

# The Effect of the Increase in VAT on Private Households

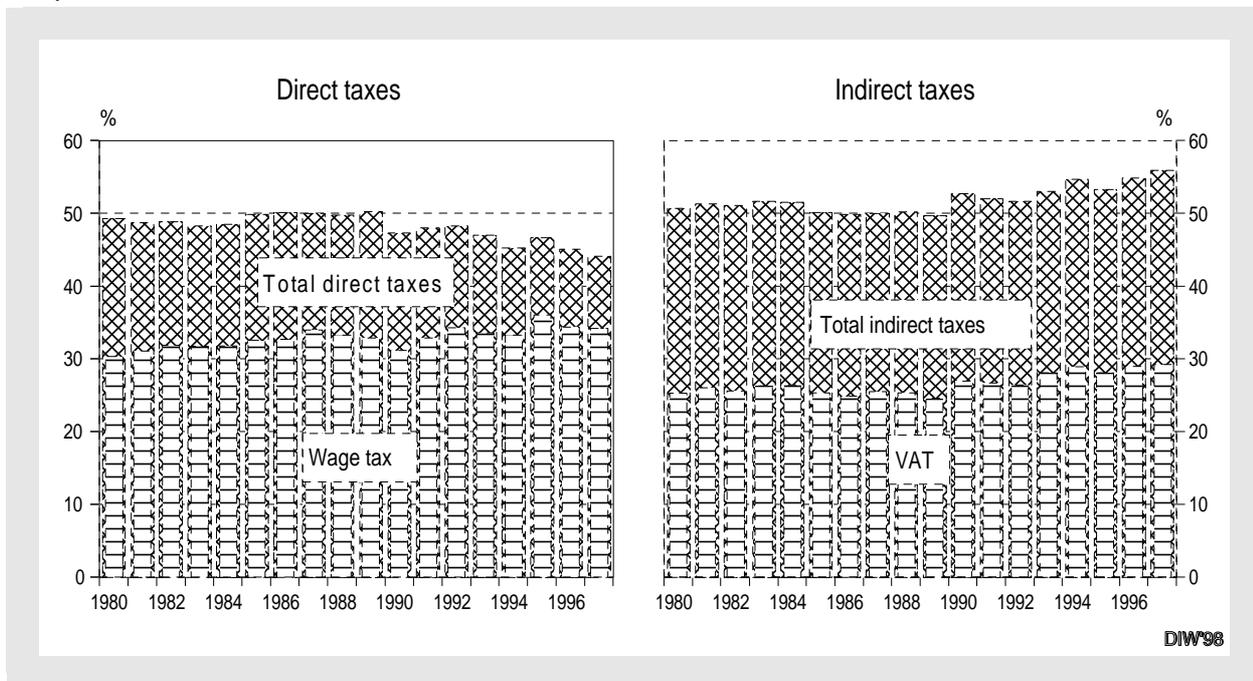
In order to avoid a further increase in the contribution rate to the pension insurance fund, the German government has decided to finance a greater proportion of social benefits from general taxation revenues than has previously been the case. To this end the standard rate of value added tax (VAT) was increased from 15% to 16% with effect from 1 April 1998 onwards. For social reasons no change was made to the reduced rate of VAT.<sup>1</sup> On balance the increase in VAT is expected to generate additional tax revenue of DM 15 billion each year. Only around DM 9 billion are to be expected in 1998, however, because the old rate of tax applied for the first three months of this year, and, due to the time lag in paying VAT dues, the additional revenue generated by the increase will not find its way into the public purse until May.

<sup>1</sup> The reduced rate remains at 7%; it applies, amongst other things, to food, books, newspapers and education.

Who, at the end of the day, will actually foot the bill for the VAT increase depends on the way in which increased costs are passed on to prices; this is a highly complex matter. The government assumes that an increase in VAT will be passed on in full to the final consumer. Yet the extent to which firms are able to do so depends, however, on supply and demand conditions on individual product markets. If the increase is passed on in full in the form of higher prices, the VAT increase will represent around 0.5% of the net income of private households.

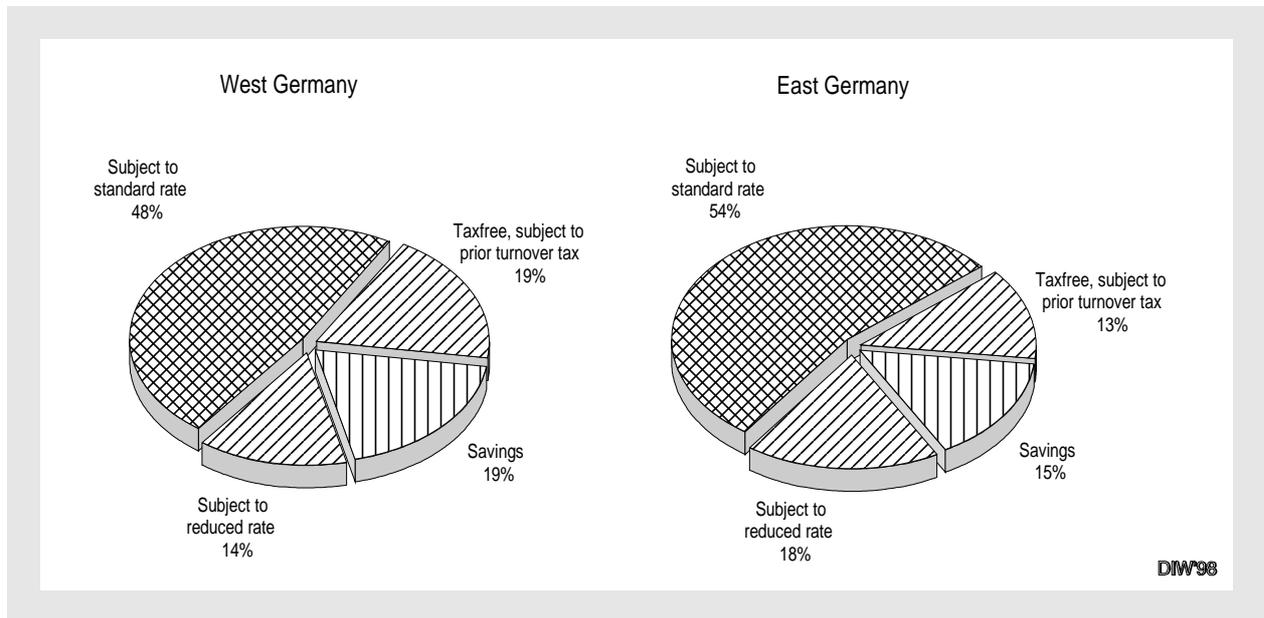
Alongside taxes on wages (1997: DM 248.7 billion), taxes on turnover (1997: 240.9 billion) are among the most important sources of government revenue; their contribution to overall tax revenue has increased continuously since 1990, from 27% to more than 29½% (cf. figure 1). The proportion of tax revenue generated by wage tax, i.e. the direct taxes paid by employees, increased over the same period from just over 31% to more than 34%. The picture is very different with regard to the contribution made by taxes on profits, on the other hand, where there has been a dramatic decline over recent decades: whereas in 1990 such taxes still accounted for more than 14½%, by 1997 the figure had fallen to just 8½%. The recent increase in the rate of VAT marks a continuation of the trend towards a shift in the tax burden towards indirect taxes.

Figure 1  
Proportion of Total Tax Revenue



Sources: Federal Statistical Office; DIW calculations.

Figure 2  
**Spending of Disposable Income by  
 Spending Categories Subject to Different Tax Rates and Savings, 1997**  
 in % of disposable income



1) Extrapolated on the basis of the EVS results of 1993.  
 Sources: Federal Statistical Office; DIW estimates.

### Methodological approach and statistical basis

The impact of the increase in the rate of VAT on the tax burden is calculated on the basis of the structure of private household consumption by commodity groups. In the following analysis it is assumed that real consumer demand is unaffected by the tax increase in terms of both level and structure. In reality, of course, it must be taken into account that the purchasing power of household income will decline in the wake of the expected price increases. It is unlikely that the negative effects on consumption will be completely offset by a further decline in the savings-to-income ratio. Moreover, relative prices between commodity groups subject to different rates of tax will change, so that shifts in the structure of consumption are to be expected, at least in the medium term. Consequently, firms will not always be in a position to pass on the increase in the rate of VAT to the consumer in full. The state of the business cycle also plays a role. Thus, for analytical purposes, the assumption that firms pass on the increase in VAT to final consumers to the full extent means that the figures calculated here represent the maximum extent of the increase in the tax burden.

The calculations are based on the Income and Consumption Sample Survey of 1993.<sup>2</sup> Consumer spending

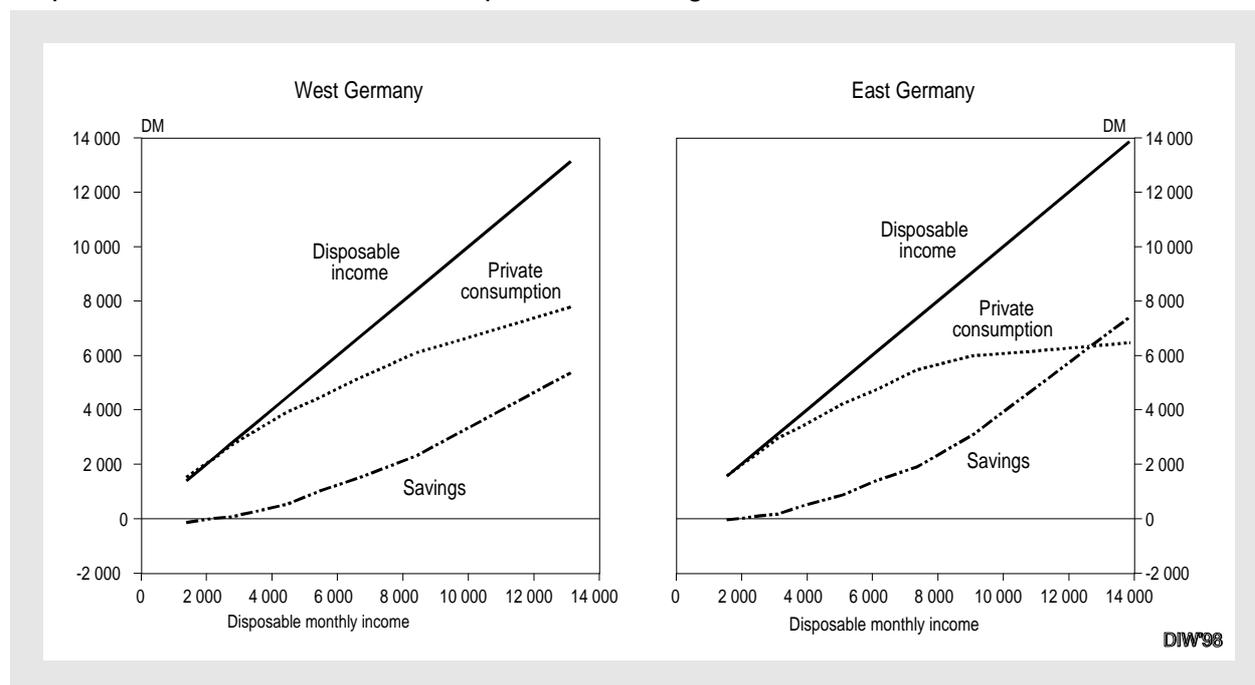
is differentiated according to whether it relates to goods and services subject to the standard or the reduced rate of VAT, or is exempt from turnover tax. On this basis the corresponding VAT payments can be calculated. In the case of goods and services not subject to VAT, it needs to be taken into account that their prices also contain an implicit burden of VAT via VAT prepayments on inputs (cf. figure 2). This affects spending on rents and health services.

The results of the EVS for 1993 were extrapolated with the help of macroeconomic data on income trends segregated by type of income – income from dependent employment, income from entrepreneurial activity and property, pensions and other transfer payments – and on changes in taxation and social insurance contributions and other transfers. This generates a degree of statistical uncertainty, in particular for east Germany, because since 1995 it has no longer been possible to differentiate between east and west Germany in the incomes statistics in the national accounts. The structures of private consumption by type of expenditure were held constant compared with 1993. On the basis of

<sup>2</sup> Cf. Statistisches Bundesamt (ed.), Einkommens- und Verbrauchsstichprobe 1993, Fachserie 15, Wirtschaftsrechnungen; Heft 4: Einnahmen und Ausgaben privater Haushalte; Heft 5: Aufwendungen privater Haushalte für den privaten Verbrauch, Wiesbaden 1997.

Figure 3

### Disposable Income, Private Consumption and Savings of Private Households, 1997



1) Extrapolated on the basis of the EVS results of 1993.  
Sources: Federal Statistical Office; DIW estimates.

the extrapolated data, the burden of VAT on consumption was determined under the previous and the new legislation for private households as a whole and for selected socioeconomic groups (self-employed, employee, unemployed and pensioner households). The burden was calculated with respect to both disposable income and expenditure on private consumption.

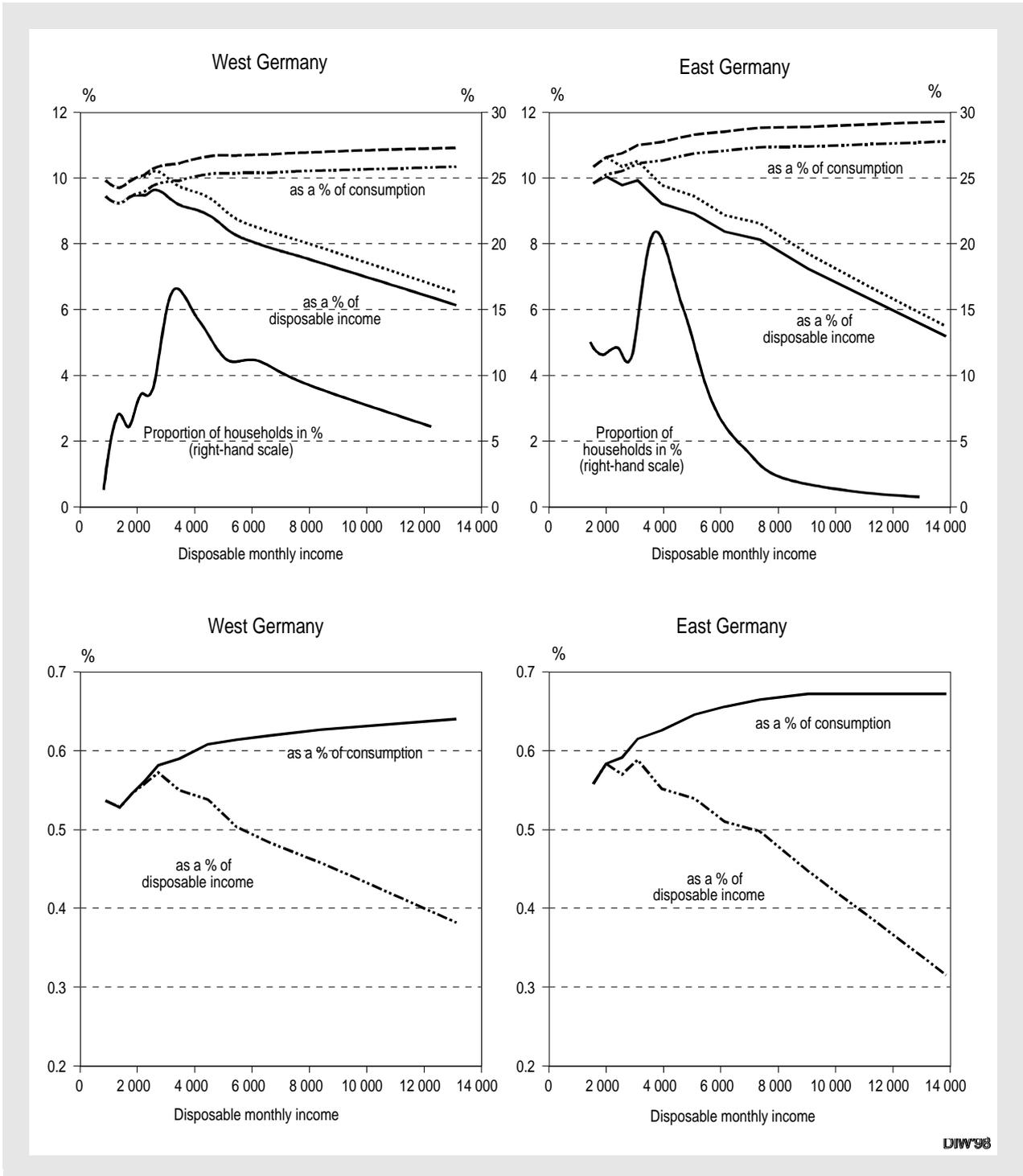
### The burden of VAT on private households

The burden of VAT on private households depends primarily on the commodity groups on which disposable income is spent. Yet it is also influenced by the level of income, because as wealth rises the proportion of income that is saved – and is thus exempt from VAT – tends to increase (cf. figure 3). Among the lower-income groups, expenditure on food, which is subject to a reduced rate of VAT, and housing rental, which is affected by prior VAT payments, but is otherwise tax-free, account for a substantial proportion of expenditure, whereas the low level of income leaves scarcely any scope for saving. As incomes rise, the proportion of total expenditure spent on food and housing rental declines in all household types, while saving takes on an increasingly important role. This is what is behind the typical

pattern that emerges for the burden of VAT on private households: starting from low incomes, the burden initially increases, then remains at a broadly constant level, and subsequently takes a regressive course in the upper income categories.

On average, the monthly burden of VAT on private households as a whole amounted to around DM 390 in west Germany in 1997 (i.e. at a standard rate of 15%); this represents 8.1% of disposable income. In terms of nominal spending on private consumption, the figure is just under two percentage points higher. Differentiating this figure according to the level of disposable income, the burden of VAT ranged from around DM 112 for low-income groups to DM 318 for middle-incomes to around DM 805 for the highest income group. Measured against disposable income, the burden varies between 9.5% and just over 6%, i.e. VAT exerts a regressive impact (cf. figure 4). The fact that the differences in consumption structure between households in the lower income categories and those in the upper income structure cannot have a very significant effect on their relative tax burden becomes apparent when the absolute VAT burdens calculated in this way are related to spending on private consumption. In the lowest income groups, consumer expenditure is subject to a VAT burden of 9.4%, whereas in the highest income category the figure is just 10.3%. In other words, the generally regressive impact

Figure 4  
 VAT Burden on Private Households under the Former and New Legislation, 1997



1) Change in the standard rate on 1 April 1998 from 15% to 16%. Extrapolated on the basis of the EVS results of 1993. — 2) Including consumption-induced changes in assets. Sources: Federal Statistical Office; DIW estimates.

of VAT is due primarily to the fact that, as income rises, private households save a growing proportion of their income (cf. table 1).

Due to regional differences in expenditure structures, the burden on disposable income is 0.85 percentage points higher in eastern Germany – at just under

Table 1

## Monthly Burden and Additional Burden of VAT by Household Category, 1997

Disposable income per month <sup>1)</sup>	Burden of VAT at						Additional burden at 16%			
	15%			16%						
	DM	DM	as a % of		DM	as a % of		DM	as a % of	
		disposable income <sup>2)</sup>	private consumption		disposable income <sup>2)</sup>	private consumption		disposable income <sup>2)</sup>	private consumption	
West Germany										
All households										
900	112	9.4	9.4	118	9.9	9.9	6	0.54	0.54	
1 400	141	9.2	9.2	149	9.7	9.7	8	0.53	0.53	
1 850	180	9.5	9.5	190	9.9	9.9	10	0.55	0.55	
2 250	214	9.5	9.6	227	10.0	10.1	13	0.56	0.56	
2 750	263	9.6	9.8	279	10.2	10.3	16	0.57	0.58	
3 450	318	9.2	9.9	337	9.7	10.4	19	0.55	0.59	
4 450	397	8.9	10.1	421	9.4	10.7	24	0.54	0.61	
5 500	452	8.2	10.1	479	8.8	10.7	28	0.50	0.61	
6 650	524	7.9	10.2	557	8.4	10.7	32	0.48	0.62	
8 400	624	7.4	10.2	662	7.9	10.8	38	0.46	0.63	
13 150	805	6.1	10.3	856	6.5	10.9	50	0.38	0.64	
Self-employed households										
3 550	321	9.0	9.5	340	9.5	10.1	19	0.53	0.56	
4 550	439	9.6	9.8	464	10.2	10.3	26	0.56	0.57	
5 750	495	8.6	10.0	525	9.2	10.5	30	0.52	0.60	
6 950	528	7.6	10.0	560	8.1	10.5	32	0.46	0.60	
9 100	617	6.8	10.0	654	7.2	10.5	38	0.42	0.61	
15 650	869	5.6	10.4	923	5.9	10.9	54	0.34	0.64	
Employee households										
1 350	149	9.6	9.6	158	10.1	10.1	9	0.56	0.56	
1 750	180	9.9	9.9	191	10.4	10.4	11	0.58	0.58	
2 100	206	9.7	9.9	219	10.3	10.4	12	0.58	0.58	
2 550	244	9.5	10.1	258	10.0	10.6	15	0.57	0.60	
3 600	327	9.1	10.1	347	9.7	10.7	20	0.55	0.60	
4 350	379	8.7	10.2	402	9.3	10.7	23	0.53	0.61	
5 300	432	8.1	10.2	458	8.6	10.8	26	0.50	0.62	
6 450	502	7.8	10.2	533	8.3	10.8	31	0.48	0.62	
8 150	606	7.4	10.3	644	7.9	10.9	37	0.46	0.63	
11 750	776	6.6	10.4	825	7.0	11.0	48	0.41	0.64	
Unemployed households										
1 300	134	9.1	9.1	141	9.5	9.5	8	0.51	0.51	
2 050	203	9.5	9.5	215	10.0	10.0	12	0.54	0.54	
3 550	352	9.9	9.9	373	10.4	10.4	21	0.59	0.59	
Pensioner households										
1 050	106	9.0	9.0	112	9.4	9.4	6	0.51	0.51	
1 400	131	9.0	9.0	139	9.5	9.5	8	0.52	0.52	
1 950	179	9.3	9.3	190	9.8	9.8	10	0.54	0.54	
3 750	346	9.2	9.8	367	9.8	10.4	21	0.55	0.59	
6 150	495	8.0	10.2	526	8.5	10.8	31	0.50	0.63	
East Germany										
All households										
1 550	156	9.8	9.8	165	10.3	10.3	9	0.56	0.56	
2 000	201	10.1	10.1	213	10.6	10.6	12	0.58	0.58	
2 550	250	9.8	10.2	264	10.3	10.7	15	0.57	0.59	
3 100	309	9.9	10.4	327	10.5	11.0	18	0.59	0.61	
3 950	364	9.2	10.5	386	9.8	11.1	22	0.55	0.63	
5 100	453	8.9	10.7	480	9.4	11.3	27	0.54	0.65	
6 150	513	8.4	10.8	545	8.9	11.4	31	0.51	0.66	
7 350	598	8.1	10.9	634	8.6	11.5	37	0.50	0.66	
9 050	656	7.2	11.0	696	7.7	11.6	40	0.45	0.67	
13 850	718	5.2	11.1	762	5.5	11.7	44	0.32	0.67	

1) Figures rounded; extrapolations on the basis of the EVS results of 1993. — 2) In the case of negative savings only the net decrease in assets resulting from consumption, i.e. in these cases the burden of VAT with respect to disposable income is purely arithmetically higher than indicated here.

Sources: Einkommens- und Verbrauchsstichprobe (EVS – income and consumption sample survey) 1993; DIW calculations.

9% – than in western Germany. The central reason for this difference is the fact that housing rents in eastern Germany are still significantly lower than those in west Germany, not least due to the lower standard of the housing stock, and that rents therefore account for a lower proportion of disposable income. In east Germany the gap between the lower and upper income categories is more pronounced than in western Germany, ranging from DM 156 for those on low incomes to DM 309 for medium-range and DM 718 for high-income households. With respect to household income, this means that the burden declines from just under 10% to 5.2% in the highest income categories (cf. figure 4). Thus whereas the spread in west Germany amounts to just over 3 percentage points "from bottom to top", in eastern Germany it represents around 4½ percentage points.

We can now consider the impact on private households of the increase in VAT that took effect on 1 April. The rise in the standard rate of VAT from 15 to 16% means that private households in west Germany will on average have to find an additional DM 24 per month, representing 0.49% of disposable income. In the lower income categories households face an additional burden of just over DM 6 or 0.54% of disposable income. For the middle range income households an additional DM 19 or 0.55% of income is estimated. In the upper income categories, while the absolute additional burden amounts to DM 50, the relative additional burden is just 0.38%.

In eastern Germany the additional VAT burden amounts to an average of DM 20 per household or 0.54% of disposable income. This means that the increase in the burden of VAT is scarcely greater than in west Germany. In the lower-income categories it amounts to just under DM 9 or 0.56% of disposable income. In the middle income range the figure is DM 18 or 0.59% of disposable monthly income. In the upper income brackets the absolute additional burden represents more than DM 44, but the relative tax burden rises by only just over 0.3%.

## Conclusion

The decision by the federal government to freeze the contribution rate to the pension insurance fund at its current level of 20.3% (employer and employee contributions together) is justified in economic terms. This is because the social security systems shoulder the cost of a considerable number of benefits that are not linked to insurance contributions, and whose financing out of general taxation would therefore seem appropriate. The burden in the form of a higher rate of VAT affects all

sections of the population in relation to their consumer spending. The calculations show that the additional burden, of itself, affects households from the lower-income categories to a slightly greater extent than high-income households. This does not exacerbate the regressive impacts of VAT to any significant extent, however. In making an overall evaluation of the impact on distribution, moreover, it must be considered that the impact of an increase in pension insurance contributions – which would have been inevitable without a rise in the rate of VAT – would probably have been even more regressive. This is because of the ceilings on the calculation base and the fact that the self-employed and civil servants are not obliged to pay contributions.

By itself, the increase in the rate of VAT will serve to dampen economic growth, although the same would have been true of an increase in pension contributions. If firms are able to pass on the increase to final consumers, then purchasing power declines, reducing real demand. If, on the other hand, given the weakness of consumer demand, the tax increase cannot be passed on to the consumer in full, firms must shoulder an additional burden, i.e. profit margins will be squeezed accordingly. This is likely to apply initially to large sections of retail trade, but can be expected to have knock-on effects on the consumer-good industry and its suppliers.

As far as inflation is concerned, it was an extremely favourable time to put up the rate of VAT, as German inflation rates are currently lower than ever before. If the increase is passed on to prices in full, the rate of inflation will increase by a maximum of one half of a percentage point. Even then the rate of price increases would be far below the level at which one could talk of an inflationary threat.

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