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New Evidence Concerning the Professional Situation of Hospital Physicians in Germany

Hannes Spengler

The present report ties in with the recently published *Wochenbericht* concerning the professional situation of young hospital physicians in Germany.[1] The extensive media coverage points at the explosiveness of this topic. The criticism[2] from different directions ranges up to doubting the scientific basis. Therefore, here we shall take a closer look at the methodical background, in particular the solidity of the underlying data basis. Furthermore, with the new data from the Microcensus 2003, it is now possible to examine the significance of the results calculated in the first report for 2002. However, new findings are in the fore now, especially concerning the working hours of young hospital physicians.

Concerning the data basis

A focal point of the analysis is: All examination steps, both in the first and this present report – refer to the data material of the Scientific Use Files of the microcensus. The assessed information is the very data material used by the German Federal Statistical Office every single year as a basis for a large part of its official statistics, ever since 1957. Based on this requirement, the microcensus is a very comprehensive individual data record – at present the largest one of its kind in Europe – annually involving 1% of all German households.

Expressed in absolute figures, the microcensus comprises roughly 820 000 persons from 370 000 households. The version of the microcensus accessible to science – the *Scientific Use File* – is a 70% sub-sample of the total data record and currently involves approximately 500 000 persons. This data volume guarantees a representative statement, even for very specific sub-groups of the labor market, e.g. also for full-time young (younger than 35 years old) physicians in public service.[3]

[1] Cf. Hannes Spengler: 'Einkommen und Arbeitszeiten junger Klinikärzte in Deutschland'. In: *Wochenbericht des DIW Berlin,* no. 34/2005.

[2] E.g. from the Marburger Bund (Federal Association of the Physicians of the Public Health Service) but also from many private persons (in particular those belonging to the mentioned occupational group).

Naturally, the microcensus – just like all other data collections – is not perfect. It is not possible to differentiate between physicians in public service working in university hospitals or physicians working in other public sector hospitals. However, as mainly physicians working in university hospitals are dissatisfied with their situation and express this by way of strikes, in this report we shall try to derive specific conclusions for university hospital physicians, based on suitable assumptions.

The general problems of survey data also include inaccuracies based on forgotten facts or general comprehension difficulties of the survey participants. However, all in all, the data quality must be classified higher than other data records based on surveys, as the participation in the microcensus – insofar as a household was chosen randomly – is mandatory and thus the problem of a systematic bias of the survey results based on refusal to answer does not exist.[4] In addition, the surveys are normally effected personally by volunteer census agents in the relevant households; this should have a positive effect on the data quality, due to a focused support of the participants in case of unclarities.[5]

These unclarities may include the correct indication of the weekly working hours, in case on-call duty occurred for the survey participant (e.g. if he/she is a physician). A hospital specialist physician described to DIW Berlin his weekly working hours as follows: 'Sunday 9 a.m. until Monday 10.30 a.m. = 25.5 hours, Tuesday 7 a.m. until 5 p.m. = 10.5 hours, Wednesday 7.30 a.m. until Thursday 10 a.m. = 26.5 hours, Friday 7 a.m. until 5 p.m. = 10 hours, totaling 72.5 hours.'

In such cases, experienced and highly qualified census agents can make a significant contribution to avoid incorrect declarations by pointing out to the survey participant – in case they are uncertain – that breaks must be taken into consideration and on-call duty hours must be calculated applying relevant conversion keys. In the case of the above-mentioned physician, this would actually result in 65.5 or 59.5 working hours included in the microcensus.[6]

In a constructive telephone conversation, an assistant physician in a university hospital – who, as it turned out, had been questioned in the course of the microcensus – emphasized that breaks and on-call duty hours are being taken into consideration in the stated weekly working hours. The shown example may possibly also explain the difference between the average working hours of young physicians assumed by Marburger Bund and the figures DIW Berlin derived from the microcensus.

The situation in 2003

The results presented hereinafter are based on the *Scientific Use File* of the microcensus 2003, which only became available after the first report was published. Did the use of the more recent data material change the basic conclusions? While in the first report only the average working hours of physicians were considered, the present analysis focuses on the entire distribution of working hours in order to verify the validity of the extreme observations of Marburger Bund, according to which more than half of the young hospital physicians work more than 60 hours per week on average. Per se, overtime and shifts at unfavorable times may be justifiable if they are compensated appropriately. However, the Marburger Bund is of the opinion that this is often not the case. Therefore, hereinafter the connection between the working hours and the income of young physicians in public service shall be investigated as well.

In table 1, income and working hours figures are shown for different occupational groups according to age for the year 2003. The monetary figures are shown in 2002 prices, in order to guarantee comparability with the results of the previous report. In comparison to 2002, younger employees in almost all occupational groups

[3] The Microcensus 2003 includes 222 persons belonging to this group, whose information on income and working hours is available.

[4] Despite mandatory participation in the microcensus, the participants are free to decide whether or not they chose to answer certain questions. However, all criteria assessed in the present study are based on mandatory questions.

[5] In detail, the microcensus is regulated by the corresponding law – the Microcensus Act – (cf. e.g. www.destatis.de/download/d/stat_ges/bevoe/054.pdf). Further information on the microcensus can be found on the website of the Federal Statistical Office (www.destatis.de/themen/d/thm_mikrozen.php) and of the Centre for Survey Research and Methodology (ZUMA) (www.gesis.org/Dauerbeobachtung/GML/Daten/MZ/index.htm).

[6] For this calculation, a total of three hours break and the presently (until the decision of the European Court of Justice becomes effective as of 1 January 2006, according to which on-call duty must be treated like normal working hours) valid conversion key for on-call duty hours of 0.8 for the first 8 hours, of 0.9 for the subsequent 4 hours and of 1.0 for all subsequent hours of the on-call duty of highest category (Level D) or of 0.65, 0.75 and 0.85 for Level C respectively were taken into consideration. Then, this results in accountable working hours of 23.5 hours [(8 x 0.8) + (4 x 0.9) + 3.5] for the weekend on-call duty from Sunday to Monday, 9.5 hours (10.5 hours less one hour break) for the regular shift on Tuesday, 9 hours (10 hours less one hour break) for the regular shift on Wednesday, 14.5 hours [(8 x 0.8) + (4 x 0.9) + 4.5] for the on-call duty from Wednesday to Thursday and 9 hours (10 hours less one hour break) for the regular shift on Friday; Altogether, this results in 65.5 hours or 59.25 hours for Level C on-call duty. In addition, there are also Level B and Level A on-call duties. However, those are relatively infrequent in normal hospitals. These would imply accountable weekly working hours of 52.75 hours or 48.75 respectively.

Table 1

Income[1] and Working Hours of Physicians[2] in Public Service and Employees[2] in other Occupational Groups in Germany in 2003

Occupational Groups	Employees younger than 35					All employees				
	Monthly net income[3]			Average weekly working hours	Average implied hourly wages[4]	Monthly net income[3]			Average weekly working hours	Average implied hourly wages[4]
	Average value	Standard deviation	Median			Average value	Standard deviation	Median		
	Euro			Hours	Euro	Euro			Hours	Euro
Physicians in public service	1 978	832	1 998	45.8	10.80	3 093	2 278	2 677	46.1	16.77
Medical doctors in public service	2 176	738	2 143	47.1	11.55	3 548	2 813	2 969	47.5	18.67
Physicians not in public service	1 963	1 086	1 829	44.8	10.95	4 593	4 156	3 448	49.4	23.24
All physicians	1 974	918	1 966	45.4	10.87	4 018	3 630	3 069	48.1	20.88
Other academics in public service	1 678	731	1 641	40.1	10.46	2 552	1 323	2 386	40.7	15.68
Other academics with a doctorate degree in public service	1 780	782	1 650	40.2	11.07	3 074	1 907	2 716	42.5	18.08
Teachers in elementary, secondary, grammar and special schools	1 688	675	1 791	39.0	10.82	2 314	818	2 294	39.7	14.57
High school teachers	1 587	841	1 288	39.9	9.94	2 588	1 128	2 590	40.9	15.82
All employees	1 256	955	1 179	39.9	7.87	1 748	1 571	1 451	40.8	10.71

1 At 2002 prices. — 2 Full time employment. — 3 In the survey month of April. — 4 Calculated as 'monthly net income / weekly working hours / 4'.
Sources: Microcensus 2003; DIW Berlin calculations.

suffered minor real net income losses, without however changing the statements in the earlier report concerning the relative income positions.

Physicians in public service continue to receive a higher monthly net income than other academics in public service, particularly teachers.[7] Considering the average weekly working hours results in implied hourly wages which correspond to those calculated for 2002 almost exactly – except in the case of teachers. Essentially, this is also true when assessing occupational groups without age classification.

The largely constant results in the years 2002 and 2003 show that there were no significant changes of the income and working hours situation of the (young) physicians in public service in this period; the allegation of the Marburger Bund, that in the first report outdated and thus insignificant data were used should therefore be proved wrong.[8]

The result concerning the average weekly working hours of young physicians in public service amounting to 46.3 hours caused most of the protests. Pursuant to the Microcensus 2003, this was even somewhat lower at 45.8 hours in the following year (cf. table 1). According to Marburger Bund, the (young) hospital physicians work considerably longer on average – more of half of them even exceeding 60 hours. This statement cannot be confirmed based on table 2, which shows the regular weekly working hours for (young) physicians and other academics in public service. 'Only' roughly 8% of young physicians and 9% of all physicians state that they work more than 60 hours as a rule.[9] As the average values already show, the proportion of physicians with long and very long working hours is doubtlessly considerably higher than for other academics in public service: while over 30% of physicians work at least 50 hours per week, this is only true for 10% of the other academics.

On the one hand, unwanted long working hours may be a nuisance for the persons affected; on the other hand, they also represent a good opportunity, providing that extended working hours lead to additional income. An

[7] Please note that the net income figures in the microcensus do not only take the employment income into consideration, but instead all income categories. This disadvantage should make a lesser difference in concentrating on younger employees in comparison to older employees.

[8] In addition, determining stable results for two consecutive years demonstrates the feature of the microcensus also admitting reliable conclusions for specific sub-groups in the labor market.

[9] If, instead of the regular working hours, the working hours actually worked in the week under review in the course of the microcensus are applied, the results are almost identical.

Box

Methodical comments on working hours

The recently submitted report[1] can basically be criticized insofar as it concerns young hospital physicians whose identification is merely based on the criterion of employment in public service. The microcensus does not directly suggest employment in a public sector hospital. Furthermore, a specific subgroup of hospital physicians in public service – i.e. those employed in university hospitals – was the origin for the recent protests. This means that the random samples analyzed so far contain physicians employed in 'normal' hospitals and with authorities and public bodies (e.g. public health officers, physicians in health offices and government departments, etc.), in addition to university hospital physicians. Assuming that physicians working for authorities and public bodies have shorter working hours than all hospital physicians and that all hospital physicians not working in university hospitals work less than their counterparts in university hospitals, then the upper limits for average working hours (and the corresponding proportions of persons with long working hours) can be assessed for hospital physicians in general and university hospital physicians in particular.

Projections based on the Microcensus 2003 show that in April 2003, 109 400 physicians, including 38 000 young physicians (younger than 35 years) were employed full time in public service in Germany. The statistics of the Federal Health Monitoring System[2] indicate that as of 31 December 2003, 10 200 physicians (of which 630 younger than 35) were employed by a public authority or public body. In addition, the data of the Federal Statistical Office show[3] that 21 000 full-time physicians were working in a university hospital. From these absolute values, assuming an identical proportion between physicians at university hospitals and physicians at non-university hospitals, both for all physicians and for physicians younger than 35,[4] an allotment in percent of physicians in public service to authorities and public bodies (9.3% or 1.7% respectively for young physicians), 'normal' hospitals (71.5% or 77.5% respectively) and university hospitals (19.2% or 20.8% respectively) can be calculated. This allotment may be used for the assessment of upper limits for the average and proportional values shown there, applying the distribution of working hours from table 2 (cf. table 3).

This results in average weekly working hours of 46.0 hours for young hospital physicians. Accordingly, an calculatory exclusion of non-hospital physicians results in an only immaterial increase in average values. This is hardly surprising considering the relatively low number of physicians employed by authorities and public bodies. However, for young university hospital physicians, this results in considerably longer average weekly working hours of 64.6 working hours.[5] This means 92% of this group work more than 50 hours per week and 37% more than 60 hours.

Therefore, even in an extreme scenario, according to which every university hospital physician is assumed to be working more than any hospital physicians not working in a university hospital, this does not result in half of the physicians working more than 60 hours per week. The actual working hours for young physicians in university hospitals is therefore situated somewhere between the average values / proportions for all hospital physicians shown in table 3 and the extreme values for university hospital physicians. Assuming interval averages, young university hospital physicians would work 55.3 hours per week on average,[6] 56% would total weekly working hours of more than 50 hours and 23% would work more than 60 hours. Thus, the average working hours for all university hospital physicians (without age classification) would amount to 57.2 hours; approximately 60% work more than 50 hours and 30% more than 60 hours.

[1] Cf. Hannes Spengler, named above.

[2] Cf. *www.gbe-bund.de.*

[3] Cf. Fachserie 12, Reihe 6.1: 'Grunddaten der Krankenhäuser und Vorsorge- oder Rehabilitationseinrichtungen 2003'. Federal Statistical Office, 2005.

[4] This assumption is necessary because the Federal Statistical Office does not break down university hospital physicians by age in its aforementioned publication (cf. footnote 3).

[5] This assumption implies that hospital physicians not working in university hospitals work 39.2 hours per week on average.

[6] This assumption implies that hospital physicians not working in university hospitals work 42.6 hours per week on average.

empirical study in which 63% of the 2450 census participants – 80% of them were hospital physicians in public service – stated that they dreaded financial losses due to the implementation of the (existing) Working Hours Act (maximum weekly working hours: 48, minimum rest period: 11 hours) also shows that this applies especially to hospital physicians.[10] The assessment by the medical director of a communal hospital in Hessia to DIW, according to whom assistant physicians especially prefer on-call duty from Friday to Saturday and from Saturday to Sunday, as these (due to it being the weekend) do not lead to mandatory free time compensation and thus additional income can be generated with overtime, also matches this evidence.

However, the physicians on strike and the Marburger Bund convey the impression that the payment for overtime is an exception and not the rule.[11] The data

[10] Cf. 'Ergebnisse der Befragung zur Umsetzung des Arbeitszeitgesetzes' provided by Marburger Bund as a set of slides of an empirical study. This study is based on an anonymous survey by the ÄKBV (Medical District and Regional Association) in Munich, published in this association's magazine 'Münchner Ärztliche Anzeigen' in the 11th edition of 28 May 2005.

[11] The above-mentioned survey by ÄKBV Munich further shows that 54% of the participants of the survey stated that their overtime hours were completely accepted. However, 22% of the participants felt pressured not to document each and every worked hour.

Table 2

Working Hours of Full-time Physicians and Other Academics in Public Service in Germany in 2003

Regular working hours per week	Physicians younger than 35			All physicians			Other academics		
	Number	Proportion	Cumulative proportion	Number	Proportion	Cumulative proportion	Number	Proportion	Cumulative proportion
		in %			in %			in %	
Under 38	1 104	3.0	3.0	2 085	2.0	2.0	87 953	8.9	8.9
38	4 535	12.3	15.3	15 272	14.5	16.5	230 727	23.3	32.2
39	7 841	21.3	36.7	19 796	18.8	35.3	138 144	13.9	46.1
40	9 562	26.0	62.7	29 759	28.2	63.5	339 138	34.2	80.3
41 to 44	166	0.5	63.1	1 294	1.2	64.7	38 494	3.9	84.2
45	1 959	5.3	68.5	3 347	3.2	67.9	42 918	4.3	88.5
46 to 49	747	2.0	70.5	1 383	1.3	69.2	14 950	1.5	90.0
50	3 927	10.7	81.2	9 982	9.5	78.7	51 534	5.2	95.2
51 to 54	160	0.4	81.6	321	0.3	79.0	2 908	0.3	95.5
55 to 59	805	2.2	83.8	2 087	2.0	81.0	12 089	1.2	96.7
60	3 169	8.6	92.4	10 412	9.9	90.8	23 419	2.4	99.1
61 to 64	0	0.0	92.4	478	0.5	91.3	287	0.0	99.1
65 to 69	655	1.8	94.2	1 610	1.5	92.8	2 107	0.2	99.4
70 to 74	654	1.8	96.0	3 427	3.3	96.1	4 476	0.5	99.8
75 to 79	154	0.4	96.4	618	0.6	96.7	635	0.1	99.9
80 to 84	1 153	3.1	99.5	3 044	2.9	99.5	1 299	0.1	100.0
85 to 89	0	0.0	99.5	162	0.2	99.7	0	0.0	100.0
90 to 97	173	0.5	100.0	173	0.2	99.9	0	0.0	100.0
98 and above	0	0.0	100.0	141	0.1	100.0	0	0.0	100.0
Total projected	36 765	100.0	x	105 391	100.0	x	991 078	100.0	x
Total microcensus	222	x	x	640	x	x	5 995	x	x
Average value	45.8	x	x	46.1	x	x	40.7	x	x

Sources: Microcensus 2003; DIW Berlin calculations.

contained in table 4 can help clarify this issue. Young physicians who usually work more than 50 or 60 hours per week earn euro 366 or euro 462 respectively more than the average. Thus, there is a clearly positive connection between working hours and income for young physicians in the public sector. However, decreasing hourly wages show that a part of overtime is not remunerated. Still, the mere option of generating additional income by extending working hours must be deemed to be an advantage of the medical profession. Many other occupational groups in the public sector do not have this opportunity.

Conclusions

The evaluation of the Microcensus 2003 leads to results very similar to the evaluation 2002. Young physicians in public service do not have high incomes; however, compared to the incomes of other academics in public service, they are above average. Their workload is clearly above the workload of other academics; however, the additional work is compensated and thus it does not only represent a burden but also an opportunity. An extreme value assessment of physicians working at university hospitals clearly indicates that there, long working hours occur irrespective of whether they are desired or not.

The calculations included in this report lead to the conclusion that approximately one in five young physicians working in those hospitals is permanently faced with weekly working hours exceeding 60 hours.[12] However, in those cases, the situation is expected to ease in the near future – as soon as the decision of the European Court of Justice concerning physicians' working hours

[12] This proportion almost fully corresponds to the proportion of those physicians who were pressured concerning the documentation of hours worked – i.e. stating less than the actual hours worked – according to the above-mentioned survey by ÄKBV.

Table 3

Assessment of the Working Hours Situation of Full-time Hospital Physicians in Public Service in Germany in 2003 – a Consideration of Extreme Values[1]

	All hospital physicians		University hospital physicians	
	Younger than 35 years	All	Younger than 35 years	All
Average working hours per week	46.0	47.1	64.6	67.3
Proportion of physicians with working hours exceeding 50 hours per week in %	19	23	92	100
Proportion of physicians with working hours exceeding 60 hours per week in %	8	10	37	48

1 Concerning the method see box.
Sources: Microcensus 2003; DIW Berlin calculations.

becomes effective. As of January 1st, 2006, any kind of on-call duty shall be treated as regular working time and – contrary to the regulation in force so far – the average working hours in a seven-day period, including overtime, must not exceed 48 hours on average (the average being calculated in a four-month period). While the enforcement of this Act will protect some physicians from being exploited, it will have negative effects for those physicians who voluntarily aim at longer working hours in order to increase their income.

Furthermore the fact that the Science Council[13] recommends – in addition to the implementation of remuneration structures according to performance and institutionalized promotion of mid-level staff – in particular a restructuring of the physicians' schooling towards a division between clinical and scientific careers, should also be considered. This would lead to an additional relief for university hospital physicians, who are often involved in research, teaching and medical care. Pure hospital physicians would not do research 'on the side' – with corresponding effects on the quality of research – and physicians leaning towards science would be able to commit more to research and less to medical care. Certainly, Marburger Bund would benefit from supporting the implementation of this recommendation of the Science Council.

[13] Cf. Wissenschaftsrat: 'Empfehlungen zu forschungs- und lehrförderlichen Strukturen in der Universitätsmedizin', 2004, available on the internet at *www.wissenschaftsrat.de/texte/5913-04.pdf*.

Table 4

Income of Physicians[1] in Public Service in Germany in 2003 According to the Weekly Working Hours

	Monthly net income[2]		Average weekly working hours	Average implied hourly wages[3]
	Average value	Standard deviation		
	Euro		Hours	Euro
Physicians younger than 35				
Total	1 998	827	45.8	10.91
Working hours of over 50 hours per week	2 364	849	66.0	8.95
Working hours of over 60 hours per week	2 460	772	76.6	8.03
All physicians				
Total	3 128	2 303	46.1	16.96
Working hours of over 50 hours per week	3 546	2 397	66.0	13.43
Working hours of over 60 hours per week	3 880	3 110	75.2	12.90

1 Younger than 35 years, full-time employment. — 2 In the census month of April, at current prices. — 3 Calculated as 'monthly net income / weekly working hours / 4'.
Sources: Microcensus 2003; DIW Berlin calculations.

Supplement: Economic Indicators
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(data as of 12 October 2005)

Germany – Selected Seasonally Adjusted Economic Indicators[1]

		Unemployment		Vacancies		Orders in manufacturing (volume)[2]													
						Manufacturing						Intermediate goods industry		Capital goods industry		Durable consumer goods industry		Non-durable consumer goods industry (incl. semi-durable goods industry)	
						Total		Domestic		Abroad									
		in 000s				2000 = 100													
		month	quarter	month	quarter	month	quarter	month	quarter	month	quarter	month	quarter	month	quarter	month	quarter	month	quarter
2003	J	4 316		391		98.2		93.3		104.2		97.6		99.4		89.0		98.5	
	F	4 363	4 332	379	385	98.4	97.1	94.8	92.9	103.0	102.3	96.9	96.5	100.4	98.4	88.0	87.6	100.0	97.6
	M	4 388		371		94.7		90.7		99.7		95.0		95.3		85.7		94.4	
	A	4 405		365		96.9		92.8		102.1		96.2		98.5		86.8		96.6	
	M	4 399	4 397	352	358	93.1	95.8	91.7	92.5	94.8	99.9	93.6	95.3	93.2	97.0	83.8	84.6	95.6	96.6
	J	4 384		345		97.3		92.9		102.7		96.0		99.5		83.1		97.7	
	J	4 391		346		97.3		93.0		102.7		97.5		98.0		88.2		96.5	
	A	4 399	4 395	341	343	97.3	97.7	92.2	93.1	103.6	103.5	97.1	97.7	98.4	98.9	85.6	87.3	97.8	96.8
	S	4 404		338		98.7		94.2		104.2		98.5		100.2		88.0		96.0	
	O	4 408		333		99.7		94.7		105.9		100.1		100.5		89.2		98.6	
	N	4 403	4 401	331	331	100.2	100.0	95.7	94.7	105.9	106.7	100.9	101.0	101.6	100.8	87.4	88.3	95.8	97.6
	D	4 381		324		100.2		93.7		108.3		101.8		100.2		88.5		98.3	
2004	J	4 295		313		99.7		94.9		105.7		100.6		100.8		87.7		95.0	
	F	4 269	4 297	301	306	100.8	101.0	95.4	95.9	107.6	107.5	102.5	102.2	101.7	102.2	87.6	87.9	94.5	95.4
	M	4 275		286		102.6		97.3		109.2		103.5		104.2		88.3		96.6	
	A	4 317		275		103.7		97.3		111.7		104.8		105.1		87.7		98.7	
	M	4 334	4 324	278	279	106.8	104.2	98.5	97.1	117.1	113.0	106.8	105.1	109.3	105.8	90.5	88.7	99.7	98.3
	J	4 365		279		102.0		95.6		110.2		103.8		102.9		88.0		96.6	
	J	4 403		276		102.8		96.1		111.3		102.8		105.1		87.3		98.1	
	A	4 433	4 416	274	276	103.3	103.1	96.8	96.0	111.5	111.9	104.1	103.3	105.1	105.3	87.1	86.4	97.6	97.9
	S	4 462		276		103.1		95.2		113.0		103.0		105.7		85.0		97.9	
	O	4 478		281		102.8		95.6		111.9		102.0		106.2		84.0		97.3	
	N	4 504	4 497	284	283	102.1	103.5	94.6	96.2	111.7	112.8	101.6	101.5	104.4	107.7	85.5	84.5	100.3	98.7
	D	4 552		291		105.7		98.3		115.0		100.9		112.6		84.1		98.6	
2005	J	4 725		305		105.0		96.2		115.9		103.7		108.1		85.6		103.1	
	F	4 820	4 752	325	318	103.8	104.7	94.5	95.6	115.4	116.1	101.3	102.4	107.5	108.4	85.9	85.9	103.7	103.7
	M	4 873		355		105.3		95.9		117.1		102.3		109.6		86.2		104.2	
	A	4 833		382		103.4		95.4		113.4		101.1		107.0		87.8		101.6	
	M	4 843	4 844	397	387	103.2	105.0	95.0	96.6	113.5	115.6	102.0	102.7	106.0	108.9	84.6	87.3	102.7	103.0
	J	4 837		410		108.5		99.4		119.9		105.0		113.6		89.4		104.7	
	J	4 827		426		109.2		98.8		122.3		106.7		113.8		87.4		105.9	
	A	4 836	4 840	450	439	108.0		98.9		119.5		105.7		112.0		90.4		104.3	
	S	4 875		474															
	O																		
	N																		
	D																		

1 Seasonally adjusted by the Berlin Method (BV4). With this method, the addition of new data can change previous seasonal adjustment patterns even if the original, unadjusted, figures remained unchanged. Quarterly figures are calculated from seasonally adjusted monthly figures. — 2 Also adjusted for working days.

Sources: Federal Labour Office; Federal Statistical Office; DIW Berlin calculations.

Germany – Selected Seasonally Adjusted Economic Indicators[1] (continued)

		Employment in mining and manufacturing		Manufacturing output[2]										Retail trade turnover		Foreign trade (Special trade)[2]			
				Manufacturing		Capital goods industry		Durable consumer goods industry		Non-durable consumer goods industry (incl. semi-durable goods industry)		Construction industries				Exports		Imports	
		in 000s		2000 = 100										2003 = 100		Euro billion			
		month	quarter	month	quarter	month	quarter	month	quarter	month	quarter	month	quarter	month	quarter	month	quarter	month	quarter
2003	J	6 190		99.6		102.4		88.1		97.5		85.6		100.6		55.5		45.7	
	F	6 181	6 177	100.1	99.2	104.1	102.3	89.1	87.7	97.5	97.0	81.1	83.9	100.4	99.8	55.5	165.1	44.8	135.6
	M	6 172		98.0		100.4		85.8		96.1		84.8		98.5		54.1		45.1	
	A	6 161		99.8		101.6		87.6		98.9		86.8		100.3		54.3		44.5	
	M	6 152	6 157	97.7	98.5	100.2	100.2	85.6	85.6	95.8	97.6	84.9	85.7	102.0	100.3	54.1	163.3	44.1	133.3
	J	6 141		97.9		98.7		83.8		97.9		85.5		98.6		54.9		44.6	
	J	6 130		99.6		102.1		88.6		97.8		86.5		99.7		55.7		44.0	
	A	6 116	6 123	98.2	98.8	99.8	100.9	85.5	87.0	97.4	97.2	83.6	84.8	99.1	99.9	55.7	168.1	44.2	132.1
	S	6 106		98.5		100.6		86.8		96.4		84.4		100.7		56.8		43.9	
	O	6 094		100.3		102.3		88.1		97.8		84.4		101.2		55.6		44.3	
	N	6 086	6 091	101.2	101.1	104.7	104.1	88.2	88.4	97.1	97.7	83.7	84.3	98.8	100.2	56.9	170.9	45.6	135.4
	D	6 078		101.9		105.2		89.0		98.3		84.6		100.6		58.4		45.5	
2004	J	6 049		100.6		103.1		88.0		97.4		81.2		100.7		58.1		45.2	
	F	6 041	6 049	101.3	101.3	103.2	103.8	87.5	88.3	97.2	97.2	86.0	83.7	100.5	101.1	58.6	176.1	46.2	137.0
	M	6 036		102.1		105.2		89.4		97.0		83.8		102.0		59.4		45.6	
	A	6 032		102.5		105.3		88.7		97.8		80.8		101.3		61.4		47.1	
	M	6 023	6 027	105.3	103.6	109.0	107.0	92.3	89.9	99.6	98.3	82.7	81.4	98.4	100.6	62.6	184.2	48.2	142.4
	J	6 018		103.1		106.8		88.6		97.6		80.6		102.2		60.2		47.1	
	J	6 011		102.8		105.8		88.0		97.7		79.1		101.9		60.9		48.8	
	A	6 010	6 011	104.0	103.7	107.9	107.3	88.1	87.7	98.3	98.3	80.1	79.3	100.9	101.3	60.5	181.6	48.0	145.9
	S	6 006		104.2		108.1		87.1		98.9		78.7		101.2		60.3		49.1	
	O	6 001		103.5		107.8		85.9		98.0		77.6		100.0		62.5		49.3	
	N	5 991	5 996	102.4	102.6	104.4	105.4	85.4	85.6	98.7	98.2	77.4	77.4	103.1	101.8	61.9	184.9	48.9	146.4
	D	5 985		101.9		104.0		85.4		97.8		77.2		102.4		60.6		48.2	
2005	J	5 971		105.3		108.0		88.1		100.5		80.0		101.2		63.1		49.7	
	F	5 959	5 965	104.3	104.9	107.4	108.1	88.3	88.0	100.8	100.9	72.2	73.8	101.9	101.7	62.5	189.1	48.7	148.1
	M	5 949		105.2		108.8		87.7		101.6		69.1		102.1		63.5		49.7	
	A	5 940		105.2		109.6		88.9		99.6		75.1		101.3		62.0		49.9	
	M	5 935	5 938	103.3	105.1	105.5	108.8	84.1	88.3	100.1	100.1	72.9	74.6	102.9	102.5	62.6	189.3	50.9	151.2
	J	5 925		106.7		111.2		91.9		100.4		75.9		103.4		64.7		50.4	
	J	5 913		106.3		109.6		86.1		102.2		74.8		100.1		64.9		51.3	
	A			105.9		108.2		90.3		101.3		76.6		102.9		65.8		52.7	
	S																		
	O																		
	N																		
	D																		

1 Seasonally adjusted by the Berlin Method (BV4). With this method, the addition of new data can change previous seasonal adjustment patterns even if the original, unadjusted, figures remained unchanged. Quarterly figures are calculated from seasonally adjusted monthly figures. — 2 Also adjusted for working days.

Sources: Federal Statistical Office; DIW Berlin calculations.

Germany's Quarterly National Accounts Data

Unadjusted figures

	2002	2003	2004	2002				2003				2004				2005	
				I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
GDP by type of expenditure at current prices, euro billion																	
Private consumption	1266.7	1287.6	1312.5	304.1	313.9	319.0	329.7	310.3	320.4	323.4	333.5	316.3	325.0	328.1	343.1	317.6	330.1
Government consumption	412.3	415.5	412.8	97.7	98.3	100.0	116.4	98.7	99.0	102.4	115.3	99.0	99.6	101.3	112.9	98.8	100.1
Fixed capital formation	392.9	384.4	384.9	88.2	101.8	102.3	100.6	84.5	98.5	101.2	100.3	84.3	98.2	101.2	101.3	81.2	100.0
Machinery and equipment	151.9	146.9	149.4	34.6	38.6	36.8	42.0	33.6	36.4	35.8	41.1	32.8	36.4	37.3	42.8	33.7	38.7
Construction	216.5	213.0	210.7	47.6	57.3	59.5	52.1	44.9	56.1	59.3	52.7	45.5	55.7	57.6	51.9	41.4	55.1
Other	24.5	24.5	24.9	6.0	6.0	6.1	6.5	5.9	6.0	6.1	6.5	6.0	6.1	6.2	6.6	6.1	6.1
Change in stocks	–24.0	–11.6	–4.0	3.1	–8.5	2.9	–21.4	9.3	–5.5	1.0	–16.5	7.9	–7.1	8.9	–13.7	10.1	–2.4
External surplus or deficit	97.1	87.6	109.5	23.7	23.7	22.6	27.1	19.8	20.1	23.4	24.3	31.0	33.5	21.3	23.8	33.0	31.7
Exports	765.6	772.7	842.8	181.1	191.6	192.4	200.4	189.3	188.7	194.1	200.7	200.8	213.2	209.0	219.8	211.1	226.1
Imports	668.5	685.1	733.4	157.4	167.9	169.9	173.3	169.5	168.5	170.7	176.4	169.9	179.8	187.7	196.0	178.1	194.4
Gross domestic product	2145.0	2163.4	2215.7	516.8	529.2	546.7	552.4	522.6	532.5	551.4	556.9	538.4	549.1	560.8	567.4	540.8	559.5
Change (%) on the previous year																	
Private consumption	0.6	1.7	1.9	0.6	0.1	0.9	0.9	2.0	2.1	1.4	1.2	1.9	1.4	1.4	2.9	0.4	1.6
Government consumption	3.0	0.8	–0.6	2.9	3.6	3.5	2.2	1.0	0.8	2.4	–0.9	0.3	0.6	–1.1	–2.1	–0.1	0.5
Fixed capital formation	–7.1	–2.2	0.1	–9.8	–7.0	–5.6	–6.2	–4.2	–3.3	–1.1	–0.3	–0.2	–0.3	0.0	1.0	–3.6	1.9
Machinery and equipment	–9.3	–3.2	1.7	–14.6	–9.4	–7.5	–5.8	–2.7	–5.6	–2.6	–2.0	–2.4	0.1	4.3	4.0	2.8	6.3
Construction	–6.1	–1.6	–1.1	–7.1	–5.8	–4.8	–7.0	–5.7	–2.1	–0.4	1.1	1.3	–0.8	–2.7	–1.5	–9.0	–1.0
Other	–1.5	–0.2	1.6	–0.5	–2.1	–2.1	–1.4	–1.2	–0.3	0.5	0.0	0.5	1.8	2.0	2.2	1.7	1.2
Exports	4.1	0.9	9.1	–0.2	4.0	7.1	5.4	4.5	–1.5	0.9	0.1	6.1	13.0	7.7	9.6	5.1	6.1
Imports	–3.6	2.5	7.0	–8.7	–4.2	–2.6	1.3	7.7	0.4	0.5	1.8	0.2	6.7	10.0	11.1	4.9	8.2
Gross domestic product	1.5	0.9	2.4	0.7	1.5	2.7	1.1	1.1	0.6	0.9	0.8	3.0	3.1	1.7	1.9	0.5	1.9
GDP by type of expenditure as price-adjusted chain-linked index (2000 = 100)																	
Private consumption	101.3	101.5	102.0	97.3	100.6	102.1	105.3	97.7	101.3	101.9	104.9	98.6	101.2	101.8	106.5	97.9	101.7
Government consumption	102.0	102.1	100.5	99.7	99.8	100.5	107.9	100.1	100.0	101.0	107.2	99.2	98.7	100.0	104.0	97.8	98.4
Fixed capital formation	90.5	89.8	89.7	80.8	93.4	94.5	93.4	78.6	91.7	94.7	94.2	78.7	91.1	94.2	94.6	75.3	92.9
Machinery and equipment	89.1	88.9	91.3	80.2	89.5	86.8	99.8	80.6	87.6	87.3	100.3	79.6	88.4	91.7	105.4	82.5	95.1
Construction	89.8	88.4	86.3	78.9	95.1	98.7	86.6	74.5	93.1	98.4	87.5	75.3	91.2	94.1	84.6	67.1	89.5
Other	107.6	111.1	113.1	103.9	104.0	107.4	114.9	107.0	106.8	110.8	119.8	109.0	109.0	112.6	121.9	111.3	111.3
Exports	111.0	113.6	124.2	105.5	111.2	111.4	115.9	110.6	110.6	114.4	118.9	119.4	125.8	122.7	128.9	124.3	132.6
Imports	99.9	104.9	112.3	93.8	99.3	101.9	104.5	101.9	103.0	105.1	109.7	105.4	110.3	114.2	119.1	108.4	117.1
Gross domestic product	101.3	101.1	102.8	98.5	101.1	103.1	102.4	98.8	100.4	102.6	102.7	100.7	102.4	103.9	104.0	100.4	104.0
Change (%) on the previous year																	
Private consumption	–0.5	0.1	0.6	–1.0	–1.0	–0.2	0.0	0.4	0.7	–0.2	–0.3	0.9	–0.1	–0.1	1.5	–0.8	0.5
Government consumption	1.4	0.1	–1.6	0.8	1.7	2.0	1.1	0.5	0.2	0.5	–0.6	–0.9	–1.3	–1.0	–3.0	–1.4	–0.3
Fixed capital formation	–6.1	–0.8	–0.2	–9.2	–6.1	–4.3	–5.0	–2.7	–1.8	0.3	0.9	0.2	–0.6	–0.6	0.4	–4.3	1.9
Machinery and equipment	–7.5	–0.2	2.6	–13.7	–8.1	–5.0	–3.6	0.4	–2.1	0.6	0.4	–1.3	0.9	5.1	5.1	3.7	7.5
Construction	–5.8	–1.6	–2.3	–6.7	–5.5	–4.6	–6.9	–5.7	–2.1	–0.3	1.0	1.2	–2.0	–4.4	–3.3	–10.9	–1.8
Other	1.3	3.3	1.8	0.8	0.7	1.6	2.0	3.0	2.7	3.2	4.2	1.9	2.0	1.6	1.7	2.2	2.2
Exports	4.2	2.4	9.3	0.4	4.8	7.1	4.7	4.9	–0.5	2.7	2.7	8.0	13.7	7.3	8.4	4.1	5.4
Imports	–1.4	5.1	7.0	–6.4	–2.1	0.2	2.8	8.6	3.7	3.1	5.1	3.5	7.1	8.7	8.5	2.8	6.2
Gross domestic product	0.1	–0.2	1.6	–1.1	0.2	1.0	0.0	0.3	–0.8	–0.5	0.3	2.0	2.1	1.2	1.3	–0.3	1.5

Sources: Federal Statistical Office; DIW Berlin calculations.