

Chapter 2

WHY IS TEACHER POLICY IMPORTANT?

Summary

This chapter provides the rationale for analysing teacher policy, and the framework used to study its main components and the ways they are interconnected.

Teachers are important because of their impact on student learning. The research indicates that raising teacher quality is perhaps the policy direction most likely to lead to substantial gains in school performance. However, there are many important aspects of teacher quality that are not captured by indicators such as qualifications, experience and tests of academic ability. The teacher characteristics that are harder to measure, but which can be vital to student learning need to be more prominent in teacher preparation and employment.

Teachers' importance is reflected in the size of the teacher workforce. Teaching is the largest single employer of graduate labour and, on average, 64% of current expenditure on schools is allocated to teachers' compensation. Teacher policies affect many people, and can have substantial implications for school budgets.

Teacher policy concerns have intensified in recent years due to the profound economic and social changes underway and the imperatives for schools to provide the foundations for lifelong learning. All school systems have been engaged in major curriculum reforms, and have placed stronger emphases on gender equality within schools, the incorporation of information and communication technology, and greater integration of students with special needs. Such developments require re-examination of the role of teachers, their preparation, work and careers.

A key challenge is to understand the complex range of factors – societal, school system level, and school level – that are giving rise to teacher policy concerns. It is important to identify the ways that these factors interact, and those which are potentially open to policy influence. Understanding the operations of the teacher labour market is particularly important. Key aspects include the factors shaping teacher demand and supply, the responsiveness of teachers to incentives, the trade-offs governments face in defining the number of teachers needed, and the mechanisms that assign teachers to schools.

This chapter provides the rationale for analysing teacher policy, and outlines the framework used to study its main components and the ways they are interconnected. The term “policy” is used because in most countries the large majority of teachers are either employed within the public sector, or employed by schools which receive at least part of their funding from government. (Box 2.1 defines what is meant by a “teacher” in international studies.) On average across OECD countries, over 90% of all expenditure on primary and secondary schools is from public sources (OECD, 2004a). Public expenditure on schools amounts to 3.5% of GDP on average, or just under 10% of public expenditure overall. As is detailed below, teacher salaries are the largest component of spending on schools. In addition, governments generally shape the organisation of schools and the main features of teachers’ education and their working conditions.

2.1. Quality Teaching is Vital for Improving Student Learning

Student learning performance varies widely among students of a similar age. The 2000 Programme for International Student Assessment (PISA) study of reading literacy among 15-year-olds, for example, found that in OECD countries as a whole 10% of students were capable of performing highly sophisticated reading tasks, such as managing information that is difficult to find in unfamiliar texts, and accommodating concepts that may be contrary to expectations (OECD, 2001a). On the other hand, 18% of students performed at literacy level 1 or below; that is, they were capable at best of only being able to make a simple connection between information in the text and common, everyday knowledge. Their poor literacy skills mean that such students are likely to struggle in their schooling, and to face considerable difficulties in making the transition to employment or further study. In some countries the difference between 15-year-old students in the top and bottom bands of reading performance is equivalent to the effect of several years of additional schooling.

Student learning is influenced by many factors, including: students’ skills, expectations, motivation and behaviour; family resources, attitudes and support; peer group skills, attitudes and behaviour; school organisation, resources and climate; curriculum structure and content; and teacher skills, knowledge, attitudes and practices. Schools and classrooms are complex, dynamic environments, and identifying the effects of these varied factors, and how they influence and relate to each other – for different types of students and different types of learning – has been, and continues to be, a major focus of educational research.

Conducting research on the factors that influence student learning is challenging on conceptual, methodological and data grounds (Vignoles *et al.*, 2000). Researchers have been compelled to use data sets and methodologies that provide only limited measures of learning and partial indicators of the range of influences on student learning. The results, interpretations and policy implications of such research are frequently contested. Caution is needed when generalising research results from one time or place to another, and especially across national boundaries. Much of the research is from the United States, and schooling there differs in many significant respects from other countries, including in governance, financing and policies on curriculum and assessment.

Box 2.1. Definition of a “teacher”

Unless indicated otherwise, the term “teacher” as used in this report is based on the definition adopted by the OECD’s Indicators of Education Systems (INES) project in its data collections, which provide much of the data used in this report.

A teacher is defined as a person whose professional activity involves the transmission of knowledge, attitudes and skills that are stipulated to students enrolled in an educational programme. This definition does not depend on the qualification held by the teacher nor on the delivery mechanism. It is based on three concepts:

1. Activity, thus excluding teachers without active teaching duties – although teachers temporarily not at work (e.g. for reasons of illness or injury, maternity or parental leave, holiday or vacation) are included.
2. Profession, thus excluding people who work occasionally or in a voluntary capacity in educational institutions.
3. Educational programme, thus excluding people who provide services other than formal instruction to students (e.g. supervisors, activity organisers, etc.).

Teaching staff refers to professional personnel directly involved in teaching students, including classroom teachers; special education teachers; and teachers who work with students as a whole class in a classroom, in small groups in a resource room, or in one-to-one teaching inside or outside a regular classroom. Teaching staff also includes chairpersons of departments whose duties include some amount of teaching (*i.e.* at least 0.25 of full-time equivalent), but it does not include non-professional personnel who support teachers in providing instruction to students, such as teachers’ aides or other paraprofessional personnel.

Also, in general, school principals, vice principals and other administrators *without* teaching responsibilities in educational institutions, as well as teachers without active teaching responsibilities for students in educational institutions, are not classified as teachers.

The data reported on teachers’ salaries are for full-time classroom teachers only.

In *vocational and technical education*, teachers of the “school element” of apprenticeships in a dual system are included in the definition. Trainers in the “in-company element” of a dual system are excluded.

Full-time and part-time teachers

The classification of educational personnel as “full-time” and “part-time” is based on a concept of *working time*. The stipulation of full-time employment is usually based on “statutory hours” or “normal or statutory working hours” (as opposed to actual or total working time or actual teaching time). Part-time employment refers to individuals who have been employed to perform less than the amount of statutory working hours required for a full-time employee.

A teacher who is employed for at least 90% of the normal or statutory number of hours of work for a full-time teacher over the period of a complete school year is classified as a *full-time teacher*. A teacher who is employed for less than 90% of the normal or statutory number of hours of work for a full-time teacher over the period of a complete school year is classified as a *part-time teacher*.

More detailed information on these general definitions and conventions is provided in *Education at a Glance, OECD Indicators 2004*. (See also www.oecd.org/edu/eag2004)

Bearing these caveats in mind, three broad conclusions emerge from research on student learning. The first and most solidly based finding is that the largest source of variation in student learning is attributable to differences in what students bring to school – their abilities and attitudes, and family and community background. Such factors are difficult for policy makers to influence, at least in the short-run.

The second broad conclusion is that of those variables which are potentially open to policy influence, factors involving teachers and teaching are the most important influences on student learning. In particular, the broad consensus is that “teacher quality” is the single most important school variable influencing student achievement (see the reviews by Santiago, 2002; Schacter and Thum, 2004; and Eide *et al.*, 2004). The effects of differences in teacher quality are substantial. For example, the work by Rivkin *et al.* (2001) indicates that moving from being taught by an average teacher to one at the 85th percentile of teacher quality would lead to students improving by more than 4 percentile rankings in the given year, an effect which they estimate is roughly equivalent to the effect on learning of reducing class size by 10 students. Sanders and Rivers (1996) estimate that teacher effects are not only large – students of the most effective teachers (the highest quintile) have learning gains four times greater than students of the least effective teachers (lowest quintile) – but cumulative over time. Having a succession of effective teachers can substantially narrow the average achievement gap between students from low-income and high-income families, and low-performing students benefit more from more effective teachers. Rockoff (2004), who used a particularly rich data set to follow the same group of teachers over a 10-year period, estimated that differences among teachers explain up to 23% of the variation in student test score performance that is potentially open to policy influence.

The third broad conclusion from the research, which is somewhat more contentious, concerns the indicators or correlates of teacher quality. Most of the research has examined the relationship between measures of student performance, most commonly standardised test scores, and readily measurable teacher characteristics such as qualifications, teaching experience, and indicators of academic ability or subject-matter knowledge. Such research generally indicates that there is a positive relationship between these measured teacher characteristics and student performance, but perhaps to a lesser extent than may have been expected. For example, Hanushek’s reviews (2002, 2003) of studies of the United States find that overall there are no clear systematic effects of characteristics such as teacher education or teacher experience on student achievement, although there is some reasonably strong support for the effects of teachers’ academic ability (as measured by teacher test scores). Other researchers have challenged some of these conclusions. In their meta-analyses, Greenwald *et al.* (1996) and Hedges and Greenwald (1996) found that variables such as teacher education, teacher experience and teacher ability show strong relations with student achievement. The review by Gustafsson (2003) also suggests that there are important relations between different indicators of teacher competence and student achievement, including teacher education, experience, measured knowledge and skills, and in-service training.

A possible explanation for the lack of consistently clear and strong effects of commonly measured characteristics of teacher quality is that research studies are often faced with little variation in some of these characteristics (*e.g.* formal qualifications) for the teachers sampled from a given school system. In addition, for most of these characteristics, a “threshold effect” is likely to apply: teachers need a certain level of qualifications or experience to be effective, but further attainments beyond those levels

may be progressively less important for student performance. (Research on the effects of teacher education and professional development is discussed further in Chapter 4.)

A point of agreement among the various studies is that there are many important aspects of teacher quality that are not captured by the commonly used indicators such as qualifications, experience and tests of academic ability. The teacher characteristics that are harder to measure, but which can be vital to student learning, include the ability to convey ideas in clear and convincing ways; to create effective learning environments for different types of students; to foster productive teacher-student relationships; to be enthusiastic and creative; and to work effectively with colleagues and parents.

Overall, the research results indicate that raising teacher quality is vital for improving student achievement, and is perhaps the policy direction most likely to lead to substantial gains in school performance (Hanushek, 2004). However, the findings also indicate that policy initiatives need to take into account the substantial variation in effectiveness that exists among teachers with similar, readily measured, characteristics. In particular, in light of the lack of strong evidence linking teacher credentials such as qualifications and experience to student results, alternative indicators of teacher quality are crucial. Nonetheless, the more measurable characteristics provide fundamental information on the quality of teaching workforces. Where there are actual or looming shortages in the numbers of teachers with given characteristics, there must at least be a risk that teacher quality is reduced.

2.2. Teachers are Significant in the Labour Force and in School Budgets

The size of the teaching workforce is considerable. On average in OECD countries teachers constitute about 2.6% of the total labour force (see Table 2.1) and teaching is the largest single employer of graduate labour. In Australia in 2002/03, for example, there were almost 300 000 people employed as school teachers, which was around 60% more than the number working as nurses and twice the number of accountants (Centre of Policy Studies, 2004).

The large number of teachers is reflected in expenditure on schools. On average, around 64% of current expenditure on schools is allocated to teachers' compensation (see Table 2.1). This is equivalent to around 5% of total public expenditure, or around 2% of GDP, on average. Teacher policies affect many people, and can have substantial implications for school budgets, as well as graduate employment in general and employment in the public sector in particular.

2.3. Teacher Policy Concerns are Intensifying

Teacher policy concerns have intensified in recent years due to the profound economic and social changes underway and the imperatives for schools to provide the foundations for lifelong learning. As Coolahan (2002) has argued, when society is undergoing profound and accelerating change, particular pressures emerge to improve the alignment between the education system and these changing societal needs. The teaching profession is a key mediating agency for society as it endeavours to cope with change and upheaval. But the teaching profession needs to have the skills, knowledge and training to cope with the many changes and challenges that lie ahead. The teaching profession must adapt a great deal so that it can act in a constructive manner within a fast-changing society if it is to retain the confidence of society.

Table 2.1. **Classroom teachers as a percentage of the total labour force and compensation of teachers as a percentage of current expenditure on schools**

	Classroom teachers in primary and secondary education as a percentage of the total labour force, based on head counts (1999)	Compensation of teachers and all school staff as a percentage of current expenditure on educational institutions from public and private sources, for primary, secondary and post-secondary non-tertiary education (2001)	
		Compensation of teachers	Compensation of all staff
Australia ¹	2.3	58	75
Austria	2.6	71	79
Belgium	m	77	87
Belgium (Flemish Community) ^a	3.6	68	82
Canada ^b	1.7	62	78
Chile ^{c,d}	m	m	61
Czech Republic	2.1	49	65
Denmark	2.8	53	78
Finland ²	2.4	55	67
France	2.7	m	79
Germany	1.9	m	85
Greece ^c	m	m	91
Hungary ^c	3.6	m	75
Iceland	3.3	m	m
Ireland ^c	2.8	77	83
Israel	m	m	78
Italy ^{3,c}	2.9	64	81
Japan	1.5	m	88
Korea	1.4	62	70
Luxembourg	2.9	81	91
Mexico ^c	2.5	81	94
Netherlands	2.8	m	78
New Zealand	2.6	m	m
Norway	3.7	m	83
Poland ^c	m	m	76
Portugal	m	m	94
Slovak Republic	m	62	79
Spain	2.7	76	86
Sweden	2.8	49	65
Switzerland ^c	2.3	72	85
Turkey ^c	2.0	m	95
United Kingdom	2.4	53	74
United States ^{b,c}	2.2	56	81
Country mean	2.6	64	80

Country Notes: Notes indicated by numbers refer to the first column while notes indicated by lowercase letters refer to the second and third columns.

1. The number of teachers is expressed in full-time equivalents.
 2. The data include teachers only in educational institutions in the regular education system and exclude sports institutes, music and folk schools, and military vocational institutes.
 3. Slightly underestimated because teachers working in programmes such as regional vocational education are not included.
- a. Year of reference 2000.
 - b. Post-secondary non-tertiary education not included.
 - c. Public institutions only.
 - d. Year of reference 2002.

Symbol: m Data not available.

Sources: Data in first column: OECD (2001b, Table D2.4); Data in second and third columns: OECD (2004a, Table B6.3).

All school systems have been engaged in major programmes of curricular, pedagogic and assessment reform in recent years, and there are no signs that the pace of reform is easing (Coolahan, 2002). The curricular reforms involve the updating of content, but also require the provision of new courses. One of the pressing challenges for schools is the incorporation of information and communication technology (ICT) into the administrative and scholastic life of the school. The promotion of greater gender equality within schools in terms of curricular content and choice, pedagogic styles, and interpersonal relationships is also an unavoidable challenge to contemporary schools. Furthermore, most developed countries have adopted a policy of greater integration of students with special needs within mainstream schooling (OECD, 2003). All of these developments require re-examination of the role of teachers, and consequently of their preparation, work and careers.

Around half of the countries participating in the OECD project reported serious concerns about maintaining an adequate supply of good quality teachers. As well as data supplied through Country Background Reports, data from the OECD's Programme of International Student Assessment (PISA) 2000 survey indicated that in half of the OECD countries the majority of 15-year-old students attend schools where principals believe that student learning is hindered by a teacher shortage or inadequacy. A 2001 survey of upper secondary education in 15 OECD countries indicated that, on average, about 15% of full-time teachers and 30% of part-time teachers are not fully qualified (OECD, 2004b). Vacancies tend to be harder to fill in areas like ICT, mathematics, foreign languages and science, where there are often attractive employment opportunities outside of teaching. There is also an equity dimension to teacher shortages: in countries experiencing general teacher shortages, students in schools in remote or disadvantaged areas tend to find themselves in classes with the least experienced and qualified teachers.

As well as concerns about whether there are enough newly qualified teachers, some countries also express concern about the quality and motivation of a proportion of teacher trainees. Enrolment in teacher education programmes is often a second or third choice, and tends to attract those who have lower academic qualifications. Completion rates are low in some programmes, and the proportion of graduates entering teaching is often below expectations.

The ageing of the teaching workforce is compounding these recruitment concerns. On average, 26% of primary teachers and 31% of secondary teachers are aged over 50 years, and in some countries more than 40% of the teachers are in this age group (OECD, 2004a). Large numbers of retirements are likely in the next few years. Furthermore, the attractiveness of teaching as a profession – as indicated by relative salaries and social status – has declined substantially in some countries in recent years. In 14 of the 19 countries with relevant data, the salary of a lower secondary teacher with 15 years of experience grew more slowly than GDP *per capita* between 1994 and 2002.

The problems that some countries face with teacher supply are sometimes attributable more to the high turnover experienced in the early years of the teaching career than to a shortage of qualified new entrants. The research indicates that teachers who leave the field often found that the factors which attracted them to teaching – working with students and colleagues, professional autonomy, and opportunities for personal and intellectual growth – were increasingly difficult to achieve in the day-to-day realities of the job. Although attrition rates are highest in the first few years of teaching, and decline with age, in most countries there are still reasonably large numbers of experienced teachers who leave before retirement, and who cite reasons such as these.

Many countries are concerned that the proportion of males in teaching is declining, especially in light of concerns about boys' achievement in schools. On average, males constitute only 20% of primary teachers in OECD countries, and data on trainee teachers collected for this study suggest that this proportion is likely to decline even further in coming years. Some countries also report concerns about an imbalance between the cultural or language diversity of the student population and that of the teaching body at a time when the proportion of minority students is increasing.

Some of the participating countries report that they do not currently face shortfalls in teacher numbers, and that there are many more qualified applicants than teaching vacancies. Nevertheless, countries with an oversupply of teachers still face significant policy challenges. There can be high individual and social costs when substantial resources are invested in teacher education but many graduates are not able to find work as teachers, and especially so where their qualifications are not widely recognised elsewhere in the job market. Several countries report that because the current teacher workforce is “saturated” it is difficult to ensure that able and motivated people find jobs as teachers and are not lost to the profession. Even if they do not currently face quantitative shortfalls, such countries also share a common concern about qualitative shortfalls in the teacher workforce. Almost all countries report concerns about whether teachers have the necessary skills and knowledge to meet the demands of modern schooling and more diverse student populations.

2.4. Analysing Teacher Policy

A key challenge is to understand the complex range of factors – societal, school system level, and school level – that are giving rise to the teacher policy concerns summarised above. It is important to identify the ways that these factors interact, and those which are potentially open to policy influence. Figure 2.1 provides a conceptual framework summarising the range of factors involved and the way they interconnect. The framework was derived from a literature review prepared as background for the study (Santiago, 2002).

Starting with the view that the overarching policy objective is to ensure the effectiveness of the teaching workforce in all schools and classrooms, Figure 2.1 groups the factors that shape teacher policy into five main clusters. The *Preparation and development of teachers* group includes factors associated with initial teacher education, the certification of teachers, and the professional development of teachers during their careers. The *Career structure and incentives* cluster groups those factors that define the willingness of individuals to work as a teacher. The *Demand for teachers* cluster comprises the elements that define the number of teachers needed, while the *Structure of the labour market* group involves those aspects that determine the way in which teacher demand and teacher supply interact, including the recruitment and selection procedures. Finally, the *School processes* group encompasses those features of the work in schools that influence the effectiveness of teachers. In addition to the clusters specific to teacher policy, the framework also recognises the influence of the organisation of the school system, the interaction with labour markets outside of teaching, and the impact of societal developments.

Figure 2.1. Conceptual framework for the activity

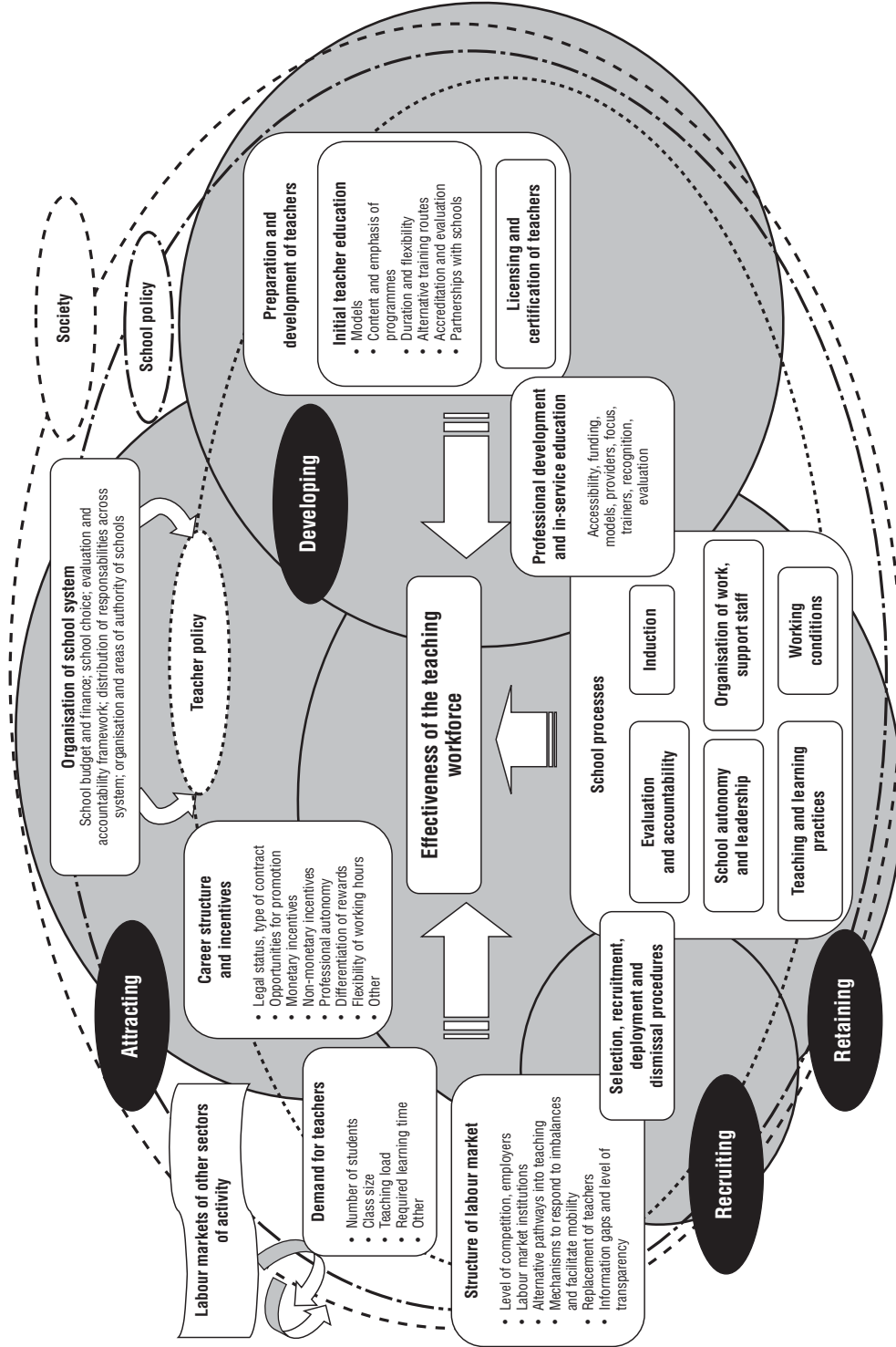
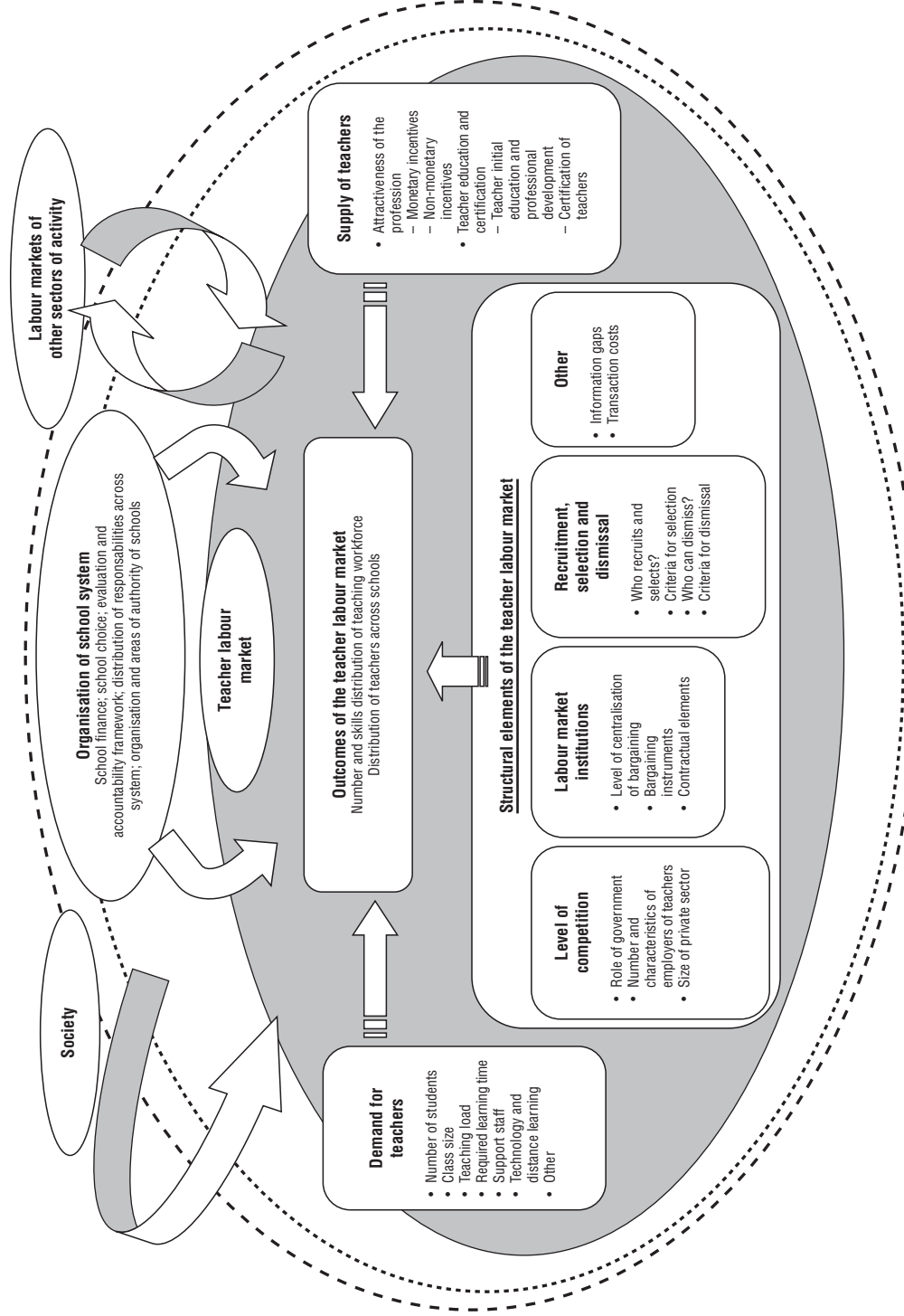


Figure 2.2. Framework for the teacher labour market (reproduced from Santiago, 2004)



The analysis of teacher policy in this project concentrated on four main issues: policies intended to make teaching a more attractive career choice (*Attracting* in Figure 2.1); to improve teacher education, professional development and certification (*Developing*); to improve teacher recruitment, selection and assignment to schools (*Recruiting*); and to retain effective teachers in schools (*Retaining*). The ordering of the key policy issues in this way broadly corresponds to stages in the career paths of teachers. Nevertheless, these policy issues should not be regarded as distinct from each other. For example, many of the factors that shape the attractiveness of teaching to potential new entrants (salaries, career opportunities and so on) are also likely to be significant in retaining effective teachers in schools. Listing them separately recognises, though, that some factors are likely to become progressively more important once people have been teaching in school for some time (*e.g.* school leadership, working conditions, and job satisfaction), and about which potential teachers would have little direct knowledge. Accordingly, the position of the four circles in Figure 2.1 reflects those factors that are likely to be more directly influential for each of the four key issues. Each of these is examined in different chapters in the report but with extensive cross-referencing throughout.

2.5. Analysing the Teacher Labour Market

Key features of teacher labour markets

A major part of the project was concerned with better understanding the operations of the teacher labour market in participating countries. Key aspects include the responsiveness of teachers to incentives, the trade-offs governments face in defining the number of teachers needed, and the mechanisms that assign teachers to schools. Each of these aspects is addressed in separate chapters below. In this section, an overall view of the teacher labour market is provided.

The functioning of the teacher labour market determines, for a given school system, the number and characteristics of teachers, their distribution across schools, and the prevailing employment conditions including the wage structure. Teacher labour market analysis typically studies the determinants of the number of teachers needed; the factors which influence individuals' willingness to prepare for a teaching job, enter the teaching profession and remain in or return to teaching throughout their working lives; and the role of labour market institutions such as collective bargaining, recruitment and selection processes and contractual elements in the matching between potential teachers and education authorities.

The teacher labour market has a number of important structural features that help shape the teaching workforce and the nature of teachers' work, including: (i) the dominant position in most countries of the government in the education sector as a provider and regulator; (ii) the segmented and stratified nature of the market; (iii) the characteristics of the established labour market institutions – *e.g.* collective bargaining, reward mechanisms, or public servant status of teachers; (iv) the procedures for recruitment, selection and dismissal; and (v) the incentives that participants in the teacher labour market face arising from the organisation of the school system.

The framework for the teacher labour market is shown in Figure 2.2. This framework identifies three interrelated main areas that define the outcomes of the teacher labour market. First, the demand for teachers, discussed in Chapter 3, deals with the aspects that determine the number and skills of teachers needed for education systems to respond to the education needs of the school-age population. Second, the supply of teachers deals with the factors that define the number of potential individuals willing to teach in the current school

system as well as the types and levels of their skills. The supply behaviour of individuals is analysed in the chapters concerned with making teaching a more attractive career choice (Chapter 3) and retaining effective teachers in schools (Chapter 6). Issues of skill development are addressed in Chapter 4. A third central aspect of the teacher labour market concerns the structural elements that shape the mechanisms through which teacher demand and supply interact. Their role is explored in Chapter 5 (recruiting, selecting and employing teachers).

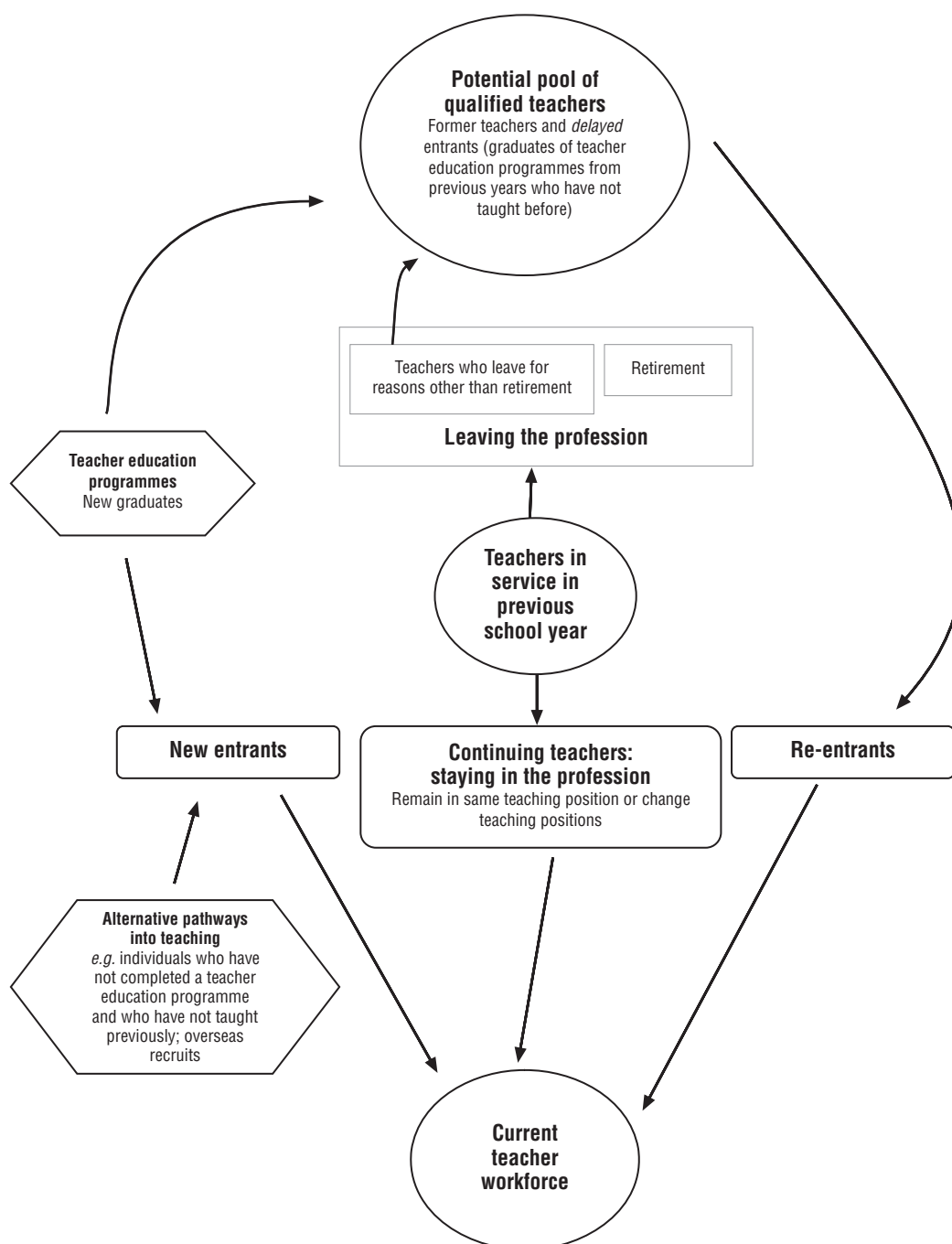
Sources of teacher supply

The supply of school teachers in a given year is defined, in the aggregate, as the number of eligible individuals available from all sources willing to supply their services under prevailing conditions. The most important element of teacher supply for a given year is the retention of teachers from the previous year. Continuing teachers typically have the option of remaining in the same position from one year to the next. Nonetheless, many teachers choose to apply for teaching positions in other schools within the same region, in other subject matter fields, or in a different region. Thus, the flows of practising teachers within the school system constitute a major source of teachers hired into, or reassigned to, vacant teaching positions.

A large number of new individuals are also hired by the school system each year. Such entering teachers are drawn from three sources. The largest one corresponds to former teachers and past graduates of teacher preparation programmes who did not enter teaching when they graduated, but could be potentially attracted to teaching with the right incentives. The second source consists of recent graduates of teacher education programmes. A third group consists of university graduates who have not completed a teacher preparation programme and who have not previously taught. They are sometimes referred to as entrants via alternative routes. Some countries also consider hiring overseas teachers. The typical flows in and out of the profession are shown in Figure 2.3. A major part of the project involved documenting trends in these flows, and the key causal factors involved.

The supply behaviour of teachers involves a series of decisions, namely: (i) whether to train to become a teacher; (ii) whether to become a teacher after training; (iii) whether to switch teaching location; (iv) how long to stay in teaching; and (v) whether to return to teaching after a career interruption. These decisions are affected by a common set of factors but to different extents. For instance, the decision of whether or not to enrol in teacher education is likely to be particularly sensitive to the existing supply of teacher education programmes or the provision of specific incentives such as scholarships. In turn, the decision of whether or not to become a teacher is likely to be particularly responsive to relative salaries of teachers and opportunities outside teaching. Similarly, factors such as relative working conditions (*e.g.* school leadership, and composition of the student body) are likely to be important in the decision on where to teach and whether to stay in the profession. These aspects are explored in Chapters 3 and 6 in particular.

Figure 2.3. Flows in and out of the teaching profession



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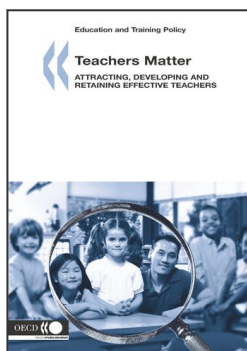
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Table of contents

Foreword.....	3
Executive Summary.....	7
Chapter 1 Introduction: the Focus on Teachers	17
1.1. The Growing Focus on Teacher Issues	18
1.2. Overview of the Broad Policy Directions	19
1.3. Methodology and Country Participation	20
1.4. Organisation of the Report	21
Chapter 2 Why is Teacher Policy Important?	23
2.1. Quality Teaching is Vital for Improving Student Learning	24
2.2. Teachers are Significant in the Labour Force and in School Budgets.....	27
2.3. Teacher Policy Concerns are Intensifying.....	27
2.4. Analysing Teacher Policy	30
2.5. Analysing the Teacher Labour Market.....	33
Chapter 3 Making Teaching an Attractive Career Choice	39
3.1. Concerns about Teaching’s Attractiveness	40
3.2. Estimating the Future Demand for Teachers.....	60
3.3. Factors in the Attractiveness of Teaching as a Career	67
3.4. Priorities for Future Policy Development.....	86
Chapter 4 Developing Teachers’ Knowledge and Skills.....	95
4.1. Teachers’ Roles are Changing.....	97
4.2. Implications of Research on Effective Teachers	99
4.3. Initial Teacher Education	102
4.4. Certification of New Teachers	114
4.5. Induction Programmes for New Teachers.....	117
4.6. Professional Development.....	121
4.7. Priorities for Future Policy Development.....	131
Chapter 5 Recruiting, Selecting and Employing Teachers	141
5.1. Teaching and Public Service Employment.....	142
5.2. Features of Teachers’ Employment Conditions	144
5.3. Teacher Recruitment and Selection.....	150
5.4. Probationary Periods for Beginning Teachers.....	155
5.5. Responses to Short-term Staffing Needs.....	157
5.6. Teacher Mobility	159
5.7. Priorities for Future Policy Development.....	161
Chapter 6 Retaining Effective Teachers in Schools.....	169
6.1. Concerns about Retaining Effective Teachers in Schools.....	170
6.2. Factors in Retaining Effective Teachers in Schools.....	177
6.3. Priorities for Future Policy Development.....	204

Chapter 7	Developing and Implementing Teacher Policy	213
7.1.	Engaging Teachers in Policy Development and Implementation	214
7.2.	Improving the Knowledge Base to Support Teacher Policy	218
Appendix 1	How the Activity was Conducted	223
	Background to the OECD Activity	223
	Purposes of the OECD Activity	223
	Methodology and Country Participation	224
Appendix 2	A Framework for Informing Teacher Policy	233



From:
Teachers Matter
Attracting, Developing and Retaining Effective Teachers

Access the complete publication at:
<https://doi.org/10.1787/9789264018044-en>

Please cite this chapter as:

OECD (2005), "Why Is Teacher Policy Important?", in *Teachers Matter: Attracting, Developing and Retaining Effective Teachers*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264018044-3-en>

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