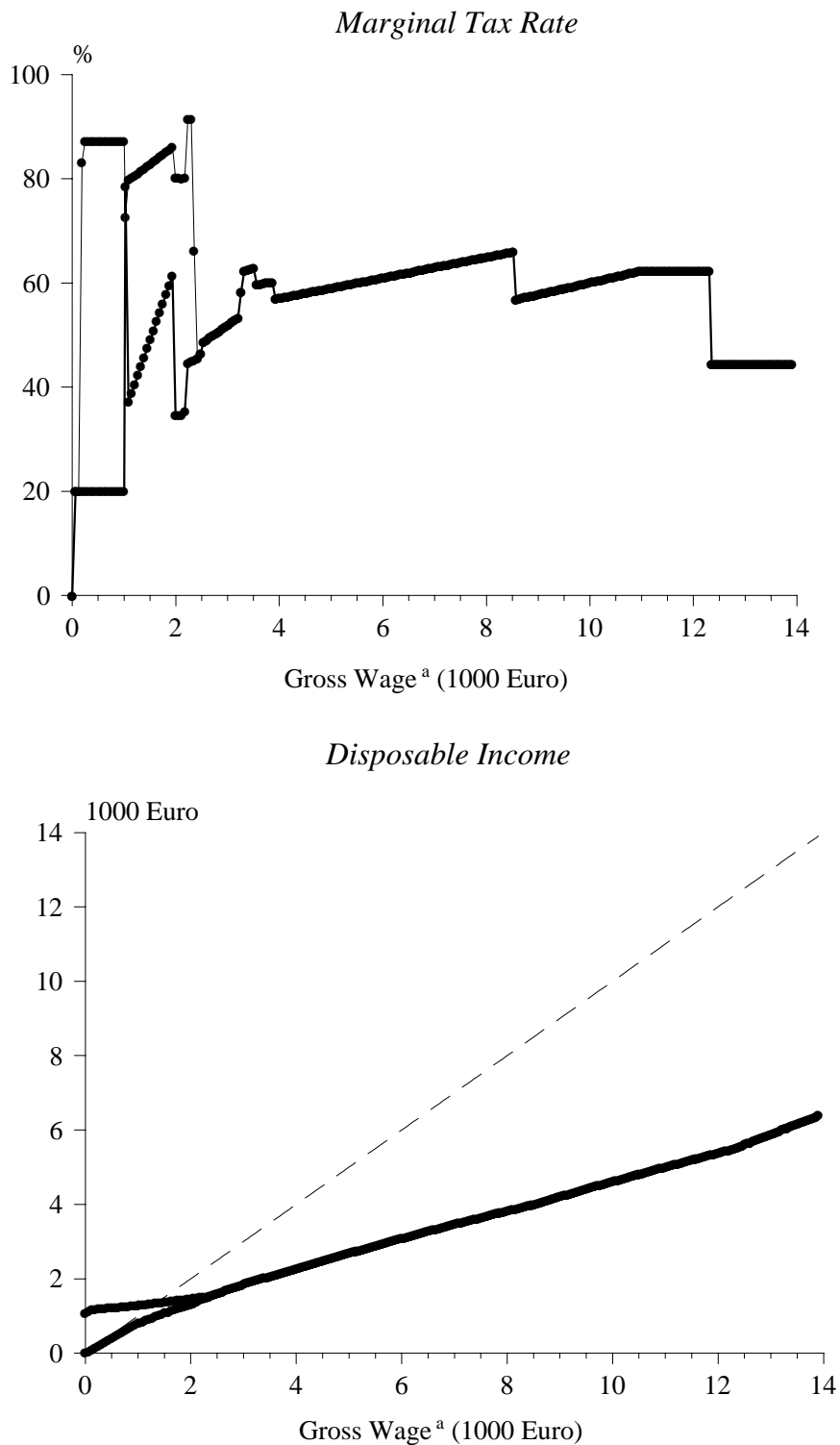
For the recipients of unemployment benefits II among the couples with two income earners, the marginal tax rates are very high. If children live in a household the structures of the marginal tax rates do not differ very much. However, there are jumps of the tax rates at specific income levels.

*e) Conclusion*

It can be concluded that the marginal tax rates on labor income are generally high in West Germany in 2005. If an income earner is entitled to unemployment benefits II the marginal implicit tax rate is extremely high over the whole range of incomes which do not exclude a claim on unemployment benefits II.

The presentation above focused on the situation in West Germany. However, the picture for East Germany is very similar. The main differences result from the lower levels of overall benefits. This implies that the claim on unemployment benefits II expires at gross wages which are lower than the corresponding wages in West Germany.

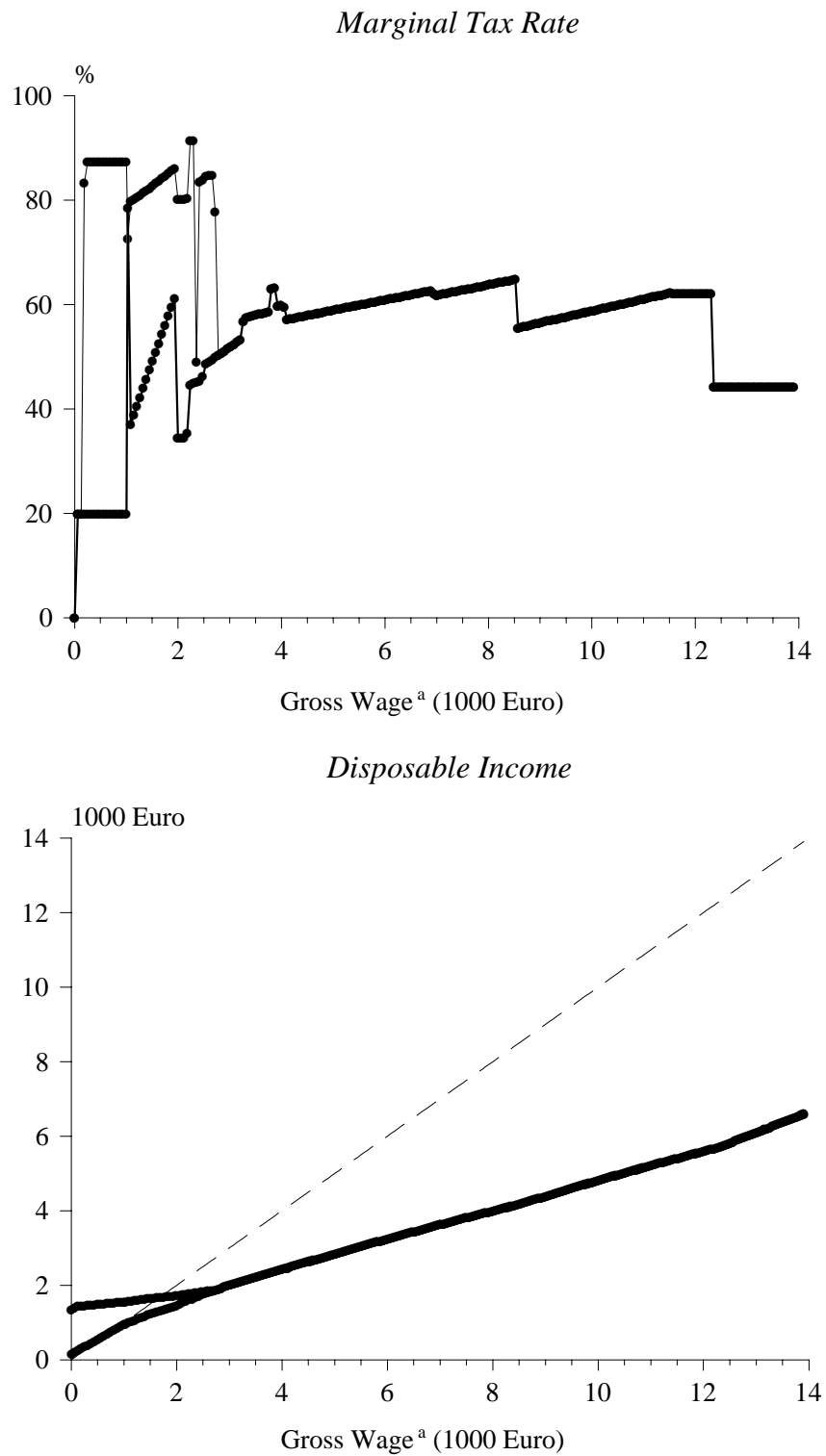
*Figure 9:*  
Taxation of Wages of Couples without Children (two Income Earners) in West Germany



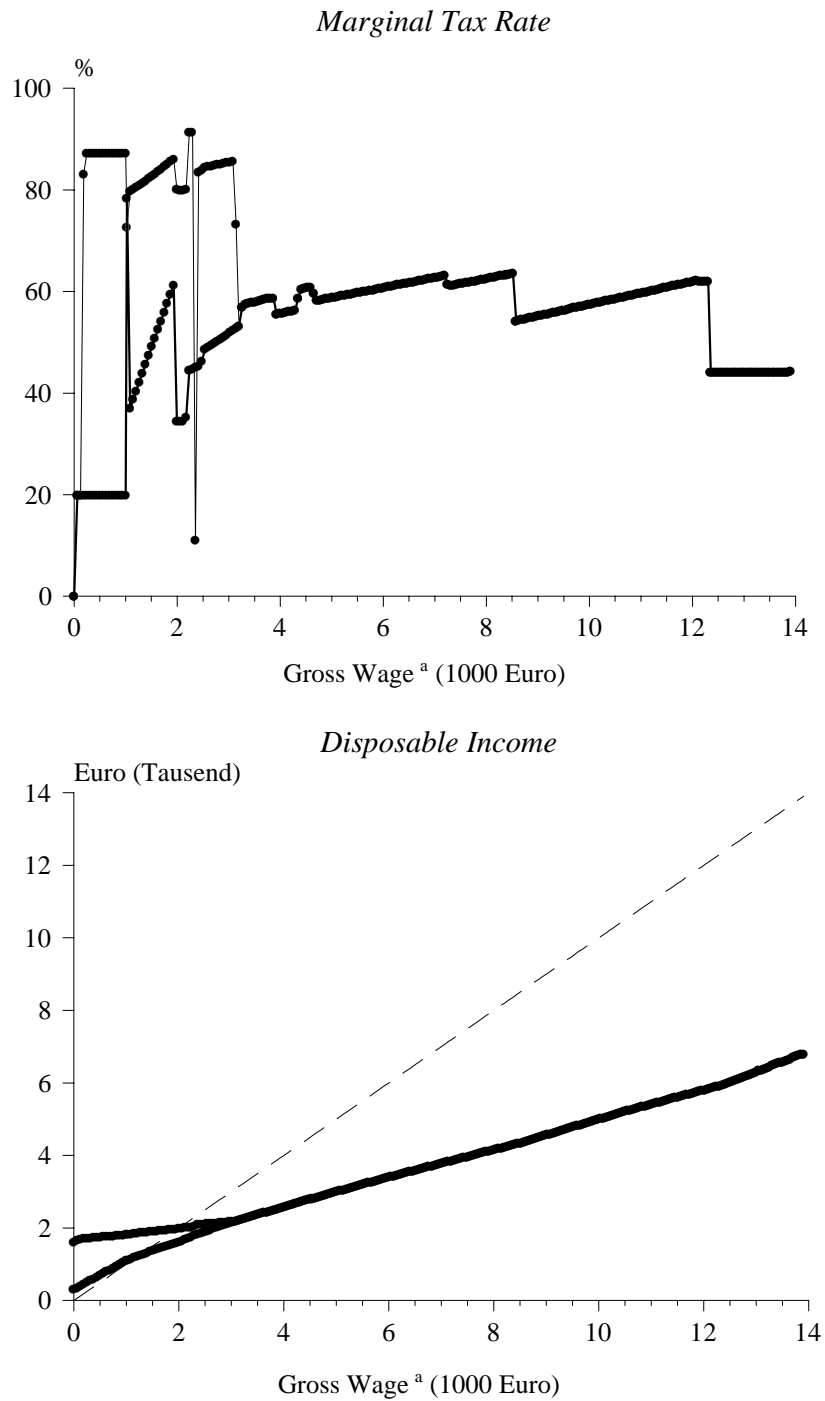
<sup>a</sup>Including employer's contribution to social security.

*Figure 10:*

Taxation of Wages of Couples with a Child (two Income Earners) in West Germany

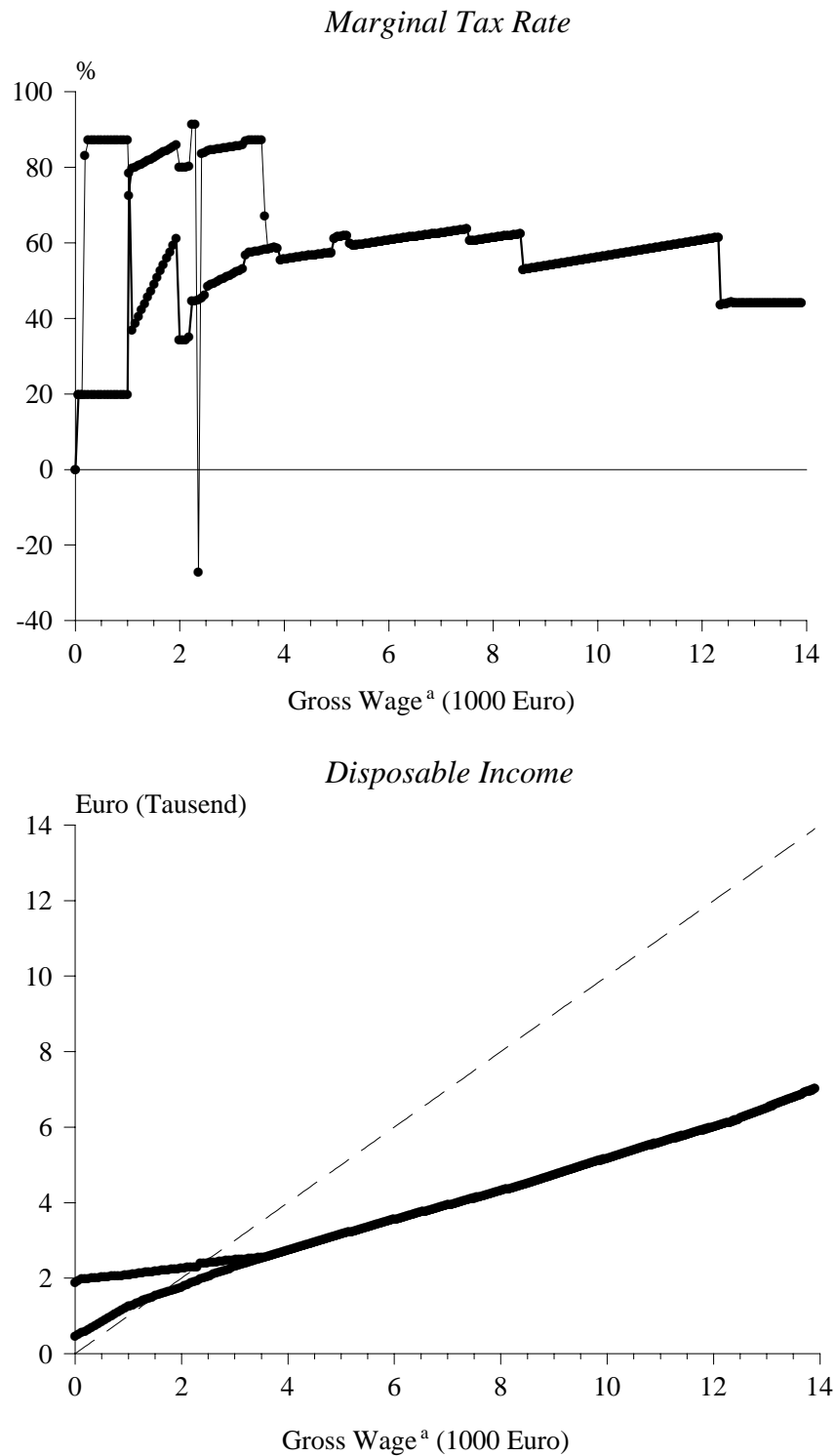
<sup>a</sup>Including employer's contribution to social security.

*Figure 11:*  
Taxation of Wages of Couples with two Children (two Income Earners) in West Germany



<sup>a</sup>Including employer's contribution to social security.

Figure 12:  
Taxation of Wages of Couples with three Children (two Income Earners) in West Germany



<sup>a</sup>Including employer's contribution to social security.

### **3. The Marginal Tax Rates for Recipients of Unemployment Benefits II with Reduced Benefits**

If—contrary to the underlying assumptions so far—a recipient of unemployment benefits II or the spouse/partner receive capital income or if wealth is available, the unemployment benefits II are smaller than shown above. Assuming a certain fixed amount of such income or wealth which is accounted for, the implicit tax rates (due to the reductions of the benefits) do not differ for small wages; however, the rates approach the rates for non-recipients at lower wage income levels because the reduction of the benefits comes to an end at these wage levels. If the additional income is high, the claim on unemployment benefits II is zero for any level of the labor income; the implicit tax rate is zero, too.

The explicit tax rates generally are higher than the rates presented so far because the wage income is additional income which is taxed by higher rates at the margin. As to the contributions to social security, there is—as a rule—no difference compared to the results above; these taxes depend on the wage income alone.

## **VII. Benefits and Wage Income Accounting in the System Prevailing until 2004: The Differences**

### **1. Unemployment Aid**

As to the former unemployment aid, the rule for accounting earned income was the following one. 20 percent of the net wage (adequately defined), but not more than 165 euro (if the working time per week was below 15 hours) was not accounted for (Kohns and Weidmann 2003: 189); income above this limit was totally accounted for. The implicit tax rate was zero in a narrow income range;

the rate for income above the specific ceiling was 100 percent. If the unemployment aid was low and thus was supplemented by social assistance the accounting rule for the unemployment aid was applied (Sachverständigenrat 2004: 227). If the working time per week was 15 hours or more, unemployment aid was not granted at all because unemployment was not considered to be the case.

## 2. Social Assistance

In the system of social assistance which (for those who are able to work) is now substituted for by the system of unemployment benefits II, a part of the wage income earned was not accounted for when calculating the claim on social assistance. There was a basic amount and a component which is proportional to the net wage (reduced by specific expenses incurred in acquiring and maintaining the income in question) above the basic amount (BMF 1995; Boss 2001).

For individuals, the basic amount of income which was not accounted for was 25 percent of the regular cash means (“Regelsatz”). The additional amount was 15 percent of the (corrected) net wage above the fixed amount—with an upper (absolute) limit defined as (another) 25 percent of the “Regelsatz”. Thus, there was an upper limit for the overall accountable (corrected) net wage; this limit was 50 percent of the “Regelsatz”.<sup>34</sup>

These rules imply the existence of three income ranges for which the social assistance, the disposable income and the changes of these variables are defined differently. If

$R$  = Regular Means (“Regelsatz“)

$W$  = Housing costs

---

<sup>34</sup> For single parents the relevant parameters were one third instead of 25 percent, 25 percent instead of 15 percent and two thirds instead of 50 percent (Boss 2001: 64).



$Y$  = Net wage (reduced by work-related expenses)

$SH$  = Social assistance

$I$  = Disposable income<sup>35</sup>

the net wage income ranges (for singles) and the relevant relations are the following (Boss 2001: 64–66):

Range 1:  $Y < 0.25 R$

The net wage is not accounted for. The social assistance is

$$SH = R + W$$

An increase of the net wage does not affect the government support.

$$\frac{dSH}{dY} = 0$$

The disposable income (reduced by work-related expenses) consists of the net wage and the social assistance.

$$I = Y + SH$$

Range 2: Lower bounds =  $0.25 R$ , upper bounds =  $Y^\circ$

The upper limit for the income up to which net wage income can be accounted for ( $Y^\circ$ ) is determined by the condition

$$0.25 R + (Y^\circ - 0.25 R) * 0.15 = 0.50 R$$

$$0.15 Y^\circ = -0.25 R + 0.15 * 0.25 * R + 0.50 R$$

$$0.15 Y^\circ = 0.2875 R$$

This leads to

$$Y^\circ = 1.917 R$$

---

<sup>35</sup> Given the definition of the net wage used in the description of the system, „disposable income“ does not include standard work-related expenses. Nevertheless, the term is used for the sake of simplicity.

The amount of social assistance is

$$SH = R + W - (Y - 0.25 R - (Y - 0.25 R) * 0.15)$$

$$\begin{aligned} SH &= R (1 + 0.25 - 0.0375) + W - Y + 0.15Y \\ &= 1.2125 R + W - 0.85 Y \end{aligned}$$

The implicit tax rate is 85 percent.

$$\frac{dSH}{dY} = -0.85$$

The disposable income consists of the net wage and the (reduced) social assistance.

$$I = Y + 1.2125 R + W - 0.85 Y$$

Range 3: Lower bounds =  $Y^o$ , upper bounds =  $Y^{\max}$

The income at which there is not any longer a claim on social assistance because it is equal to the accountable income is given by

$$R + W - (Y^{\max} - 0.25 R - (1.917 R - 0.25 R) * 0.15) = 0$$

$$R + W - (Y^{\max} - 0.5 R) = 0$$

$$Y^{\max} = 1.5 R + W$$

The social assistance amounts to

$$SH = 1.5 R + W - Y$$

An increase of the net wage reduces the social assistance by the same amount.

The implicit tax rate is 100 percent.

$$\frac{dSH}{dY} = -1$$

The disposable income is

$$I = SH + Y = 1.5 R + W$$

It turns out that the implicit marginal tax rates (due to reductions of the social assistance)—defined with respect to changes of the (corrected) net wage

income—amount to 0, 85 or even 100 percent in the different income intervals (Table 15).

*Table 15:*

Net Wage, Social Assistance and Disposable Income of Singles in West Germany 2004 (euro per month)

Net wage <sup>a</sup>	Social assistance <sup>b</sup>	Disposable income <sup>a</sup>	Change of		Implicit tax rate <sup>c</sup>
			net wage	disposable income	
0	610	610	.	.	} 0
20	610	630	20	20	
40	610	650	20	20	
60	610	670	20	20	
74	610	684	14	14	
75	609.15	684.15	1	0.15	} 85
167	530.95	697.95	92	13.80	
267	445.95	712.95	100	15	
367	360.95	727.95	100	15	
467	275.95	742.95	100	15	
567.43	190.58	758.00	100.43	15.05	} 100
568	190	758	0.57	0	
663	95	758	95	0	
758	0	758	95	0	

<sup>a</sup>Excluding work-related expenses. — <sup>b</sup>Regular means: 296 euro; reimbursement of housing costs: 314 euro. — <sup>c</sup>Due to the reduction of the social assistance.

*Source:* Own calculations.

In order to compare the old and the new rules of wage income accounting it has to be taken into account that the regular means according to the new system contain most of the means which were formerly granted irregularly (BMWA 2004g: 77) and thus did not enter the calculation of the accountable net wage income. If the new figure for the regular transfer is used in a calculation of the fictitious social assistance in 2005 (Table 16), the borders of the different income ranges are reached at somewhat higher wage levels (86, 661 and 837

euro). In addition, it has to be borne in mind that the implicit tax rates in the old system are defined in relation to net wages (excluding specific work-related expenses) and not in terms of gross wages (the procedure used above). Using the deductions for these expenses and the tax rules for 2005 (wage income tax, solidarity surcharge and contributions to social security) it turns out that the three income ranges of the fictitious system of social assistance are defined by gross wages of 173 euro, 1,103 euro and 1,450 (corresponding to the net wages of 86, 661 and 837 euro).

Table 16:

Net Wage, Social Assistance and Disposable Income of Singles in West Germany 2005  
Assuming the Maintenance of the Old System (euro per month)

Net wage <sup>a</sup>	Social assistance <sup>b</sup>	Disposable income <sup>a</sup>	Change of		Implicit tax rate <sup>c</sup>
			net wage	disposable income	
0	665	665	.	.	} 0
20	665	685	20	20	
40	665	705	20	20	
60	665	725	20	20	
86.25	665	751.25	26.25	26.25	
87	664.36	751.36	0.75	0.11	} 85
287	494.36	781.36	200	30	
487	324.36	811.36	200	30	
661.37	176.15	837.52	174.37	26.16	
662	175.50	837.50	0.63	0	} 100
762	75.50	837.50	100	0	
837.50	0	837.50	75.50	0	

<sup>a</sup>Excluding work-related expenses. — <sup>b</sup>Regular means: 345 euro; reimbursement of housing costs: 320 euro (West Germany). — <sup>c</sup>With respect to the net wage (excluding work-related expenses) due to the reduction of the social assistance.

Source: Own calculations.

For singles, it can be concluded that the gross wage at which the claim on unemployment benefits II expires (Table 17) is very similar to the corresponding

gross wage in the old system. The benefits in the new system are somewhat lower than the social assistance formerly granted<sup>36</sup>. The marginal tax rates in the new system are—on average—only insignificantly below the marginal tax rates in the old system (Figure 13). Thus, the situation did not change significantly as a result of the so-called “Hartz IV” reform.<sup>37</sup>

*Table 17:*

Unemployment Benefits II and Fictitious Social Assistance in West Germany 2005—a Comparison for Singles

Gross wage <sup>a</sup> (euro)	Unemployment benefits II (euro)	Social assistance (euro)	Marginal tax rate	
			New system (%)	System of social assistance (%)
62.50	665.00	665.00	20.0	20.0
125.00	624.20	665.00	85.3	20.0
187.50	582.13	655.44	87.3	35.3
250.00	540.05	613.36	87.3	87.3
500.00	371.75	445.06	87.3	87.3
543.83	359.64	426.85	77.6	91.5
785.53	270.69	315.28	83.0	91.8
966.80	220.00	250.24	85.9	93.4
1,027.23	192.42	217.03	80.1	89.5
1,148.08	136.84	152.51	91.4	96.9
1,208.50	108.91	119.96	91.5	99.2
1,450.20	5.32	0.00	92.6	99.2
1,463.00	0.00	0.00	92.6	51.8
1,500.00	0.00	0.00	52.7	52.7

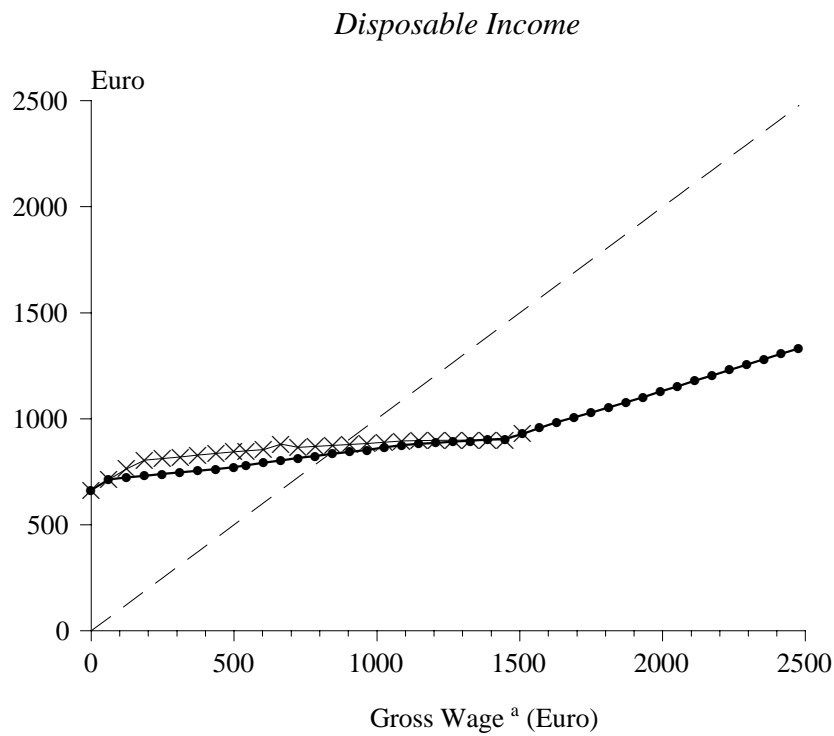
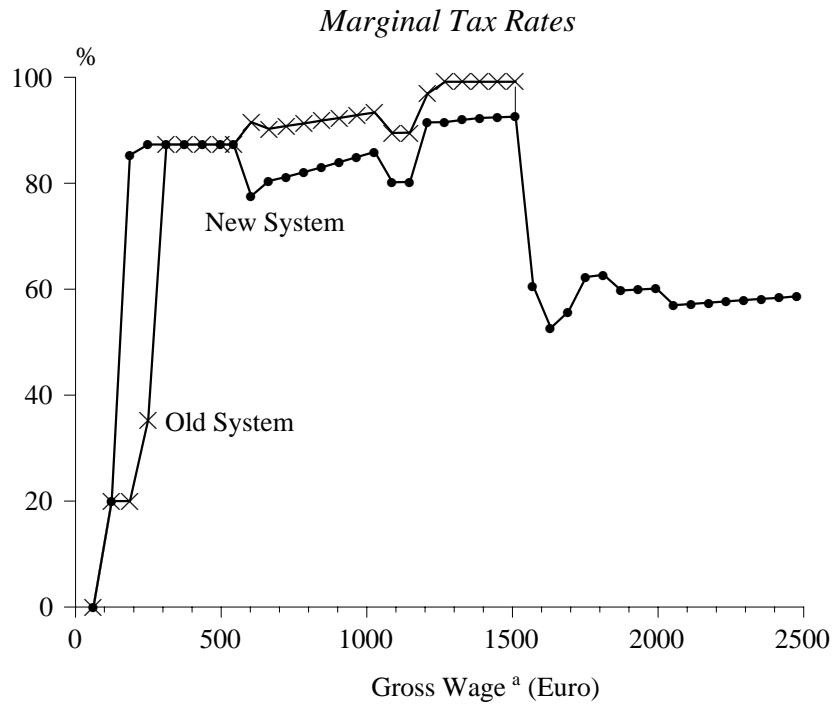
<sup>a</sup>Including employer's contribution to social security.

*Source:* Own calculations.

<sup>36</sup> This is not a contradiction to the conclusion saying that the overall transfers per eligible recipient increase as a consequence of the reform. Mainly, the new surcharge and the extension of the contributions to social security are neglected here.

<sup>37</sup> The German Council of Economic Advisors discussed the effects of the “Hartz IV” reform on the incentives to work, too (Sachverständigenrat 2004). Using a methodology which is different from the procedure used here in some respects, the conclusions are relatively similar for the types of households which had been investigated.

*Figure 13:*  
Marginal Tax Rates for Singles in the New and in the Old System of Income Accounting,  
West Germany



<sup>a</sup>Including employer's contribution to social security.

Source: Own calculations.

## VIII. A Special Case: Benefits from “Secondary” Employment

Apart from working on the basis of a regular work contract while receiving (reduced) unemployment benefits II, there is another way to increase the disposable income. It is called supplementary work according to § 16 Par. 3 SGB II at a wage of 2 euro per hour at most (BMWA 2004e: 2). In this case (“secondary” employment) the unemployment benefits II are not reduced because additional wage income is available;<sup>38</sup> this income is thought to be a compensation for expenses related to work and thus not to be an increase of the disposable income.

Assuming a working time of 30 hours and a remuneration of 2 euro per hour (the maximum allowed) the additional wage income is 261 euro. The implicit tax rate on this income is zero. The disposable income resulting from unemployment benefits II in combination with a wage from a “secondary” employment depends on the size and the structure of the household. The disposable income of singles can easily reach 900 euro per month (Koch und Walwei 2004: 19; Sachverständigenrat 2004, text number 674); this is the more so because a surcharge on the benefits can be available in the first two years after becoming unemployed. For the types of households considered, the sum of the means available lies between 926 euro and 2,143 euro (Table 18).<sup>39</sup>

Low-skilled people cannot easily obtain disposable incomes in such an extent by working on the basis of a normal wage contract. For this to be the case, the gross wage has to be relatively high.<sup>40</sup> Thus, there is an incentive to work in the form of “secondary” employment for low-skilled unemployed.

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<sup>38</sup> It should be mentioned that the unemployed using this opportunity to work are counted as employees according to the definition of the International Labour Organization (BMWA 2004f: 1).

<sup>39</sup> As in the calculations above, work-related expenses are not subtracted in order to derive the disposable income of a household; assuming that the rules and the assumptions described above are relevant, these expenses amount to about 50 euro for an individual.

<sup>40</sup> For a similar conclusion see Sachverständigenrat (2004).

There are restraints as to the kind of work according to § 16 (3) SGB II; it has to be a job in a non-profit organization (“gemeinnützige Arbeit”) and it may not substitute regular work activities (BMWA 2004g: 73–74). There are doubts if this condition will be really met; it is feared that part-time jobs might be substituted (*Frankfurter Allgemeine Zeitung*, Verdrängungswettbewerb verhindern, December 6, 2004: 5). In the old system, the kind of jobs described was only available for recipients of social assistance (BMWA 2004e: 2). Anyway, the offer of a “secondary” employment can be a test of the willingness to work (Sachverständigenrat 2004, text number 674).

*Table 18:*  
Disposable Income in Case of “Secondary” Employment in West Germany by Type of Household (euro per month)

	Unemployment benefits II	Additional means	Disposable income
Single	665	261	926
Single Parent			
One child	1,041 <sup>a</sup>	261	1,302
Two children	1,395 <sup>a</sup>	261	1,656
Three children	1,666 <sup>a</sup>	261	1,927
Couple			
No children	1,069	261	1,330
One child	1,340	261	1,601
Two children	1,611	261	1,872
Three children	1,882	261	2,143

<sup>a</sup>Rounded.

*Source:* Own calculations (based mainly on Table 13).



## D. Conclusions

Despite of the reform of the German tax-transfer-system, the incentives to work are weak for many groups of the labor force. The marginal (explicit and implicit) tax rates for most groups of the employed or the unemployed remain high. The cut of the income tax rates did not sharply reduce the tax burden. The introduction of the system of unemployment benefits II did not significantly change the incentives for the unemployed who are entitled to these benefits.

In the new system of unemployment benefits II, the transfers generally are somewhat lower than the transfers which would have been granted if the system of social assistance would have been remained in existence. However, the implicit marginal tax rates (due to the reduction of the unemployment benefits II) in case of earning wage income did not change significantly as a result of the reform. Employment probably will not be affected strongly by that part of the reform which aims at strengthening the financial incentives to work. However, there are new incentives to offer and to demand “secondary” employment.

A reform of the system of unemployment benefits II is necessary. At least, the rules for measuring the accountable income should be simplified; e.g., it would be a reasonable option to simply define the part of the gross wage which is to be neglected in the income accounting procedure (“Freibetrag”) as a fixed proportion of the gross wage. In addition, the rules concerning the “Kinderzuschlag” for households with children should be revised in order to avoid the dramatic changes of the marginal implicit tax rates at specific wage income levels. Most importantly, the principles for a reform of the system laid down by Vaubel (1996) should be taken into account; reform options are also discussed in Boss (2002: 134–147).

## E. References

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