

CHAPTER 4

TEACHERS' PAY AND CONDITIONS*

SUMMARY

To be effective, education systems above all need high quality, well motivated teachers. As the generation of teachers recruited in the baby-boom years approaches retirement, it will be crucial to make the profession attractive to new entrants. But since teacher pay represents the greater part of what OECD countries spend on education, it needs to be kept within affordable boundaries. As well as teacher salaries, the size of classes and the number of hours worked by teachers affect both costs and the attractiveness of teaching.

- A disproportionate number of teachers – 40 per cent on average – are now aged between 40 and 50.
- The salary of an experienced primary school teacher varies from one to two times average GDP per capita in OECD countries. These variations are only partly explained by the higher relative position of teachers in less affluent countries. In some richer countries like Switzerland, Luxembourg and Germany they also do well relative to average national income.
- The hours and conditions of teachers differ greatly from one country to another, and may partly compensate for variations in salary. For example, Swedish and Norwegian primary school teachers are relatively poorly paid, but have less than two-thirds as many contracted teaching hours as Swiss teachers, and are on average responsible for only half as many children as Irish teachers, who have high relative pay.
- Teacher pay grew faster than prices in most OECD countries from 1985 to 1993. But only in a few countries did it grow faster than wages. In general, it grew more slowly in countries where pupil-teacher ratios were falling.
- Rising costs per student in most OECD countries arose in some cases from rising teacher salaries and in others from shrinking pupil-teacher ratios.

Some countries that have facilitated a reduction in class size, by allowing the ratio of pupils to teaching staff to fall, have also limited the increase in salaries. For teachers in these countries, the modesty of pay rises may be partly compensated by better classroom conditions. Some other countries have kept class size higher, but also raised relative teacher pay. These trade-offs may not always be part of an intentional strategy, but in practice, the more a country pays teachers the harder it will be to afford low pupil-teacher ratios, and vice versa. Quantitative indicators cannot however on their own show the impact of teacher pay or classroom conditions on the quality of teaching.

EDUCATION'S HIGH-STAKES BALANCING ACT

Teachers' pay has taken on major policy importance in OECD countries in the past decade. The trends set out in Chapter 1 reflect increased pressure on OECD countries to expand education at the upper secondary and tertiary levels and to improve educational quality at lower levels. But these pressures are subject to new fiscal constraints as OECD countries adjust to more competitive global economic conditions and, in Europe, to meeting the Maastricht conditions for monetary union.

Under these conditions, teachers' pay has been an important issue because:

- teachers are generally viewed as the key to improved education; although pay levels do not directly determine teacher performance, the rewards and conditions of teaching can influence recruitment, retention and teacher morale;
- their salaries represent the greater part of education spending – some 60 per cent in the case of primary and secondary education;
- teachers are generally organised into powerful collective bargaining units, often able to influence the direction of educational reform and educational costs.

So how much teachers are paid can influence quality and has an important bearing on costs. It can affect whether nations recruit the most able graduates into the teaching profession, as well as their capacity to adjust overall public spending to the realities of fiscal constraints.

The labour market for teachers is strongly affected on both the supply side and the demand side by fluctuations in the number of young people. Demand for teachers fell during the 1980s and early 1990s as the number of young people went down. But today, youth cohorts are starting to rise again. And over the next two decades, the large number of teachers recruited during the 1970s in Europe and during the 1960s in North America, when the "baby boom" generation was at school, will be reaching retirement age. There is a particular bulge in the teacher cohort presently aged 40 to 49, who on average account for 40 per

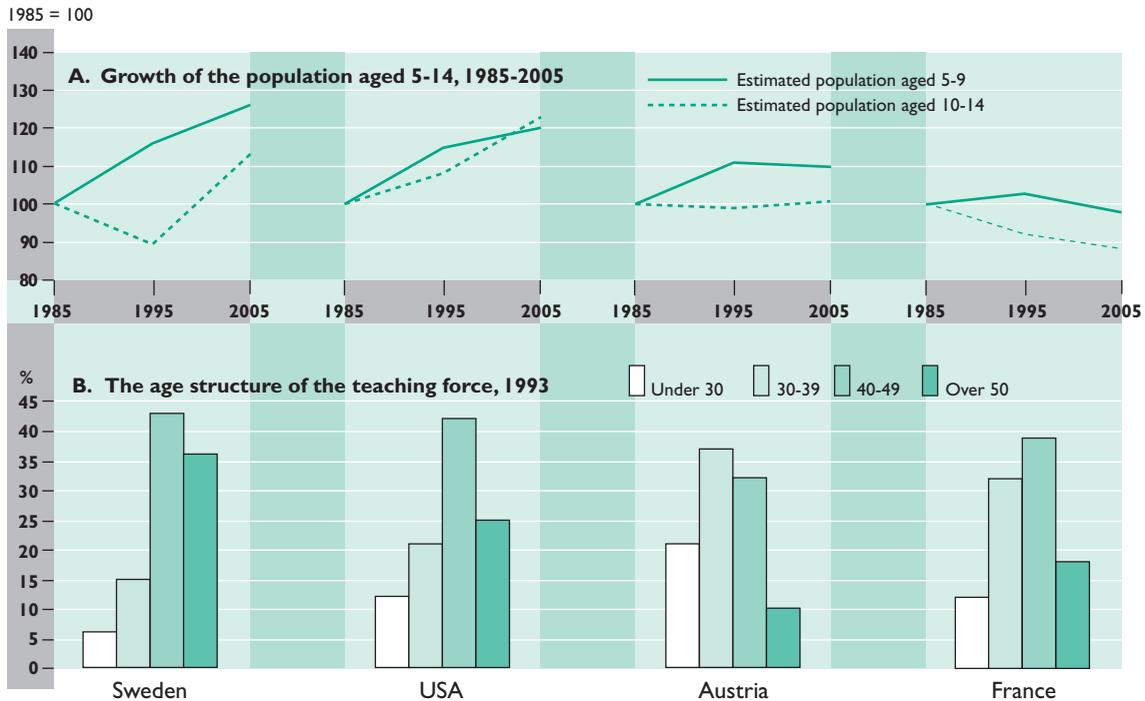
cent of teachers. The number aged under 30 fell in the European Community from 18 per cent in 1985 to 11 per cent in 1993.

Figure 4.1 shows how the present structure of teacher supply compares to the recent and future trend in pupil numbers in four OECD countries. These countries have been chosen merely to illustrate alternative patterns of demand and supply; this graph does not constitute an OECD indicator. It should be borne in mind that the base year, 1985, was a low year for pupil numbers in most countries. In the extreme case, Sweden, one-quarter more students will have to be taught by a profession one-third of whose members are now over 50. Danish and German teachers share the highly-skewed age profile of their Swedish colleagues: in all three countries, more than 70 per cent are over 40 and 6 per cent or fewer are under 30. In the United States, student numbers are also rising steeply, and an earlier baby boom has created a heavy concentration of older teachers. Austria's more even teacher age structure and the fact that youth population is more stable in Austria and France make teacher supply shortages less likely in these countries. The demographic trends shown in Figure 4.1 do not give a full picture of supply and demand, but they give cause to believe that some countries could have difficulties recruiting sufficient numbers of suitably qualified teachers.

So new teacher recruitment will be an important issue for OECD countries over the coming decade. The ability of countries to recruit good teachers does not depend only on their pay and conditions. The status of teaching within the country is important, as are other labour market conditions. Even where teacher pay is relatively low, if high unemployment limits other job prospects the security of teaching may make it attractive to new graduates. But teacher pay is an important factor in the equation, and there are now reliable comparative data on this aspect of the labour market for teachers.

The OECD indicators provide a starting point in understanding what has been happening to the relative pay of teachers, how far this affects the quality of teaching and the impact on educational spending. Data on the respective salaries of starting and experienced teachers, relative to average pay

Figure 4.1
Teacher supply and demand (selected countries)



Pupil numbers are growing again, while the teachers recruited to educate the last baby-boomers are approaching retirement.

Source: OECD education database.
Data for the figure page 74.

and incomes in each country, give an indication of the financial attractiveness of entering the teaching profession and of remaining within it. This needs to be set alongside the attractiveness of classroom conditions, for which the ratio of pupils to teachers serves as one useful indicator.

Teacher pay combined with the pupil-teacher ratio influence not only the attractiveness of teaching but also average spending per pupil. It is possible to see from the indicators to what extent differences in per-pupil costs in various countries arise from variations in how much teachers are paid, and to what extent they arise from differences in the number of children each of them teaches.

The hardest connections to establish reliably are between the pay and conditions of teachers, educational quality and the level of student

achievement. Recent OECD research confirms the common-sense view that teachers who feel valued perform better in the classroom. But evidence of a relationship between the pay or quality of teachers and outcomes for students has so far proved elusive. As data on student achievement is strengthened (see Chapter 2), a future objective will be to identify closer links between how resources are spent on teachers and the final outcome for students.

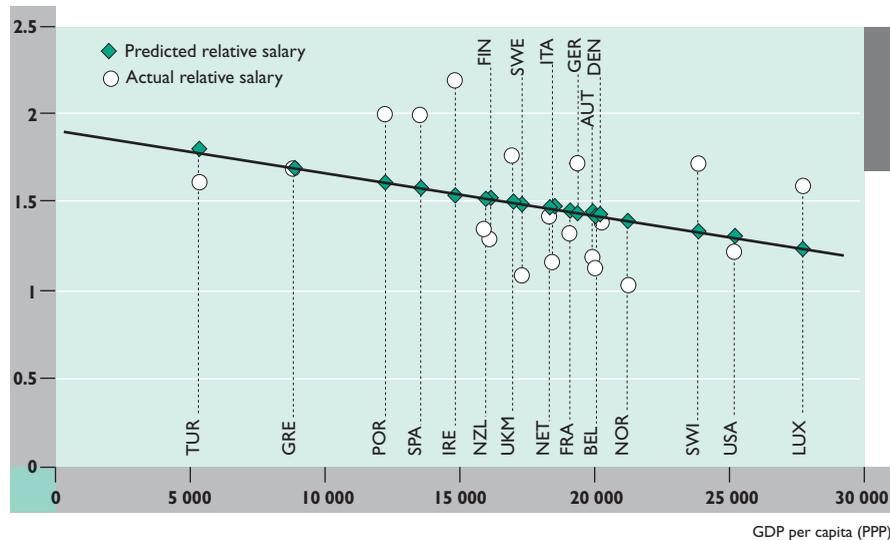
HOW MUCH ARE TEACHERS PAID?

The most straightforward way of comparing the pay of teachers across countries is to look at their salaries in relation to average income per person (GDP per capita). This is a measure of how well off a teacher is in comparison to the average

Figure 4.2

Experienced primary teachers' salary relative to GDP per capita as a function of GDP per capita, 1993-1994

Experienced primary teachers' salary/GDP per capita



In richer countries, teachers tend to earn less relative to average incomes than teachers in poorer countries.

Source: OECD education database.

inhabitant of each country – although it does not take account of non-salary teacher remuneration, such as benefits in kind.

But in countries that are poorer and have lower numbers of well-qualified workers, one would expect the pay of teachers to be higher relative to the average inhabitant than in richer countries. This is because teachers in poorer countries typically are educated to a level shared by a smaller proportion of the population. There is indeed an inverse correlation between GDP per capita and salary of teachers relative to GDP per capita: the richer the country, the lower the relative level of teacher pay. Figure 4.2 shows this relationship: there is a significant correlation, although some countries pay significantly more or less than would be “predicted” by the trend line on the basis of each respective country’s GDP per capita. One relevant indicator is how far relative teacher pay in each country varies from this predicted value.

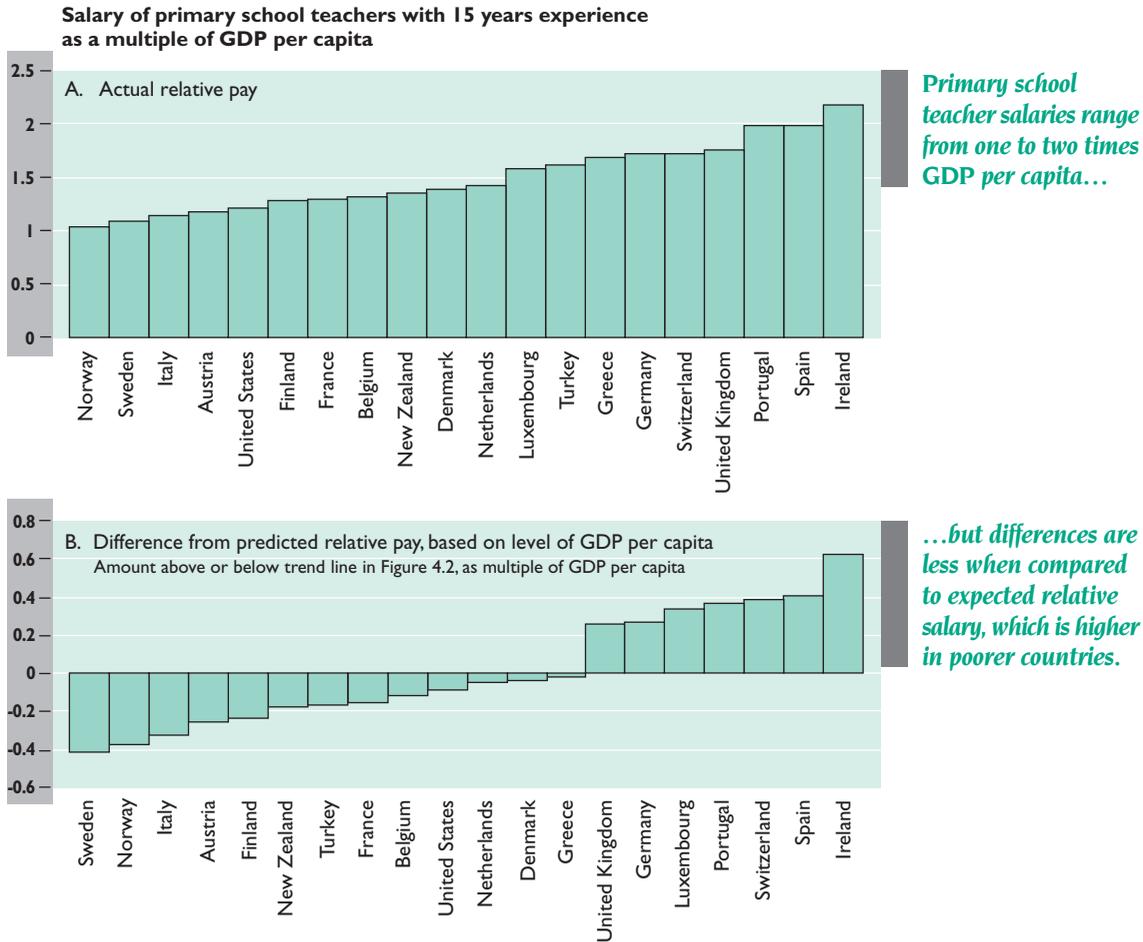
Figure 4.3 shows the salaries of teachers relative to GDP per capita in each country. It also shows, in part (B) that these relative salaries vary from

what would be predicted from the country’s level of national income per person. This second set of figures represents deviations from the trend line shown in Figure 4.2 of relative salary against GDP per capita.

Figure 4.3 shows that experienced primary-school teachers’ salaries in OECD countries range from just below per-capita GDP to just over twice as high as per-capita GDP. Irish, Portuguese and Spanish teachers stand out from other countries: they earn 2.0 to 2.1 times GDP per capita compared to less than 1.8 in the next-highest country, the United Kingdom. Italian, Norwegian and Swedish teachers have the lowest relative pay, with ratios of 1.0 to 1.1.

However, these differences are slightly narrowed when adjusting for the expected difference between richer and poorer countries, since the three countries with the highest ratios all have below-average GDP per capita and those with the lowest ratios are all relatively affluent. On the bottom half of the graph, Ireland and Spain still stand out as the countries most generous to their teachers. But Swiss teachers, whose high relative

Figure 4.3 Annual salaries, 1994



Source: OECD education database; Eurydice for Luxembourg and United Kingdom.
Data for the figure page 74. See also indicator P35 in EAG-Indicators.

pay would not be expected in so affluent a country, rise to third place, and Luxembourg teachers move from near the middle to near the top of the distribution. Turkish teachers move from the top half to the bottom half of the rankings, and United States teachers move in the opposite direction. Nevertheless, this adjustment does not make a big difference to most countries' rankings.

These figures show the relative pay in primary education. The picture is similar for experienced teachers at the lower secondary level, with the main difference that their pay is in general higher in almost all countries (Turkey and Norway are excep-

tions). Teachers in Ireland, Portugal and Spain again do well, but in this case Portuguese teachers enjoy by far the highest salaries relative to GDP per capita, and Swiss ones are ahead of teachers in Spain – even without adjusting for Switzerland's high per capita national income. Norwegian lower secondary school teachers do worst, earning no more than their primary school colleagues. Lower secondary teachers from the United States and Sweden also fare badly.

The data in Figure 4.3 are for experienced teachers. In most countries the position of starting teachers, relative to the international average, is very similar

to that of their senior colleagues. One exception is the United Kingdom whose starting teachers fare relatively worse, at both primary and secondary levels, than those who have been in the profession for 15 years. Primary school teachers in the United Kingdom start off earning 4 per cent above GDP per capita, around the level predicted by the international trend; but by the time they have been working 15 years, they are earning 76 per cent more than per capita GDP, compared to 48 per cent predicted by the trend in other countries. One reason that United Kingdom teachers do comparatively well after 15 years is that, unlike many of their colleagues in other countries, they have by then reached the peak of their earnings.

PAY, CONDITIONS AND THE ATTRACTIVENESS OF TEACHING

The attractiveness of teaching is influenced not just by the level of teacher salaries but by other aspects of their working conditions. Two aspects that are likely to be important to many teachers are the number of hours that they must work and the number of children that they must teach.

One potentially attractive feature of teaching compared to many professions is that it is not a "nine to five" job with a relatively small amount of annual leave each year. School hours are much shorter than normal working hours, and school holidays longer than those taken by most workers. Although teachers may spend many hours working outside school time, the amount of free time is an important feature of the job for many teachers, especially those with children. The level of attractiveness of teaching in these terms varies considerably in different countries, some of which impose much lighter teaching loads than others.

It is difficult to make valid comparisons across countries of the number of hours worked by teachers, who often carry out duties outside their contracted hours. Nevertheless, the contracted number of hours in the classroom gives one indicator of the burden imposed. Certainly, to teachers themselves, the number of teaching hours is an important consideration,

Table 4.1
Number of teaching hours per year (primary education)

Some countries set longer teaching hours than others.

Most hours (over 10% above average: ≥ 912)

Switzerland	1085
Netherlands	1000
United States	958
United Kingdom	950
France	923
Ireland	915

Near-average hours (746-912)

Spain	900
Finland	874
Belgium	832
Turkey	830
Portugal	828
New Zealand	788
Germany	760
Denmark	750
Italy	748

Fewest hours (at least 10% below average: ≤ 746)

Luxembourg	730
Austria	709
Greece	696
Norway	686
Sweden	624

even though the level of work put in outside these hours may be variable.

Table 4.1 shows the number of annual teaching hours of primary school teachers in each of 20 countries. This averages 829 hours, but is over 40 per cent lower for Swedish teachers at one extreme than for Swiss ones at the other. At lower and upper secondary levels there are fewer teaching hours on average (777 and 688 per year respectively), but the distributions are similar.

Do annual salaries in any way reflect the number of teaching hours? Referring back to Figure 4.2, there does seem to be a tendency (if not

a universal rule) to reward longer-working teachers more than shorter-working ones. In three of the six countries where primary teachers' hours are over 10 per cent longer than average (Table 4.1), experienced teachers have relative salaries well above the expected level. In two, the United States and the Netherlands, they are just slightly below it. Conversely, four of the five countries with the shortest hours pay teachers much lower salaries than would otherwise be expected; Luxembourg, however, pays significantly more. This is not to suggest that governments make decisions about teachers' hours in conjunction with decisions about their pay. But countries like Norway and Sweden may well be able to sustain relatively low pay rates without suffering teacher shortages, because of other attractions in the job.

The same could be true for classroom conditions. An important indicator of teacher work conditions is the ratio of pupils to teaching staff, which affects class size, even though it does not determine it. (For example, a higher number of teachers may be used to provide more support work rather than smaller classes. But such support may itself make a teacher's job easier. And within a given teaching structure, more generous staffing will mean smaller classes.) Poorer staffing levels can make teaching more demanding, and sometimes more frustrating. Potentially, large classes could offset the advantages of high pay in a teacher's preferences, and small classes could help compensate for lower pay.

Table 4.2 shows the ratio of primary school pupils to teachers in OECD countries. This ratio tends to be lower in richer countries than in poorer ones. The range is even greater in lower secondary schools: from six pupils per teacher in Belgium to over 44 in Turkey.

Differences in pupil-teacher ratios help to explain some of the pay differences among OECD countries. For example, the relatively low salaries of Swedish and Norwegian teachers is in part compensated by good working conditions. In the United Kingdom and Ireland, on the other hand, both pay and pupil-teacher ratios are relatively high. But in New Zealand, teachers receive relatively low pay even though they are each responsible for more children on average than other countries.

Table 4.2

Number of pupils per teacher (primary education)

Teachers are responsible for twice as many children in some countries than in others.

Over 20	
Turkey	27.6
Ireland	24.4
Netherlands	22.4
United Kingdom	21.7
New Zealand	20.5
Germany	20.4
15 to 20	
France	19.3
United States	19.0
Greece	19.0
Finland	18.0
Spain	17.6
Switzerland	15.3
Norway	15.0
Under 15	
Belgium	13.2
Luxembourg	13.0
Sweden	12.4
Portugal	12.1
Austria	11.8
Denmark	11.2
Italy	9.9

HOW MUCH HAS TEACHER PAY INCREASED SINCE 1985?

Primary school teachers' salaries, adjusted for inflation, rose between the 1985/86 and the 1993/94 school years in all but one of the sixteen OECD countries for which data are available.

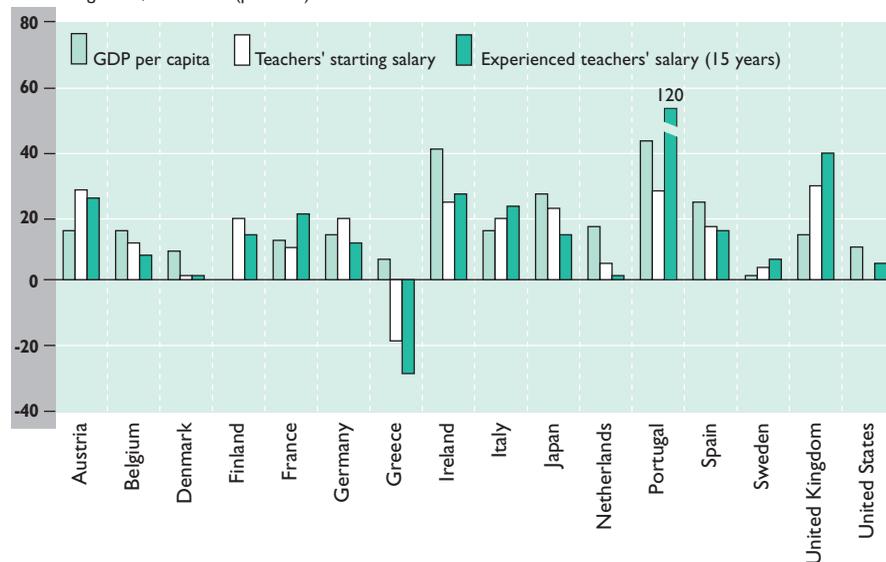
How big were these gains? Figure 4.4 (overleaf) sets teacher salary increases against the general rise in income, as measured by GDP per capita. By this measure, starting teachers made relative gains in six out of the 13 countries that report this data, and experienced teachers in five out of

Figure 4.4

Growth in teachers' salary

Real growth in: GDP per capita; teachers' starting salary and experienced teachers' salary (primary education), 1985-1993 (in %)

Real total growth, 1985-1993 (per cent)



Teachers saw their salaries grow in almost all countries, but in only a minority did they outstrip average income.

Source: OECD education database; Eurydice; French Ministry of Education for France; ILO for Japan and Portugal; NCES, *Digest of Educational Statistics*, 1996 for United States.

Data for the figure page 74.

16 countries. Austria, Finland, Portugal and the United Kingdom stand out as countries where teachers made the greatest salary gains relative to national income. In Greece, Ireland, Japan and the Netherlands they did the worst, with salaries growing at least 10 per cent more slowly than per-capita GDP. There was an important difference, however, between on the one hand Greece, where teacher salaries stagnated or fell in terms of their buying power, and on the other Ireland and Japan, where teachers became better off, but their pay did not keep pace with rapid general growth in those countries.

What explains this variation in the gains primary teachers made? There are several possibilities:

Faster economic growth might potentially cause a boost in relative teacher salaries, because of its impact on public revenues available. When governments are flush with revenue, teachers can make larger gains, even relative to GDP growth or relative private sector wages, than when

governments are strapped. A first analysis of the figures indeed shows that teacher gains correlate more closely with economic growth rates than with any other factor. But that result is heavily influenced by the exceptional situation of Portugal, which simultaneously experienced high rates of growth and very large increases in average teachers' salaries over the period in question.

When Portugal is excluded from the analysis, the growth of relative teacher salary is in fact unrelated to GDP per capita growth. The period 1985-93 was atypical for public spending policies: some countries began slowing down public spending growth relative to GDP growth during these years because increased global competition made it more difficult for countries to maintain taxes on corporations and hope to keep production at home. Increasingly, high social spending has been seen as a drag on private sector employment expansion. This translated into a weak relation between relative teacher salary increases and GDP per capita growth; as noted above, in some high-growth

countries teachers lost ground. In the future, teachers cannot count on making gains relative to per capita incomes (or to manufacturing wages) during a period of economic growth, as many did in the 1960s and 1970s.

The degree of austerity in public spending. If it is not GDP per capita growth differences that explain this variation in average primary school teachers' gains in salary relative to average income gains, what does? One explanation may lie in the degree of austerity in public spending that countries implemented during the past eight years. But when Portugal, with its large increase in relative teacher salaries, rapid growth of GDP per capita, and absence of austerity policy, is excluded from an analysis of teacher salary increases, neither the growth of GDP per capita nor whether a country's public spending grew less or more than GDP had a significant effect on salaries.

The lowering of pupil-teacher ratios. Did primary school teachers get smaller increases in pay in some OECD countries because pupil-teacher ratios were lowered? This looks like a possibility. In the four countries in which relative teacher pay rose sharply (Austria, Finland, Portugal and the United Kingdom), all but Portugal maintained high pupil-teacher ratios, and hence could raise teacher pay as a compensation for saving on the employment of more teachers. In general, teachers got smaller salary increases in those countries where pupil-teacher ratios fell more. That this was the case suggests that teachers bear at least part of the cost of the trend toward lower pupil-teacher ratios. It also suggests that parents may desire fewer pupils per teacher in schools and want to see educational systems change in that direction even if it means that teachers get lower salary increases. Further, since at least part of the reason for lower pupil-teacher ratios in OECD primary schools in recent years has been the inability of governments to fire teachers even when the growth of the school-age population slows down drastically, this means that governments are pushed to cut costs by reducing salary increases. But because countries did not fully offset the decline in pupil-teacher ratio with reductions in teachers' salaries, costs per pupil continued to rise in these years. This will be discussed in the next section.

USING THE DATA AVAILABLE

Since data are not available from the OECD for 1985, the analysis in this section used Eurydice data to compare teachers' salaries in 1985 and 1993. These figures were collected for the European Commission's 1996 report (*Les chiffres clés de l'éducation dans l'Union européenne*), and combined with salary data from the National Center for Educational Statistics for the United States, from the French Ministry of Education for France, and data reported to the International Labour Office by Portugal and Japan in a 1994 survey. The 1993 Eurydice figures were cross-checked for consistency with 1993 OECD indicators salary data. Because the Italian salary figure for Eurydice differed significantly from the OECD figure, the latter was used. All other figures were reasonably consistent. Gathering better data on teacher pay and working conditions over time in OECD countries should be a high priority for future indicator work.

Although pupil-teacher ratios over time have declined in most OECD countries, this is not a universal trend, suggesting that the combination of demographic and political forces that tend to push down the pupil-teacher ratio do vary from country to country. For example, in some countries, such as Belgium, Italy, Portugal, and Spain, the reductions in pupil-teacher ratios from the mid-1980s to the mid-1990s were large; in most countries, the declines were more modest; and in a few, such as Austria, the Netherlands, Sweden and the United Kingdom, there were moderate increases in pupil-teacher ratios.

WHAT IMPLICATIONS DO TEACHER PAY POLICIES HAVE FOR SPENDING ON EDUCATION?

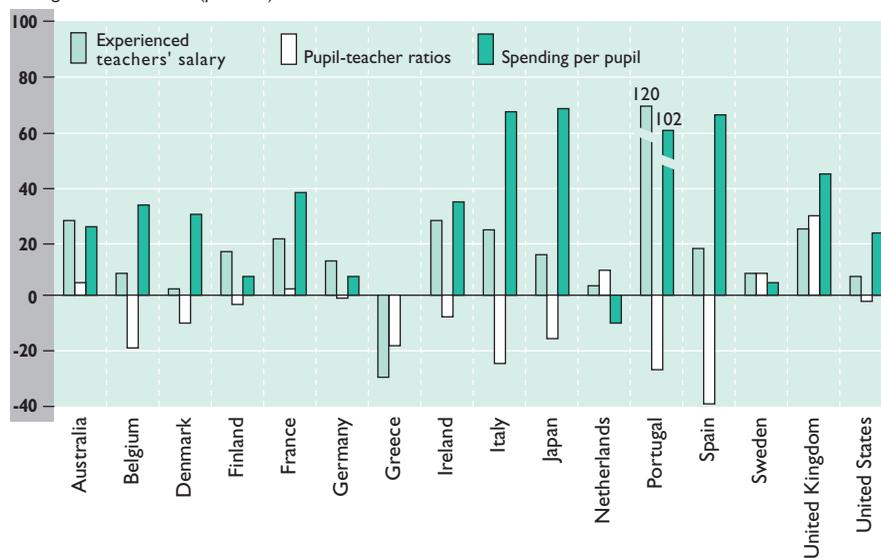
The teacher pay bill accounts for most spending on primary and secondary education – so educational spending per pupil is heavily influenced by both teacher salary levels and the ratio of pupils to teachers (see Chapter 1 above). The level of this spending is heavily influenced

Figure 4.5

Two components of increased spending per pupil

Real growth in: experienced teachers' salary, pupil-teacher ratios and spending per pupil (primary education), 1985-1993 (in %)

Total growth, 1985-1993 (per cent)



Rising salaries and lower pupil-teacher ratios have each contributed to higher teacher costs.

Source: As for Figure 4.4.

Data for the figure page 74. See also indicators P35, R32 and F3 in EAG-Indicators.

by how much a nation can afford: on average, spending per pupil at primary level is US\$ 250 higher for every \$1 000 difference in a country's GDP per capita.

But there are also policy choices. Estimates across OECD countries suggest that, regardless of GDP per capita, declines in pupil/teacher ratios as well as increases in the salaries of experienced teachers contribute significantly to increases in the cost of primary education. On average, if a country chooses to have one fewer pupil per teacher, the cost per pupil rises by the purchasing-power equivalent of US\$ 150. The same increase in cost per pupil would result from a \$1 700 raise in teacher salaries. These are the terms of the trade-off facing OECD governments.

But what in practice has been the greatest influence on spending per pupil over the past decade: changes in teacher salaries or in pupil-teacher ratios? This has been a particularly interesting question at a time when a fall in the

number of children can potentially push up per-pupil costs if the teaching force is not cut back proportionately, while pressure on public spending creates a strong incentive to keep unit costs down. The way in which governments have resolved these questions can help inform the decisions facing countries in an austere future.

Figure 4.5 shows that spending per pupil rose in real terms in all but one of 15 OECD countries between 1985 and 1993. It fell in the Netherlands; in three countries spending per pupil rose more slowly than GDP per capita. But in the remaining 11 countries, spending per pupil grew faster than GDP per capita. In the majority of these countries, this was partly because the number of pupils per teacher went down, and in five countries – Belgium, Denmark, Italy, Japan and Spain – the change in this ratio was greater than changes in teacher salaries.

Overall, excluding the exceptional case of Portugal, spending per pupil was about equally influenced by falling pupil-teacher ratios and

by rising salaries. This is true whether the figures are analysed in terms of real increases or adjusted for growth in GDP per capita. On average, in countries where salary increases were higher, this was at least partially offset by lower declines in the pupil-teacher ratio.

These results suggest a much more “balanced” strategy to educational spending in recent austere times than in the expansionist 1960s and 1970s. Austria, Finland, Germany, Ireland, the United Kingdom and the United States, have raised teacher salaries but contained the rise in spending per pupil by not letting pupil teacher ratios fall too far, and in some cases even raising them. Belgium and Denmark, on the other hand, have kept teacher salaries relatively unchanged, but lowered pupil-teacher ratios. Italy, Japan, Portugal and Spain were less restrained, allowing salaries to rise and ratios to fall, and hence causing very large increases in per-pupil spending. In contrast, Sweden held down teacher salary increases and allowed their pupil-teacher ratios to rise.

The cross-national results suggest that there is a distinct tendency in OECD countries to lower pupil-teacher ratios in primary, and also in secondary, schools. This tendency is not necessarily a result of a specific policy decision on educational grounds: it is influenced both by the aspiration of teachers and parents to have smaller classes and by the political difficulty of reducing teacher numbers in proportion to falling enrolments caused by demographic decline. But since there is also a pressure to keep down spending per pupil, falling teacher-pupil ratios may be traded against lower pay rises.

The changes in the past eight years, however, suggest a second scenario: some countries will choose to pay teachers more, in the belief that higher quality education requires recruiting and keeping high quality teachers, but will allow pupil-teacher ratios to rise. Countries that instead choose to, or are forced to, reduce pupil-teacher ratios, can often not afford to offer higher

pay as a means of attracting high-quality entrants to teaching. Generous staffing levels may in themselves help to attract and retain good teachers, by making the job more rewarding. But all countries also need to think imaginatively about how better staffing can be used to reform and perhaps restructure classroom teaching in ways that make it more effective. ■

* This chapter has been prepared by Martin Carnoy, Professor of Education and Economics, Stanford University and Karen DeAngelis, Ph.D. candidate in the economics of education in the same university.