

## Development and significance of education expenditure in Germany

Young people's education and further education opportunities play a key role in Germany's future economic outlook. The public sector is responsible for the largest portion of education expenditure, although enterprises and private organisations also contribute financially. After Germany's poor performance in the PISA comparative study initiated by the OECD, the effectiveness of the education system has been attracting increasing public attention. Frequent calls are being made for the government to increase its spending on education. Given the present very high government expenditure ratio and budget deficits in Germany, the only way to do so would be by restructuring expenditure. The results of the PISA study and further analyses indicate that the connection between the level of education spending and the performance of schoolchildren and students is not as close as is often assumed. Hence it is probably just as important to make the education system more efficient. Furthermore, demographic trends showing an upcoming decline in the number of schoolchildren will provide relief for the education system. This article reviews education spending in light of these issues.

Compared with education systems in other countries, an important characteristic of education in Germany is the fact that it offers a dual system of vocational education and

*Dual system  
produces  
well-qualified  
workers*

training in industry and schools. Mainly as a result of this approach, over 80% of 25 to 64-year-olds in Germany have a qualification which is higher than the compulsory school leaving certificate. In this sense, Germany ranks as one of the front runners when compared with other countries. However, figures showing the spread of qualifications in the 25 to 34 age group are somewhat less favourable. Nevertheless, on the whole the dual training system is considered to give German workers a good professional grounding – clearly a factor in Germany's favour in terms of its international competitiveness.

*Performance by  
international  
comparison*

However, frequent criticism has been voiced during the last few years of the quality of the education provided in Germany. For example, there have been recurrent complaints about educational deficiencies among school leavers, particularly from employers. Fairly recently, international comparisons of schoolchildren's performance have been carried out in which Germany has taken part. The TIMS study of mathematical and scientific literacy<sup>1</sup> had already uncovered the first weaknesses. Then, however, came Germany's alarming performance in the PISA study carried out in spring 2000.<sup>2</sup> The target group in this study comprised 15-year-olds, who in many countries were already in their final year of compulsory schooling. A series of questions was used to provide an in-depth assessment of their reading ability and their mathematical and scientific literacy. Of the 32 participating countries, Germany only achieved a place in the lower half of the league table, although there were considerable differences from one federal state to another. Alongside the poor

average result for German schoolchildren, the wide dispersion of attainment was particularly striking; in no other country was it as sharply pronounced. One implication is that a very large proportion (around one-fifth) of schoolchildren failed to meet the requirements of the second of five performance levels and they therefore have to be rated as a risk group with respect to further career progression. The children's family backgrounds proved to have a particular bearing on performance. In addition to youngsters from immigrant families, children from socio-economic groups which put relatively little emphasis on education also fared well below average.

The subsequent PIRLS study, which examines reading ability at the end of primary school,<sup>3</sup> produced more favourable results for German schoolchildren. Whereas average achievement was in the top third among the participating countries (which were not quite the same as for the PISA study) the dispersion remained narrow. The children's backgrounds were also less significant. Although this evidence put some results of the PISA study into perspective, an improvement in the education system in Germany would nonetheless ap-

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<sup>1</sup> For details of the results of the Third International Mathematics and Science Study, see J Baumert et al (1997), TIMSS – *Mathematisch-naturwissenschaftlicher Unterricht im internationalen Vergleich. Deskriptive Befunde*, Opladen, Germany.

<sup>2</sup> Programme for International Student Assessment. See C Artelt et al (2001), *PISA 2000, Zusammenfassung Zentraler Befunde*, Max Planck Institute for Human Development, Berlin.

<sup>3</sup> Progress in International Reading Literacy Study (Internationale Grundschul-Leseuntersuchung (IGLU) in Germany). See also W Bos et al (2003), *Erste Ergebnisse aus IGLU*, <http://www.erzwiss.uni-hamburg.de/IGLU/kurz-end.pdf>, Hamburg.

pear to be urgently needed, even if the results suggest that rather more attention needs to be focused on secondary education.

*Tertiary education*

Apart from the quality of the education provided, the low level of take-up in tertiary education is also criticised. In line with other analyses, the OECD studies indicate that the number of tertiary level students in Germany is well below average. The main response has been to call for university admission in Germany to be made easier and, at the same time, broadened in order to secure Germany's long-term position in the global economy. However, it must be borne in mind that – not least because of the dual training system – there are extensive education opportunities in Germany outside the realm of universities. Given the educational deficiencies of many students bemoaned by university lecturers, the high drop-out rates and the relatively late entry into employment, any broadening of admission to tertiary education also requires better preparation in schools and improvements to the educational services provided by universities.

*Education as a key function of general government*

The weaknesses and criticisms referred to above have also led to demands for increased government spending on education. However, the way to achieve education results which compare more favourably with those of other countries is clearly likely to be more complicated than that. Nonetheless, it is generally agreed that ensuring educational performance or rather establishing the underlying conditions conducive to a successful education system is one of the key functions of the public sector. This will not only pro-

mote equal opportunities in society but also improve the conditions for achieving growth.

### Total education expenditure in Germany

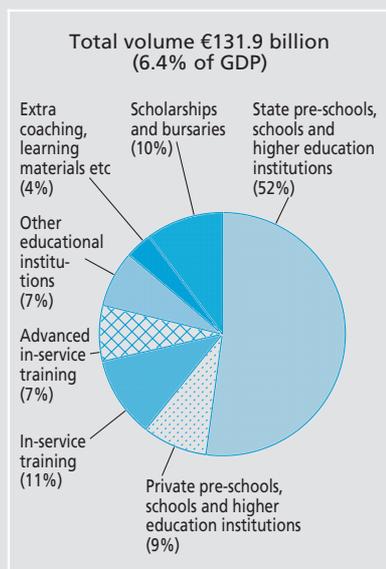
Measuring the level of spending on education proves to be a complicated task. We first need to clarify what we understand by the term "education". Usually, nursery schools are included, even though in Germany their educational task is minimal. In the case of universities, at least expenditure by medical facilities on treating patients is excluded from the figures. However, there is no generally accepted classification of funds made available for research and development. Different methods are also used to record expenditure on in-service and advanced training and funds provided by the public sector to cover trainees' living costs.

The definition of "expenditure" also varies. For instance, in the frequently used netted expenditure concept, funds raised from the private sector specifically for educational purposes are deducted from public spending. In the financial statistics, which are frequently taken as a basis, payments made to health care and pension schemes for teachers in western Germany, most of whom are civil servants, are not classified under the relevant area but instead recorded separately. To gain a comprehensive view of the strains that education policy places on the budget in any given year, account needs to be taken of the reclassifications and surcharges for notional contributions to pension insurance schemes.

*Varying definitions of education ...*

*... and of expenditure*

### Breakdown of expenditure as in the 2001 education budget



Source: Federal Statistical Office.  
Deutsche Bundesbank

*Education budget as a broad concept*

The broadest national measurement concept is the education budget as published regularly by the Federal Statistical Office.<sup>4</sup> Two distinct analyses are provided: one based on implementation and the other on financing. The implementation analysis shows the volume of funds spent on each part of the education system, whereas the financing analysis also classifies the money according to its origin (ie whether it comes from the public or the private sector, or from abroad). Implementation figures are currently available up to 2001; data on the origin of funds go as far as 2000 only.

*Amount and structure of education spending ...*

In 2001, education spending classified according to this measurement concept amounted to €132 billion or 6.4% of GDP. Most of the funds (as shown in the above chart) were

spent on state schools (3.3% of GDP) and the private school system (0.5% of GDP) including pre-schools and higher education institutions.<sup>5</sup> Job-related expenditure defrayed as part of in-service training was also significant (1.2% of GDP). The remainder comprised (as shown in detail in the table on page 59) assistance for people in full-time education (eg Federal Government educational scholarships and bursaries and funds to cover living costs paid by the Federal Labour Office), child benefit for 19 to 25-year-olds still in education, and other education spending.

Although since 1995 – the first year for which data according to the measurement concept currently in use were available – education spending has risen by €12 billion or an annual average of 1½%, its ratio to GDP has gone down slightly by 0.2 percentage point. The main reason for this was a decline of 0.3 percentage point in state pre-school and general school education, whereas the overall number of people in full-time education increased. The ratio of the remaining “education segments” to GDP remained more or less constant.

As shown in the chart on page 60, the public sector contributed €95 billion (almost three-

*... and its development*

*Origin of resources*

<sup>4</sup> It also includes further education and training, education-related spending by the Federal Labour Office, relevant expenditure as part of assistance for young people, spending on learning materials by private individuals, and public sector expenditure for students’ living costs. Civil servants’ wages are topped up by health care assistance as well as notional contributions to the statutory pension insurance scheme and the supplementary pension funds for public employees. On the other hand, spending by educational establishments on research is excluded.

<sup>5</sup> The pre-school level accounts for most of the expenditure by private education establishments, ie around two-thirds of the total.

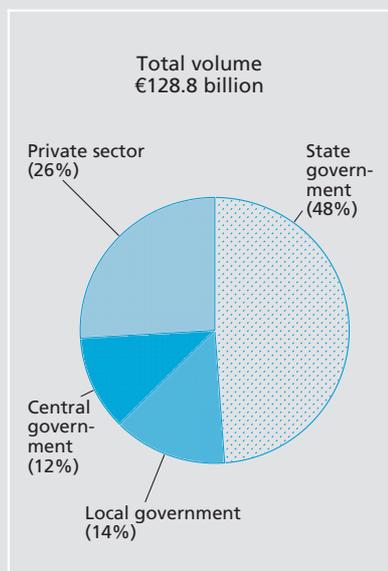
## Education budget, by institution

Item	€ billion			As % of GDP		
	1995	2000	2001	1995	2000	2001
Education expenditure						
State pre-schools, schools and higher education institutions	64.6	67.4	68.7	3.6	3.3	3.3
Pre-school 1	4.8	4.3	4.4	0.3	0.2	0.2
General	41.8	43.6	44.3	2.3	2.2	2.1
Vocational 2	7.6	8.2	8.4	0.4	0.4	0.4
Higher education 3	10.4	11.3	11.6	0.6	0.6	0.6
Private pre-schools, schools and higher education institutions	9.6	11.0	11.3	0.5	0.5	0.5
Pre-school 1	6.2	7.0	...	0.3	0.3	...
General	2.4	2.7	...	0.1	0.1	...
Vocational 2	0.9	1.1	...	0.0	0.1	...
Higher education 3	0.2	0.2	...	0.0	0.0	...
In-service training	12.5	13.9	14.1	0.7	0.7	0.7
In the public sector	1.0	1.0	...	0.1	0.0	...
In the private sector	11.5	12.9	...	0.6	0.6	...
Advanced in-service training, total 4	8.9	9.6	9.8	0.5	0.5	0.5
Other educational institutions 5	9.0	9.6	9.8	0.5	0.5	0.5
Expenditure by schoolchildren and students on extra coaching, learning materials etc	4.2	4.6	4.7	0.2	0.2	0.2
<b>Education expenditure, total</b>	<b>108.7</b>	<b>116.1</b>	<b>118.5</b>	<b>6.0</b>	<b>5.7</b>	<b>5.7</b>
Scholarship and bursaries 6						
Government financial support	4.3	4.4	5.0	0.2	0.2	0.2
For schoolchildren	1.9	2.1	...	0.1	0.1	...
For students	2.4	2.3	...	0.1	0.1	...
For people in further education and training	0.0	0.0	...	0.0	0.0	...
Financial support from the Federal Labour Office	5.6	5.2	5.2	0.3	0.3	0.3
Child benefit for 19 to 25-year-olds in full-time education	0.9	3.1	3.1	0.0	0.2	0.2
<b>Scholarships and bursaries, total</b>	<b>10.9</b>	<b>12.6</b>	<b>13.4</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
<b>Education budget, total</b>	<b>119.6</b>	<b>128.8</b>	<b>131.9</b>	<b>6.6</b>	<b>6.4</b>	<b>6.4</b>

Source: Federal Statistical Office, calculations and estimates by the Federal Ministry of Education and Research. — 1 Nursery schools (excluding day nurseries), pre-school classes and special needs primary school classes; figures may be distorted as a result of the privatisation of nursery schools. — 2 Including technical and vocational schools and universities and medical or nursing schools etc. — 3 Excluding expenditure for the treatment of sick persons and for research and development. — 4 Excluding wages and salaries paid to trainees. — 5 This includes, for

example, youth assistance organisations, grants to private adult education institutions, grants from the Federal Labour Office for private vocational and advanced training institutions and grants for civil servant training. — 6 Payments from the government budgets as grants or loans (gross) to people in education to assist with living costs, including student grants/loans from the Deutsche Ausgleichsbank and spending by university student support services.

### Breakdown of contributions to the education budget in 2000



Source: Federal Statistical Office.  
Deutsche Bundesbank

quarters) to the total education budget in 2000. Financing from the private sector was predominant almost solely in the area of in-service training. Even in the case of the private education establishments, the public sector still bore almost two-thirds of the costs incurred.

*State government the main spender on education*

In 2000 state government, which is responsible for the most important cost item, ie the teaching staff, provided almost two-thirds of the public sector resources. In the core area of nursery schools, schools and higher education institutions, its share actually amounted to four-fifths. Local government accounted for almost one-fifth of public sector resources in the education budget. The largest item comprised resources spent on ongoing building maintenance and invested in schools. An-

other key municipal focus is on pre-school establishments. Central government expenditure, which accounted for just under one-sixth of all public sector funds, is concentrated on other educational institutions – which offer courses financed through the Federal Labour Office – and scholarships and bursaries, to which the Federal Government contributed almost two-thirds.

### Longer-term trends

To analyse longer-term developments, a narrower definition than that used for education budget figures (ie in accordance with the financial statistics) needs to be adopted; essentially, this definition includes schools and universities.<sup>6</sup> The long-term development of spending on schools is markedly affected by declining birth rates. Data on universities indicate that a smaller proportion of funds has been allocated to this sector as time has gone on. Overall, the ratio of expenditure for schools and universities to GDP as defined in this concept went down from 4.2% in 1975 (former West Germany) to 3.2% in 2001 (Germany as a whole).

*Definition and underlying trend*

The ratio of expenditure for general and vocational schools to GDP fell from 3.1% in 1975 to 2.2% in 1990. This decline was mainly attributable to the sharp decrease in the number of schoolchildren during this

*Expenditure on schools between 1975 and 1990 ...*

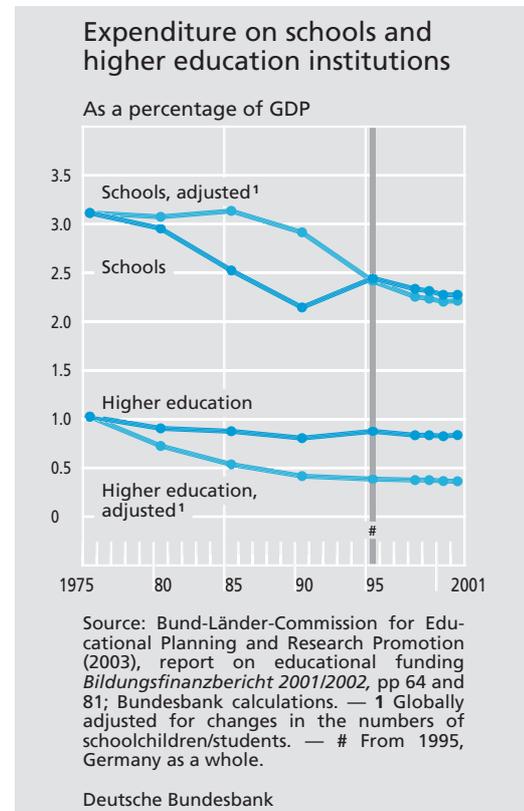
<sup>6</sup> These data are also used in the report on educational funding published by the Bund-Länder Commission for Education Planning and Research Promotion. They are defined according to the netted expenditure concept. No account is taken of additional notional contributions to cover future old age pension burdens caused by current civil servants.

period. Starting from 8.6 million in 1960, the number of schoolchildren in what was then West Germany had peaked at just over 12 million by the mid-1970s, resulting in a sharp increase in education expenditure. In the following period, the decline in the birth rate ceased to be offset by the only moderate increase in the number of children attending secondary schools, and by the end of the 1980s there were only 9 million schoolchildren. Adjusted for the decline in the number of schoolchildren, expenditure on schools had gone down only marginally to 2.9% of GDP by 1990.

... and  
afterwards

Following German unification, the unadjusted ratio to GDP of public sector funds allocated to schools went up again to 2.5% in 1995. This was also due to a perceptible rise in the number of schoolchildren in western Germany to just under 9½ million. During this period, the offspring of the early 1960s baby boom generation reached compulsory school age. There was initially a sharp increase in the number of schoolchildren in eastern Germany, too, where, in addition, the restructuring of the education system is likely to have led to a higher number of people in full-time education. Overall, during this period the number of schoolchildren increased decidedly more sharply than the ratio of education expenditure to GDP.

Since the mid-1990s, there has been a further slight decrease in the ratio of public sector expenditure on schools to GDP. It has been around 2.3% since 1998. The main reason for this was that the decline in the birth rate in eastern Germany after reunification



slowed the number of admissions to schools in that part of the country from 1996 onwards. By 2001 the peak figure of just over three million schoolchildren in 1996 had decreased by one-fifth; this mainly affected the primary level initially and resulted in a sizeable need for adjustment in this area. By contrast, in western Germany the number of schoolchildren continued to go up, meaning that figures for Germany as a whole showed a further slight increase.

The developments outlined above also had a considerable impact on the labour market for teachers, who account for the bulk of spending on education. Whereas measures had previously been taken to provide for a sharp increase in the number of teachers, the early 1980s saw a very sharp decline in the number

*Impact on the  
labour market  
for teachers*



of new staff appointed to state schools (as shown in the above chart). Hence, in 1988, for example, just over 6,500 teachers were appointed, ie four-fifths fewer than in 1980. Since the number of teacher training graduates decreased more slowly, by computation only two-fifths of the graduates found teaching jobs in state schools between 1983 and 1988. Between 1991 and 1998, the number of appointments stabilised at around 15,000, subsequently leaping to almost 31,000 in 2001. Only a fairly small part of this rise is attributable to the new positions created in response to the increase in the number of schoolchildren in many western German states. A more significant factor is the need for new teachers to replace those retiring from the profession. Following the wave of appointments in the 1970s, this need has be-

come greater and will remain sizeable for some years to come. In 2001 more than twice as many teachers as in 1993 (nearly 16,000) entered retirement. In the past few years, the increase in the number of part-time teaching jobs has also heightened the need to appoint more teachers; this does not, however, imply an expansion of capacity. After many years of high levels of unemployment among teachers, the evident need to appoint new staff may even lead to teacher shortages in the next few years.

Although there has been a nominally sharp increase in the funds made available for tertiary education since 1975, the ratio of these funds to GDP went down from 1.1% to 0.9% in 2001. The number of students more than doubled during this period from just over 0.8 million to almost 1.9 million. Linking the development of tertiary education resources to the number of registered students is, however, of only limited informational value. For instance, the picture may be distorted if there is an above-average increase in the number of long-term students who do not actually attend classes but claim other benefits to which registered students are entitled.<sup>7</sup> In view of the considerable cost differences between courses of study, the restriction on the number of students admitted to "expensive" subjects, such as medicine, combined with the large numbers of additional students enrolling for cheaper subjects is also

*Spending on tertiary education*

<sup>7</sup> Between 1993 and 2001, the figures from the report on educational funding 2001/2002 published by the Bund-Länder Commission for Education Planning and Research Promotion showed a higher annual increase (of three-tenths) in the nominal per capita expenditure, if account is taken only of those who, owing to their period of study, are in principle still entitled to a state grant/loan.

likely to have resulted in a reduction in the average amount of funds required. Furthermore, spending on research (which is unrelated to the number of students) is included in tertiary sector spending.

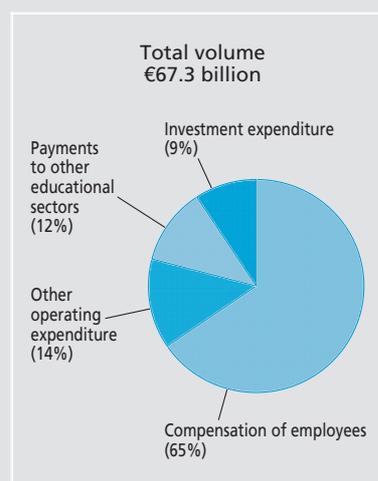
*Composition of education expenditure ...*

Apart from the long-term trend, the financial statistics also provide some insight into the different types of expenditure which constitute spending on schools and higher education institutions (see adjacent chart). In the total volume of expenditure amounting to €67 billion (excluding additional notional contributions for civil servants' old-age pension provision) in 2000, the largest portion – 65% – comprised compensation of employees. In the school sector, this portion was even distinctly higher (74%). Contributions for other operating expenditure and payments to other educational sectors, which were primarily used to finance staff and other operating costs of private and outsourced facilities, amounted to 14% and 12% respectively. Only 9% was allocated to investment – in buildings in particular.

*... and qualitative structure of government spending*

This shows, for example, that it is difficult to measure the quality of government spending, in terms of its influence on macroeconomic growth, solely by the share of investment expenditure. It is at least questionable whether a large part of the expenditure classified in the budget as investment actually promotes economic growth. This applies, for instance, to general government participating interests, loans and investment grants – which often tend to be subsidies and distort the allocation of private resources – as well as to investment in what are termed consumption assets.<sup>8</sup> On

### Public spending on schools and higher education institutions in 2000,\* by type of expenditure



Source: Federal Statistical Office and Bundesbank calculations. — \* Direct expenditure, ie excluding payments to other public budgets.

Deutsche Bundesbank

the other hand, a sizeable proportion of current public sector expenditure, particularly at state government level, represents investment in human capital, which is a key factor in longer-term economic growth.

### Education expenditure by international comparison

The primary source of data on international comparisons is the OECD, which regularly monitors education expenditure.<sup>9</sup> However, the definition used by the OECD differs on several counts from those of the national ap-

*Problems with an international comparison of expenditure*

<sup>8</sup> For details, see Deutsche Bundesbank, Developments of public sector investment, and its financing, *Monthly Report*, April 1999, pp 29-46.

<sup>9</sup> For figures, see OECD (2003), *Education at a Glance*, Paris.

proaches presented in this article.<sup>10</sup> Moreover, as the measurement concept has been developed further in recent years, only limited conclusions can be drawn from a comparison with previous years. Furthermore, the informational value of the data from the OECD is limited not least by the fact that education systems are organised differently in each individual country and that recording practices may well differ from one country to another.<sup>11</sup> Above all, it should be borne in mind that comparing the level of expenditure to GDP alone merely allows very limited conclusions to be drawn as to the actual educational provision. The informational value is not least restricted by the varying levels of teachers' pay and the divergent proportions of the population of the normal age to be in full-time education.

*Comparison  
of total  
expenditure ...*

Overall, according to the OECD method, spending on education facilities in Germany amounted to 5.3% of GDP in 2000. This undershot the 1995 level by ½ percentage point. Thus, spending on education in Germany in 2000 was below the OECD country average by around 0.1% of GDP. Funds provided by general government amounted to 4.3% of GDP, ie remained ½ percentage point below the international average. In Germany an above-average share of education expenditure thus comes from the private sector. This is mainly attributable to the well-developed dual system of vocational education and training since the companies involved assume the costs of the trainees' practical tuition.

This particular feature is also reflected in how expenditure is apportioned to the specific educational levels.<sup>12</sup> These figures reveal clear international differences in the education focus. In Germany, for instance, spending at the elementary level (including nursery schools classified as educational institutions) amounts to 0.6% of GDP, well above the OECD average; this is mainly related to the fact that a significant proportion of expenditure (one-third) is not covered by public sector funds. By contrast, a relatively low figure (2.1%) was recorded for the primary and lower secondary levels, which are almost exclusively government financed. However, at the upper secondary level, which also includes technical and vocational schools, the figure for Germany was back in line with the average of the OECD countries (1.4% of GDP); this was due to the relatively high financial contribution made by the private sector. At the tertiary level, comprising universities in particular, expenditure in 2000 amounted to 1.0% of GDP, compared with an average of 1.3% of GDP in OECD countries.

*... and  
spending on  
the different  
educational  
levels*

This kind of expenditure comparison admittedly takes no account of major differences in the key factors affecting the demand for edu-

*Impact of the  
number of  
schoolchildren/  
students*

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<sup>10</sup> Most importantly, expenditure on further education and training and as part of the work promotion measures carried out by the Federal Labour Office is not taken into consideration. However, resources allocated by higher education institutions to research and development are included in education expenditure.

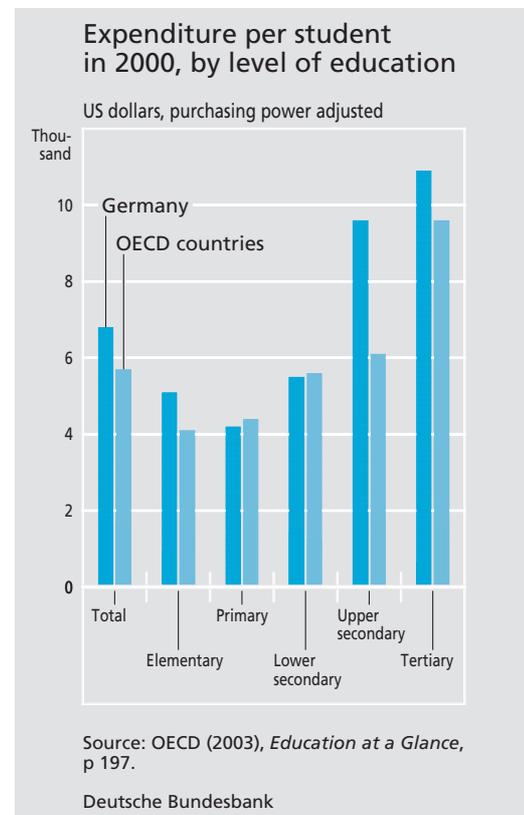
<sup>11</sup> For instance, expenditure on schools is far higher if child supervision and catering services are offered in addition to education.

<sup>12</sup> Admittedly, there are difficulties involved in apportioning the funds to the different levels of education. For example, many schools in Germany cover several different educational levels.

cation. First, the proportion of people who are of the normal age to be in full-time education is a key consideration; in the OECD study, this age range has been defined as being from 5 to 29. In 1999 the figure for Germany was one-sixth below the average in the OECD countries.<sup>13</sup> The number of people in this age range who wish to continue their studies after completing compulsory schooling is also a prime factor. Whereas Germany exceeds the benchmark at the school level, it is lagging well behind at the tertiary level. In 2001, 32% of one age group in Germany started tertiary-level courses lasting at least three years, whereas the average OECD figure was 47%.

Total expenditure per schoolchild/student ...

More enlightening information about education expenditure by international comparison can therefore be derived from the ratio of expenditure to the number of schoolchildren and students. The relevant OECD figures are given in US dollars adjusted for purchasing power.<sup>14</sup> In 2000, average expenditure per schoolchild or student across all levels was around US\$6,850 in Germany (see adjacent chart). This figure was well above the OECD countries' average funds of just under US\$5,750. This lead is, however, largely attributable to the above-average role of the private sector in the financing of, first, vocational training, but also of pre-school facilities. However, government spending still amounted to just over US\$5,550 per schoolchild, compared with US\$5,100 across all OECD countries. Admittedly, this relates not least to the fact that, by international standards, salaries for teaching staff in Germany are relatively high.



The picture varies widely across the different educational levels. For instance, at the elementary level (for children aged three and over who are not yet of compulsory school age) almost US\$5,150 is spent per child, ie far more than the OECD average of just under US\$4,150. The difference is almost entirely due to the fact that far more than the average share of funds does not come from the public sector (attendance fees and funds provided by churches or outsourced municipal companies which run establishments of this kind).

... at elementary level ...

<sup>13</sup> The spending on education ratio would, *ceteris paribus*, be 1 percentage point higher if the age structure were in line with the average across all countries.

<sup>14</sup> The basket of goods used here is admittedly broadly based and not specifically geared to education expenditure.

... at primary  
level ...

By contrast, at the primary level, which comprises the first four to six school years, Germany spends US\$4,200 on each schoolchild, ie 4% less than the OECD average. If the pupil-teacher ratio is used to measure the level of individual attention, the OECD average in 2001 was one teacher for every 17 pupils, whereas in Germany the figure was one teacher for 19.4 pupils. In addition, the allocation of just over 640 teaching hours in the 2001 primary school timetable for children aged between seven and eight was 14% below the average across all countries.

... at secondary  
level ...

At the lower secondary level, spending in Germany (US\$5,470 per pupil) was also below average, although somewhat less than at the primary level. This was also reflected in the pupil-teacher ratio (15.7 compared with the OECD average of 14.5). On the other hand, spending per upper secondary level pupil – which, in addition to grammar school classes also comprises vocational schools and in-service training – amounted to just under US\$9,630, nearly 60% above the average. Apart from the impact of teachers' salaries, this result was also largely due to the high level of the private sector financial contribution to Germany's dual training system.

... and at  
tertiary level

The OECD figures for the tertiary level, which comprises all higher education institutions, indicate that funding in Germany is rather good. However, particular caution should be exercised when assessing the situation because expenditure is relatively closely linked to the course of study chosen and the OECD analysis also includes spending on research and development. Given the fact that the

share of this kind of expenditure is well above average, spending on German higher education institutions was US\$10,900 per student in 2000; this exceeded the OECD average by more than US\$1,300. However, if spending on research is excluded, the benchmark would have been slightly undershot. German higher education institutions recorded a ratio of students to teaching staff of 12.3 in 2001, ie better than the OECD average (16.5), whereas the average period of study was 4.9 years – just over half a year longer.

## Conclusions

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Mainly as a result of the poor performance of German schoolchildren in the PISA study, greater attention is now being paid to the education system in Germany. Given the key significance of investing in human capital in terms of economic growth, education spending is actually one of the most important components of public sector expenditure. An improvement in the educational results is not at odds with efforts to consolidate the general government budget by reducing the ratio of overall government spending to GDP. Primarily, advantage should be taken, where appropriate, of the possibility of releasing additional funds by restructuring expenditure. Comparative international studies show that merely increasing education expenditure does not necessarily lead to an improvement in educational achievement. Although schoolchildren in a country which spends more on education do perform better on the whole, differences in the volume of expenditure go only a limited way towards explaining the

*Improving  
education  
without raising  
the government  
spending ratio*

divergence in attainment levels. The impact on educational performance of other variables, such as class size and the number of teaching hours, also remains limited. A comparative study even considers the conclusion "that political design parameters which have so far been considered important have proved to be relatively meaningless in terms of the development of performance".<sup>15</sup>

*Demographic relief*

It should also be borne in mind that the persistently low birth rate will lead to a significant decline in the total number of schoolchildren in Germany over the next few years. According to the medium variant of the most recent projected population figures,<sup>16</sup> the number of children and young people under 20 years of age in Germany will decline by 10% to 15.5 million between 2001 and 2010. In the subsequent ten years, there will be a further decrease of just over 6%. The ratio of children and young people to the working age population (for the sake of simplicity, defined here as people aged between 20 and 65) will go down from 34% in 2001 to just over 30% in 2010 and to 29% in 2020. This means relief for the education system, but also has implications for staffing policies in this sector. Although retraining and advanced training are likely to require additional funding, this largely affects the private sector.

*Encouraging competition among educational establishments*

Encouraging competition among different schools and universities will also help to enhance the quality of education. International comparisons suggest that this has a positive impact. Setting comparable performance standards and conducting evaluations,

the results of which are subsequently published, evidently play a key role.<sup>17</sup> Allowing people greater freedom in the choice of schools and furnishing the institutions with suitable incentive mechanisms is likely to promote "competition for quality". Structural reforms combined with the decline in the number of schoolchildren could free up resources which could be used, for example, to cover the additional financing needed to meet the frequent demand for an expansion of all-day schooling and to provide extra assistance for under-achieving pupils.

The OECD studies also have prompted calls for a deliberate increase in the number of students in higher education. However, consideration needs to be given to the relativising effect of the generally broader system of vocational education on, by international standards, the well below-average number of first-year students among youngsters of the same age in Germany. We do not, at present, have any figures which have been adjusted to take this into account. Furthermore, there has already been a marked increase in the number of first-year students in the past few years. This may have been partly the result of the introduction of new short-term courses of study leading to a so-called "Bachelor" degree.

*Number of students in tertiary education*

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<sup>15</sup> Working Group on International Comparative Studies (2003), *Vertiefender Vergleich der Schulsysteme ausgewählter PISA-Teilnehmerstaaten*, German Institute for International Education Research, Berlin, p 206.

<sup>16</sup> See Federal Statistical Office (2003), *Population projection in Germany until the year 2050*, tenth coordinated population projection, Wiesbaden, p 47.

<sup>17</sup> For the results of a comparison of successful countries, see Working Group on International Comparative Studies (2003), *Vertiefender Vergleich der Schulsysteme ausgewählter PISA-Teilnehmerstaaten*, Berlin, pp 207 ff.



*University  
fees and  
accompanying  
scholarship  
programmes*

Given the strained government budgetary position, the quality of education may well also be maintained or improved by making students bear a greater portion of the cost of their education, which is at present almost free. Since a university education usually reaps considerable rewards,<sup>18</sup> increased cost-sharing would seem particularly acceptable

provided that accompanying scholarship programmes ensure that university studies are not jeopardised for lack of funds. Coupling greater autonomy with residual fees would enhance competition among universities.

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<sup>18</sup> See OECD (2003), *Education at a Glance*, Paris, pp 187 ff.