OECD Economics Department Working Papers No. 666

Raising Education Outcomes in Spain

Andrés Fuentes

https://dx.doi.org/10.1787/226865111178

Unclassified **ECO/WKP(2009)7**

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development **17-Feb-2009**

English - Or. English

ECONOMICS DEPARTMENT

ECO/WKP(2009)7
Unclassified

RAISING EDUCATION OUTCOMES IN SPAIN

ECONOMICS DEPARTMENT WORKING PAPER No. 666

By Andrés Fuentes

All OECD Economics Department Working Papers are available on the OECD internet website at www.oecd.org/eco/working_papers

JT03259817

Document complet disponible sur OLIS dans son format d'origine
Complete document available on OLIS in its original format

English - Or. English

ABSTRACT/RESUME

Raising education outcomes in Spain

Impressive progress has been made in raising participation in early childhood education as well as tertiary educational attainment over the past 30 years. However, the inflow of poorly educated youth into the labour market is unusually heavy for a high-income country, largely on account of high drop-out rates in lower secondary education which, in turn, reflect one of the highest grade repetition rates in the OECD. The supply of workers with intermediate vocational skills is surprisingly low, despite the high return, in terms of labour market outcomes that these skills offer, even if they have recently deteriorated. There is room to raise learning outcomes up to the end of compulsory school, as measured by the *Programme for International Student Assessment* (PISA), although, owing to a compressed distribution of such outcomes, the share of poorly performing pupils is not unusually large. While significant reforms have been undertaken to address these problems, more measures are needed to reduce grade repetition and raise education outcomes, by improving accountability of schools and school staff, as well as by raising school autonomy further than has already occurred. Vocational training needs to become more attractive. In tertiary education, few Spanish universities have attained a high level of international standing, and scope remains to improve the contribution tertiary attainment can make to gains in economic welfare, notably by reforming funding arrangements.

JEL codes: I2.
Key words: Spain; education; pre-school education; primary education; secondary education; tertiary education; university education; vocational training; rates of return to education

*****

Améliorer les résultats de l'enseignement en Espagne

En l'espace de trente ans, les effectifs des services d'éducation préscolaire et de l'enseignement supérieur ont progressé de manière spectaculaire. Pourtant, la proportion de jeunes peu qualifiés qui entrent sur le marché du travail est particulièrement élevée pour un pays à haut revenu, ce qui s'explique notamment par de forts taux d'abandon dans le premier cycle du secondaire, avec, en corollaire, l'un des taux de redoublement les plus élevés de la zone OCDE. L'offre de travailleurs possédant une formation professionnelle de niveau intermédiaire est singulièrement faible, malgré les grands avantages que ces qualifications procurent en termes de débouchés sur le marché du travail, encore que la situation dans ce domaine se soit récemment dégradée. Des possibilités s'offrent jusqu'à la fin de la scolarité obligatoire pour améliorer les résultats de l'enseignement, comme en témoigne l'étude du *Programme international pour le suivi des acquis des élèves* (PISA), même si la faible variance de ces résultats fait que la proportion des élèves faibles n'est pas particulièrement élevée. Des réformes importantes ont été entreprises pour résoudre ces problèmes, mais d'autres mesures sont nécessaires pour diminuer les redoublements et améliorer les résultats de l'enseignement. Il faut pour cela renforcer la responsabilité des établissements scolaires et de leur personnel, et développer leur autonomie. Par ailleurs, la formation professionnelle doit être rendue plus intéressante. S'agissant de l'enseignement supérieur, peu d'universités espagnoles ont acquis une réputation internationale, et il est possible de renforcer les avantages économiques résultant des formations supérieures, notamment en réformant les mécanismes de financement.

Classification JEL : I2.
Mots-clés : Espagne; éducation; éducation préscolaire; éducation primaire; éducation secondaire; education tertiare; éducation universitaire; formation professionnelle; taux de rendement de l'éducation.

Copyright OECD 2009
Application for permission to reproduce or translate all, or part of, this material should be made to: Head of Publications Service, OECD, 2 rue André Pascal, 75775 Paris CEDEX 16.

TABLE OF CONTENTS

Raising education outcomes in Spain 5

Education outcomes 7
Initial teacher training 11
Comprehensive compulsory education in private and public schools helps limit the impact of socio-economic background on learning outcomes 15
Combating school failure in compulsory education 17
Raising learning outcomes in primary and secondary education 20
Framework conditions for the teaching profession need to be improved 24
Places in childcare are still scarce for those families that need them the most 25
Financial support to families with children above the compulsory schooling age could be improved 26
Further reform of the regulatory framework of tertiary education could raise earnings prospects 27
The attractiveness of vocational education can be raised 29

Bibliography 34

Annex. Basic elements of the Spanish educational system 37

Boxes

1. Measures to improve educational outcomes in the Organic Education Law (Ley Orgánica de educación, LOE) 9
2. Attribution of competencies across levels of government and regional funding of education 23
3. Recommendations to improve education outcomes 31

Tables

1. Rates of return to education 8
2. Employment rates by age group and highest education attainment 31

Figures

1. Upper secondary and tertiary attainment 6
2. Secondary education graduation rates 7
3. Average student performance in the OECD 2006 PISA study 12
4. Distribution of Pisa scores by level of competency attained 13
5. Tertiary graduation rates 14
6. Estimates of the internal rates of return to tertiary education 15
7. Repetition rates in lower secondary education across OECD countries 19
8. Institutional policy settings in primary and lower secondary education across OECD countries 22
9. Enrolment rates in childcare and early childhood education at ages 2 and 3 25
10. Estimated impact of easing liquidity constraints on tertiary graduation ratios 28

RAISING EDUCATION OUTCOMES IN SPAIN

By Andrés Fuentes[1]

Since Spain turned to democracy in 1975, improvements in educational attainment have been on an impressive scale, as reflected in the share of successive cohorts with tertiary and upper secondary education attainment (Figure 1). Tertiary attainment, in particular, has raised strongly, both in academically and vocationally oriented subjects. The extension of the comprehensive, compulsory schooling age limit from 14 to 16, legislated in 1990 and fully implemented by regional governments by 2002, marks another milestone in the raising of educational standards. An outstanding effort has also been made in early childhood education, in which Spain is among the few OECD countries with almost universal coverage for children between the ages of three and six years.

The supply of unskilled workers is nevertheless unusually large for a high-income country, in part reflecting a legacy of low educational attainment of middle-aged cohorts. Almost a quarter of the population of working age has not earned the compulsory schooling certificate (Ministry of Education and Science, MEC, 2007a). Moreover, the inflow of unskilled youth into the labour market remains very large: nearly a third of youth still leave full-time education without having attained at least upper secondary education, and many of these have not completed lower secondary education either. At the same time the supply of vocationally skilled workers is relatively small. There is significant room to improve educational outcomes in primary and secondary education, as the results from the *Progress in International Reading Literacy Study* (PIRLS) and the *Programme for International Student Assessment* (PISA) testify. In upper secondary and university education, access is severely limited for students from disadvantaged socio-economic backgrounds, and in most academic disciplines no Spanish university has emerged in the top group of internationally renowned institutions. Returns to tertiary education are estimated to be low among OECD countries, although to a significant extent this is accounted for by returns on tertiary degrees of older workers, who obtained their education a considerable time ago. Graduation rates are high for vocational degrees, where returns are lower than for university degrees, and scope remains to make both more attractive with regard to labour-market prospects.

Spending per pupil relative to GDP per capita in early childhood, primary and secondary education is close to the OECD average and the EU-19 average. Since Spain still has lower income levels per capita than most high-income countries in the OECD, the level of resources devoted per student is fairly modest, especially if the low level of informal inputs resulting from the relatively poorly educated parental generation is taken into account.[2] In tertiary education, cumulated spending over the duration of studies of each graduate is close to the average of OECD countries, in part reflecting the comparatively long duration

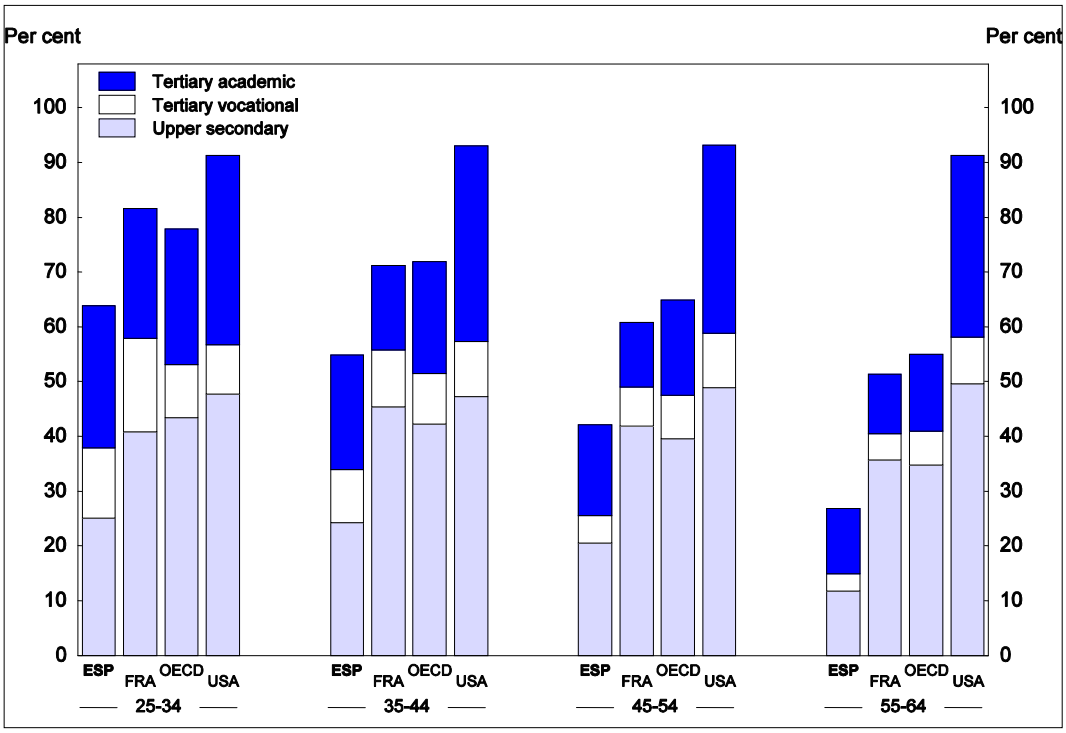
1. Senior economist in the Economics Department. This paper was originally prepared for the OECD's 2008 Economic Survey of Spain under the responsibility of the Economic and Development Review Committee. The paper benefited from suggestions and comments by Paulo Santiago and Beatriz Pont in the Education Department of the OECD as well as from Andrew Dean, Peter Jarrett and Douglas Sutherland from the Economics Department. Sylvie Foucher, Mee-Lan Frank and Véronique Henriksson provided invaluable statistical and editorial assistance.

2. Overall spending on education relative to GDP diminished between 1995 and 2004 and has dropped to one of the lowest ratios in the OECD, especially in primary and secondary education. This development largely reflects demographic developments: children of school age are now a fairly small share of the Spanish population.

of studies, notably in the academic stream (OECD, 2007d). As outlined below, most education spending is carried out by regional governments, reflecting the decentralised management of the education system, in which the institutional structure and framework conditions are set at the central government level.

Figure 1. **Upper secondary and tertiary attainment**

By level and age group, 2006



Source: OECD (2008), Education at a Glance.

Hence the challenges to which education policy needs to respond are as follows:

- Raising the proportion of pupils obtaining at least an upper secondary education diploma. This requires, in particular, reducing the large number of youths who cannot proceed to upper secondary education because they fail to obtain the basic school diploma that certifies completion of lower secondary education.

- Improving learning outcomes of pupils in compulsory education, which fall significantly short of outcomes in best-performing countries, while maintaining the low impact of socio-economic background on these outcomes, as measured by PISA.

- Raising the returns tertiary education generates for graduates in the form of higher earnings.

Recent legislation has aimed at addressing these challenges and at incorporating OECD recommendations. In particular, the Organic Education Law (*Ley orgánica de educación*, LOE), introduced changes from early childhood education to upper secondary education in 2006. University reform was legislated in 2007 and was already discussed in the 2007 *Economic Survey*. This paper analyses remaining weaknesses in education outcomes as well as progress made in addressing them and makes some proposals how these reforms can be followed up.

Education outcomes

Upper secondary education graduation rates are low…

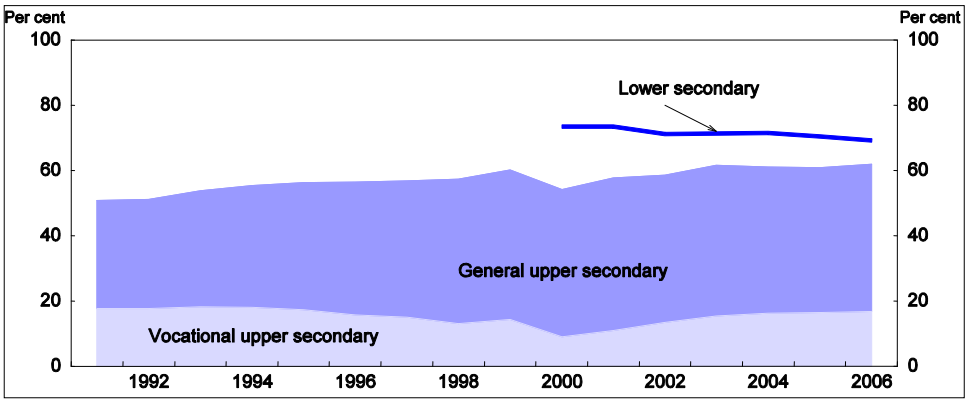
Although education to the upper secondary level is now considered to be the minimum necessary for all workers in high-income economies, the upper secondary graduation rate in Spain remains low in international comparison. Moreover the rise in upper secondary attainment has come to a standstill over the past 10 years: graduation rates have risen only marginally since 2001 and are only a little higher than attainment rates for the population in the 25-34 years age bracket (Figure 2). The resulting large inflow of poorly skilled young workers into the labour market adds to the already plentiful supply of unskilled workers from earlier age cohorts.

To some extent, the low upper secondary graduation rate reflects the relative ease with which young, poorly qualified workers have been able to get unskilled jobs in some regions, where tourism, in particular, offers jobs for such low skilled young workers. Indeed, multivariate regression analysis shows that – other things equal – living along the Mediterranean coast has had a depressing impact on participation in upper secondary education, which researchers link to the ample supply of unskilled jobs in the tourism industry (Calero, 2006b; MEC, 2007a). However, few regions have graduation rates that exceed 60% by a substantial margin. Throughout the country, participation in upper secondary education of all types is strongly related to parental educational background: while more than 83% of children whose mother has attained tertiary level studies graduate at the upper secondary level, only 51% of children whose parents have not completed lower secondary education do so. Differences are also large with regard to the level of household income: 73% of children from households with income in the top quintile of the income distribution graduate at this level, whereas only 51% of children from households in the lowest quintile do so (Fundación Alternativas, 2008). Only 33% of immigrants' children enrol in upper secondary education compared to 56% among natives (Calero, 2006b).

… especially in vocational education

The upper secondary graduation rate is especially low for vocationally-oriented degrees (mostly *ciclo formativo profesional de grado medio*, CFPM[3]). The *bachillerato* is the chosen avenue to upper

Figure 2. **Secondary education graduation rates** [1]



1. Preliminary data for 2006.

Source: Ministry of Education and Social Affairs.

3. OECD Statistics also classify the *Programas de Garantía Social* (PGS) as upper secondary degrees (see further below).

secondary education qualifications for 80% of lower secondary graduates, with most entrants into CFPM having a modest parental education background (MEC, 2007a). Employers indicate that the skill mix of labour supply gives too little weight to vocationally trained workers at the upper secondary level. Returns to secondary vocational education seem to be relatively high, especially if differences in employment probabilities for workers with different educational pathways are taken into account (Table 1). Graduates appear to have better earnings prospects than graduates from the *bachillerato* who do not go on to tertiary education. Moreover, since graduates from lower secondary school with good marks are likely to choose to go on to the *bachillerato* – reflecting the social stigma associated with upper secondary vocational degrees, the estimated returns for the CFPM are likely to be underestimated.[4] However, these returns have fallen for young workers.

Table 1. **Rates of return to education**

	Panel A. Taking into account the probability of employment	
	1995	2002
Lower secondary	2.61	2.71
Vocational upper secondary	13.55	14.32
Academic upper secondary	9.85	9.46
Vocational tertiary	–2.41	3.87
University short degree	15.65	11.64
University long degree	15.66	14.18

	Panel B. Evolution of returns by age group, conditional on being in employment		
	Age group 16-35		Age group 16-65
	1995	2002	2002
Lower secondary	–0.67	1.00	1.67
Vocational upper secondary	10.50	7.50	12.00
Academic upper secondary	11.71	6.57	10.57
Vocational tertiary	1.33	6.00	2.67
University short degree	8.29	8.57	8.86
University long degree	15.00	12.50	12.50

Note: Returns are per year of schooling completed relative to the educational phase that normally precedes it. For example, returns to tertiary degrees are based on gross hourly wage differences between tertiary degree holders and academic upper secondary degree holders. Income in case of non-employment is assumed to be zero. Earnings data are gross wages. Estimates are based on Mincerean wage equations and take into account only the opportunity costs of education resulting from forgone earnings. Panel A also takes into account the impact of education on the probability of employment.

Source: García Montalvo (2008).

Pupils fail on a very large scale, notably in lower secondary education

An important factor behind the low upper secondary graduation rate is the high proportion of pupils leaving school without the degree that certifies the successful completion of lower secondary compulsory education (graduado en educación secundaria obligatoria, GESO, see also Annex), which pupils are expected to obtain at the age of 16, the age at which education ceases to be compulsory. In 2005, close to 30% of pupils left lower secondary school without the GESO. This diploma is in general required to gain access to upper secondary education, in both the academic stream and the main vocational streams

4. The estimated returns do not control for composition effects which result from students with high marks in the GESO being more likely to choose *bachillerato* courses rather than CFPM courses.

(CFPM). Fall-back programmes have been created for pupils failing to obtain the GESO, notably the *programas de garantía social* (PGS; see for example, OECD, 2007f, for a more detailed description). These programmes provided basic general and vocational education mostly for manual occupations. However, graduation rates from these programmes have been quite low, amounting to about 4.5% of a full age cohort. The PGS are being replaced by the *programmes of initial vocational qualification* (*programas de cualificación profesional inicial*, PCPI) (see below), and these programmes are better integrated with main educational pathways, including the CFPM (Box 1). The high rate of failure of pupils to obtain the compulsory schooling certificate is strongly related to socio-economic background (see e.g. Fundación Alternativas, 2008, which provides information on graduation rates by parental income and occupational status).

Some pupils succeed in obtaining the degree subsequently. By the age of 22 the proportion of youths who have not obtained a lower secondary degree drops to 14%, although this share has been rising in recent years.[5] However, these youths seem to regain little of the lost ground in terms of moving into further education or improving their labour-market prospects, perhaps reflecting both the loss of time and the stigma of initial failure. Only 14% of students who initially fail compulsory education enrolled in mainstream upper vocational education programmes (CFPM) at any time in the subsequent four years, suggesting that the share of pupils who ever succeed in moving towards upper secondary education after having initially failed to obtain the compulsory schooling certificate is very low. By contrast, almost all pupils who succeed in graduating from compulsory education enrol in upper secondary education (INE, 2007). On the other hand, among the few young people who do manage to enter the CFPM despite having failed the GESO, most succeed in passing the degree, and the success rate is not substantially lower than among students who attempt CFPM after passing the GESO on the first attempt.[6]

Box 1.**Measures to improve educational outcomes in the Organic Education Law (Ley Orgánica de educación, LOE)**

The LOE was approved in May 2006 and stipulates a gradual implementation of the measures indicated below, which will be completed by 2010. It replaces a number of earlier laws, including the most recent Ley orgánica de la calidad de la Educación (LOCE) described in OECD (2003), which was however hardly applied, after having been revoked following a change in government in 2004.The LOE further develops structures established in previous legislation at selected points. Changes mentioned in this paper generally refer to the situation before the LOCE. Across all education levels the LOE introduces new content into curricula, including competency-based targets for teaching, to the extent these are determined by the central government (see also Box 2 below).

Pre-school education

The regional governments are required to raise the supply of places in accredited childcare facilities for children up to the age of 3, although they are not required to reach specific quantitative targets. The LOE also confirms that early childhood education is free, as stipulated by the LOCE. It introduces education objectives, notably on basic numeracy and reading skills, for this educational phase while leaving the definition of educational objectives for children attending accredited childcare facilities (*educación infantil, primer ciclo*) to the regional governments.

Primary education

The law requires schools to focus on the early detection of learning difficulties and to respond to such difficulties with special support programmes for weak students (*programas de refuerzo*). An increase in the hours of teaching in mathematics and foreign languages is also prescribed. Primary schools are required to evaluate the degree to which basic competencies have been reached at the end of the fourth year.

5. The share has risen from 10% in 2004.

6. Roughly 60%, compared to about 70% for pupils with the GESO (OECD estimates on the basis of INE, 2007).

Compulsory secondary education

Measures to strengthen school autonomy and accountability

The law gives regional governments the freedom to grant more autonomy to schools. In addition to educational plans, schools are asked to develop management plans that set their work priorities and to make these publically available. They have been given autonomy in all organisational and managerial matters as well as with regard to teaching methods. The law also empowers regional governments to allow schools to outsource the provision of ancillary services. With regard to the management of teaching personnel regions can allow schools to propose specific requirements on the qualifications of teachers to be hired by regional education administrations.

Regular evaluations through testing of samples of schools have been introduced for pupils aged 12.

Measures to widen curricular choice

The LOE widens scope for pupils to choose among subjects, notably in their final year of lower secondary school. As was the case before the LOE, three options must be selected, but the catalogue of optional subjects has been widened and now includes two, rather than one, vocationally oriented subjects (general technology and information technology). The list of subjects is prescribed for all schools and is given in the LOE. In the preceding grade, scope for choice is limited, and the list of subjects consists only of academic subjects.

Measures to help the transition of students to upper secondary education

The law widens the use of "programmes of curricular diversification" (*programas de diversificación curricular*). These programmes, which were introduced in 1990, aim at supporting students at risk of failing to obtain the compulsory education diploma. In these programmes pupils can be offered a curriculum specifically adapted to their needs, differing from the mainstream curriculum. Pupils can now participate from age 15 (rather than 16) onwards. Participation remains conditional on having repeated a school year and subsequent poor performance. Pupils participating in these programmes – which schools design autonomously – benefit from more teacher support and smaller groups. The new legislation also requires specific action plans for students who have failed individual subjects without being forced to repeat a year.

The LOE also introduces the *programmes of initial vocational qualification* (*programas de cualificación professional inicial,* PCPI) replacing the "social guarantee programmes" (*programas de garantía social*). As the social guarantee programmes, they provide a combination of basic general and vocational education, aimed at pupils who have failed the compulsory schooling certificate. Unlike their predecessors, pupils who are still in lower secondary education, but who are at risk of failing, and whose performance has not improved through participation in other programmes (such as those of curricular diversification) can also participate. While the social guarantee programmes did not lead to any formal diploma, and therefore did not open a pathway to mainstream upper secondary education, the PCPI are to some extent linked to the mainstream education pathways. They include a module – which is optional for pupils who are above 16 years of age – which, if passed, allows pupils to obtain the compulsory schooling diploma on the basis of acquiring the basic competencies the diploma requires. In addition, vocational qualifications acquired in the PCPI are recognized as basic qualifications within the CFPM. Regional governments are also empowered to introduce courses which prepare PCPI graduates for taking the entrance exam into mainstream upper secondary vocational training programmes (the CFPM).

To strengthen reading skills, the law foresees the setting aside of time for reading across all subjects and increasing resources in school libraries. Regional governments can attribute additional funding to schools to take account of differences in the composition of the pupil intake.

Initial teacher training

The pedagogical qualifications to be obtained by teachers will be raised. Newly trained teachers at secondary schools will be required to take a one-year course training them in pedagogical and didactical skills, leading to a Master's degree, and the overall post-secondary qualification for teachers in primary and early childhood education as well as childcare (*educación infantil*) will increase from three to four years. In both cases practical training will be given more emphasis.

Labour-market prospects for pupils who have abandoned compulsory education without having obtained the compulsory-schooling certificate are very poor, even under the very favourable macroeconomic conditions for employment prospects of unskilled workers observed over the past 10 years (see OECD, 2008c). Survey evidence indicates that 41% of workers who had abandoned school without the certificate in 2001 had failed to find any job in the year following their departure.[7] For graduates from the CFPM the corresponding rate was 29% (Fundación Alternativas, 2008).

Pupils also fail upper secondary courses in large numbers. Only 60% of pupils who have graduated with the GESO and proceed to the *bachillerato* obtain the degree within the time foreseen and 23% not at all. Of pupils proceeding to CFPM, 72% obtain the corresponding degree (estimated based on data in INE, 2007). These failure rates explain the bulk of the difference between lower and upper secondary graduation rates in Figure 3.

Much scope remains to improve competencies in reading, mathematics and science at age 15

The PISA results of 15 year-old pupils in 2006 were below the average in all three competencies (Figure 3). Spain occupies one of the lowest ranks among high-income OECD countries, although, with many countries located close to the average, the Spanish score is not much below the average in science and mathematics. Moreover, the relatively weak level of education of the parents' generation in Spain can – in statistical terms at least – partly explain the relatively weak performance of Spanish pupils.[8] Indeed, once the statistical effects of parental education level and GDP per capita are removed, the science score in Spain is equal to the average of OECD countries and equal to the score in, for example, Germany, one of the high performers on the unadjusted science scale.

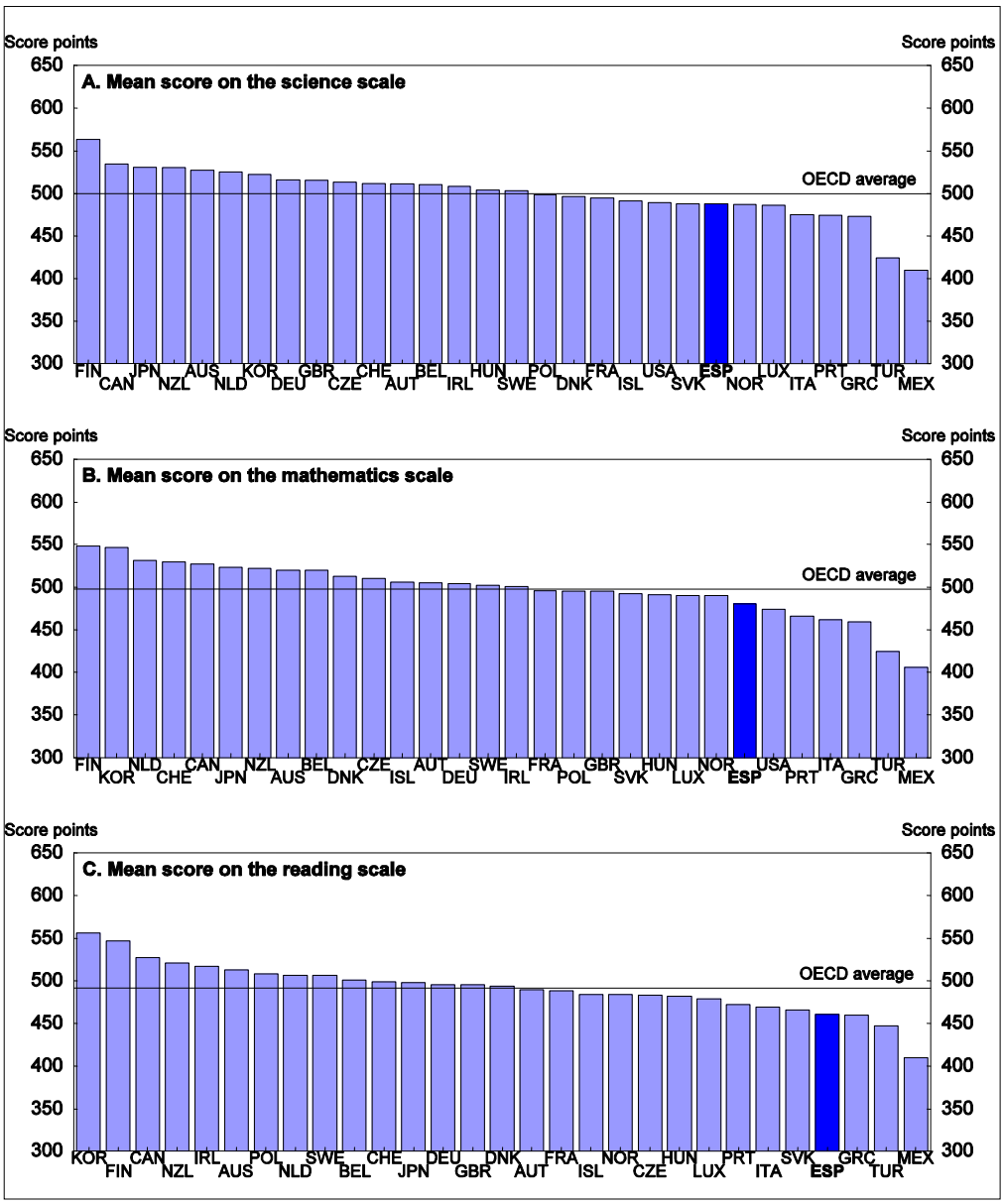
Nonetheless, the PISA results show there is considerable room for improvement. Relative performance is weakest in reading, and it has deteriorated dramatically since 2000, with an increasing share of pupils failing to obtain basic reading skills. PIRLS results indicate that reading skills are also weak among pupils in primary education,[9] with a relatively large share of pupils failing to reach the level of basic skills. The study also reveals that primary education outcomes are considerably worse than average for children with two immigrant parents. Moreover, many children participating in PIRLS had already benefitted from early childhood education, suggesting that performance of schools (possibly including early childhood education institutions) needs to improve.

7. Moreover, regions with high failure rates do not have much lower job-finding rates, suggesting that mere selection effects play a limited role.

8. See OECD (2006a). The control variable used for education of the parental generation is the share of the population aged 34-44 with at least upper secondary education outcomes. Per capita GDP was also included as a control variable.

9. Participating pupils have completed four years of primary education. Unlike in PISA, the selection criterion is not age, resulting in differences in the average age across participating countries. In Spain the average age is relatively low, which may also contribute to weaker results.

Figure 3. **Average student performance in the OECD 2006 PISA study**

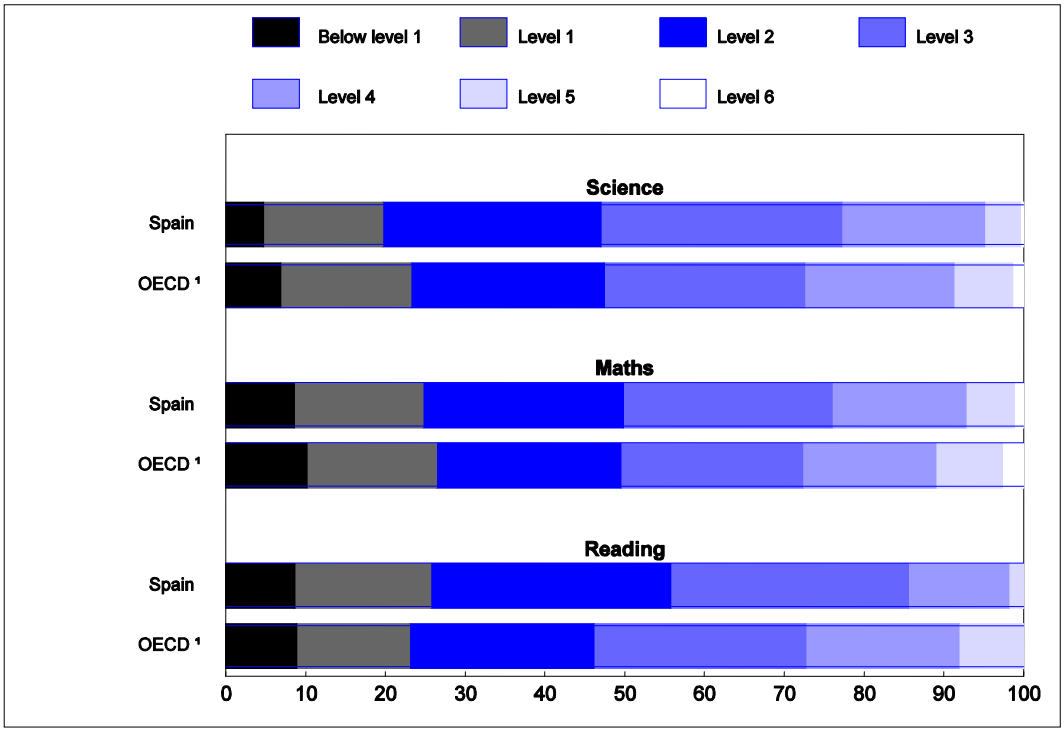


1. The higher the score, the higher the performance.

Source: OECD, Pisa 2006: Science competencies for tomorrow's world, Vol. 1.

The Spanish PISA results stand out for their low overall variance of results. The variance of outcomes is particularly low between schools. Moreover, the impact of socio-economic background on PISA outcomes is lower than in most OECD countries (OECD, 2007b). As a result, the share of pupils who fail to obtain basic competency levels is not much higher than in other high-income countries, although this considerable advantage is lost to some extent owing to high school failure rates that are characterised by substantial social stratification. The share of high performers is low (Figure 4). As a counterpart to the low between-school variance, within-school variance in performance is high.

Figure 4. **Distribution of Pisa scores by level of competency attained**



1. Weighted average.

Source: OECD, Pisa 2006: Data , Vol. 2.

Tertiary attainment is high, but returns are low

Tertiary attainment among young workers in Spain is higher than in the OECD on average and continues to expand, with the graduation rate exceeding current attainment rates as well as average graduation rates in the OECD. The graduation rate in tertiary vocational studies is among the highest in the OECD, whereas it has been stagnating for university studies, which is now below the OECD average (Figure 5).

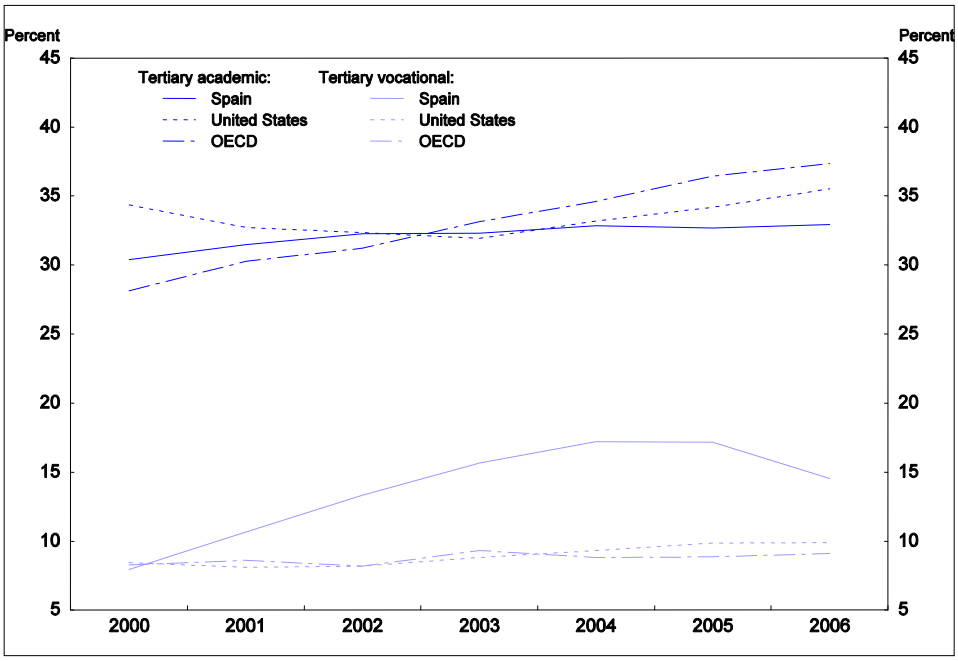
The private internal rates of return on tertiary education are among the lowest in the OECD (Figure 6), reflecting a smaller gross wage premium on wages of workers educated to the upper secondary level (Oliveira Martins *et al*., 2007).[10] However, it does not appear that these low returns can be attributed to a significant extent to the expansion of the tertiary education system, at least between 1995 and 2002,

10. The study also takes into account other determinants of the rate of return, such as the effects of marginal and average tax rates, the impact of tertiary education on the employment probability (conditional on the decision to participate in the labour market), entitlements to unemployment and pension benefits and direct study costs.

the latest year for which estimated returns to education are available. Returns diminished somewhat between 1995 and 2002 for university graduates but rose for graduates from vocational courses (Table 1). For young workers they rose for both short-cycle university graduates and tertiary vocational graduates.[11]

Figure 5. **Tertiary graduation rates**

As a percentage of population at the typical age of graduation



Source: OECD (2008), Education at a Glance.

A potentially important source of differences in rates of return across countries is the distribution of graduates across subject disciplines, as earnings of graduates differ substantially depending on the subject studied, with the highest returns observed for graduates of sciences and engineering, followed by social sciences. However, in Spain, the composition of tertiary graduates resembles that of other countries and so does not explain the low returns (Oliveira Martins *et al*., 2007).[12] Pay compression, for example as a result of collective bargaining, could also in principle contribute to depressing returns to tertiary education. However, it is unlikely to be the principal cause, as pay compression is difficult to reconcile with the finding, in an OECD study (Oliveira Martins *et al*., 2007), that the impact of tertiary attainment on the probability of employment, while positive, is fairly modest in international comparison.

Among tertiary degrees, rates of return seem to be highest for long university degree courses, followed by those on short degree courses. Returns are lower on tertiary vocational education (see Table 1). Rates of return compare less unfavourably for tertiary vocational graduates if only young workers up to the age of 35 are considered, a perhaps more relevant comparison, given the changes the education system has undergone over recent decades. The large number of tertiary vocational graduates (they make

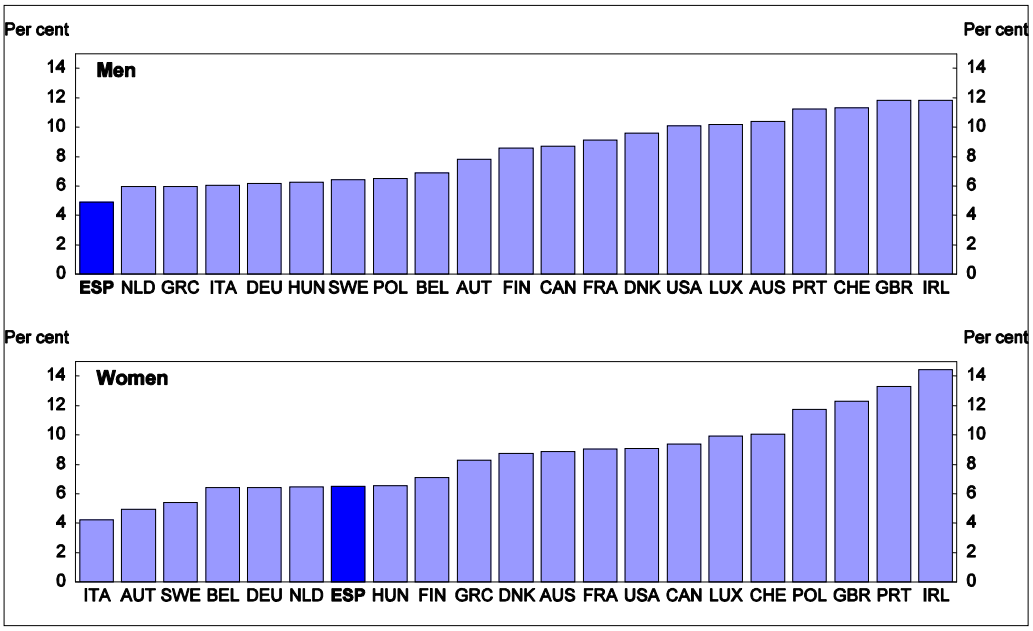
11. However, note that for young workers the estimated returns do not take differences in employment probabilities across education levels into account.

12. However, while the overall share of tertiary graduates in science and engineering is similar to the rates observed in high-income European OECD countries, a very large proportion of these graduate from vocational courses rather than from university.

up close to 30% of all workers educated to the tertiary level (OECD, 2007a)), appears to have depressed average returns to education, perhaps by as much as 2½ percentage points,[13] although this effect is lower for younger workers.

Figure 6. **Estimates of the internal rates of return to tertiary education** [1]

2001[2]



1. The results cannot be compared with those in Table 1 for methodological reasons. In particular, these internal rates of return are estimated on the basis of net wages, take into account unemployment replacement income, pension entitlements, study fees and the impact of productivity growth on future earnings. Uniform labour productivity growth across countries is assumed to be 1.75% per year. See source for more details.
2. Except Poland and Switzerland: 2000 and Hungary: 1997.

Source: Oliveira Martins, J., R. Boarini, H. Strauss, C. de la Maisonneuve and C. Saadi (2007),"The policy determinants of investment in tertiary education", *OECD Economics Department Working Paper* No 576.

Comprehensive compulsory education in private and public schools helps limit the impact of socio-economic background on learning outcomes

Primary schools (from the age of 6 to the age of 12, if pupils do not repeat a grade) and lower secondary schools (from the age of 12 to 16) are comprehensive, although some flexible ability grouping is applied within grades in many schools. About a third of Spanish pupils up to lower secondary level attend private schools, of which almost all are publicly funded. Private schools receiving government funding (*escuelas concertadas)* are not allowed to charge fees, have to abide by the same admission principles and are subject to the same governance rules as public schools. While admissions in compulsory schooling are subject to administrative rules, giving priority *inter alia* to pupils residing in the school's neighbourhood, there is some room for choice and competition, with about 80% of lower secondary schools competing with at least one other school in the neighbourhood (OECD, 2007b). There is also an element of supply

13. This is only a rough approximation, which is based on the differences between the rates of return between vocational and non-vocational tertiary degrees, which are, however, not estimated according to the same methodology as the internal rates of return in Oliveira Martins *et al*. (2007)

responsiveness to parental choice, as publicly funded schools are financed according to capitation and schools are closed if attendance is insufficient.

Comprehensive schooling is likely to have helped limit the impact of socio-economic background on learning outcomes, as measured by PISA results. While students do slightly better in schools where there is some ability grouping, the gaps are small and disappear once the differences in the composition with regard to the socio-economic background of the pupil intake between schools with varying internal grouping practices are taken into account.[14] The evidence on peer effects among pupils can perhaps be interpreted as indicating that comprehensive schooling may not be harmful to high performers, and might, perhaps, raise average performance, but the evidence is as yet inconclusive.[15] Cross-country empirical evidence suggests that the widespread availability of privately run schools can raise the performance of the overall school system, provided private schools are mostly publicly funded (Wößmann, 2005b).[16] By contrast, in countries where a large share of pupils attend private schools that are largely *privately* funded overall performance seems to suffer, arguably because this fosters adverse selection und undermines choice.

Some tensions have however appeared in the system. Cases have been reported of practices that discourage pupils from poor socio-economic background from attending private schools. Some schools also appear to have sought financial contributions from parents, such as through fees for meals and transport services that are provided for free at most schools and other practices with selective effects (OECD, 2006; Calero, 2006a). Measures have been taken to restrict the extent to which private schools can raise ancillary charges from parents. On the other hand, private publicly funded schools receive lower capitation fees than public schools. This setting perhaps offsets the impact of a more favourable socio-economic background of pupils in private schools on their resource needs. In this case, however, it would be preferable to link funding more strongly to the number of pupils who require more teaching support. This could also help lower incentives for private schools to engage in selective practices. The prohibition against raising fees from parents in all publicly funded primary and lower secondary schools as well as against recourse to selection criteria should be enforced. A level playing field in the rules assigning resources to public and publicly funded private schools should be ensured.

---

14. Across most OECD countries, schools with no or limited ability grouping outperform those which have ability grouping for all subjects. However, schools with no ability grouping may simply be selective in admissions or be part of selective systems.

15. The evidence on peer effects is not yet conclusive, as available data sets have, for the most part, not yet allowed the resolution of estimation issues (such as self-selection and simultaneity, see the review in Nechyba, 2006). Existing studies do find peer effects. Some studies report asymmetric peer effects. Recent studies, which resolve estimation problems to some extent, include Hanushek *et al.* (2003) who report that students whose performance is rated in the upper quartile are not affected by performance of other pupils, in contrast to performance in the lower quartiles (see also references quoted in Calero and Escardíbul, 2007). Asymmetric peer effects would also be consistent with the improvement in *average* PISA results in Poland following the postponement of the age of tracking in lower secondary schools (reported in OECD, 2007a). Making weak students repeat grades might, on the strength of this evidence, thus still adversely affect the performance of medium or other low performers.

16. According to this study, countries with a high share of privately run schools and at the same time a high share of public funding, tend to have better PISA scores in maths. Wößmann explains this with a level playing-field with regard to competition for student intake. The risk of competition by selection is also reduced. The question of the effect of private schools on overall education outcomes needs to be distinguished from the question as to whether private schools generate better outcomes than public schools. At a general level, the evidence on private schools' relative performance is mixed. See, for example, the review in Calero and Escardíbul (2007). Research quoted in Wößmann, on the basis of PISA data from 19 countries, establishes modest evidence that privately run but publically funded schools are more effective in the teaching of pupils from weak socio-economic backgrounds.

Moreover, the rules of the system of the *escuelas concertadas* do not apply to upper secondary schooling, where private schools can receive government funding, while at the same time charging fees. Also, unlike private lower secondary schools, they are allowed to determine their own selection criteria. Although government grants are available for pupils from low-income families to attend such schools, such mixed funding may induce schools to compete with one another on selection based on socio-economic background, rather than adding "value" to the education of incoming students; the empirical literature on lower secondary schools suggests that this could possibly be to the detriment of overall performance. Consideration should be given to linking the disbursement of subsidies to upper secondary schools to the obligation of offering schooling free of charge, as is done in lower secondary education.

Improving the integration of immigrant children

About 9% (8%) of pupils in early childhood (primary) education have immigrant background. Close to one half of these children have arrived from Spanish-speaking countries (MEC, 2008a). While public schools accept 67% of all students, they admit 82% of foreign pupils.

Many regions have introduced special programmes for arriving immigrant children. In many regions, the children are separated from other pupils for a limited period of time, usually for six months, to help them catch up with educational standards of their native peers. There is some evidence that these programmes have helped the integration of immigrant children (OECD, 2006), although education specialists' assessments are mixed (see the review in García Castaño *et al.*, 2008). Educational outcomes for immigrant children have nonetheless remained weak. Most immigrant children do not pass the GESO and often fail to attain the level of education the parents attained in their home country, even if their home language is Spanish.[17] The difference in PISA scores between immigrant children and natives is equal to the corresponding OECD average gap (OECD, 2007a), notwithstanding the relatively large share of immigrants whose native language is Spanish. On the other hand, the relatively recent arrival of many immigrants, and the large share of immigrants who have been attracted by demand for poorly qualified labour in Spain, may still render the integration of immigrants more difficult than elsewhere.

The central government makes earmarked grants available to regional governments for funding programmes to integrate immigrant children, which are disbursed according to agreements reached between the central and regional governments. The disbursement of these transfers does not appear to be linked to an evaluation of the effects of regional programmes on educational outcomes and attainment of immigrant children. In view of the well known risks that earmarked transfers are not spent effectively, creating such a link is particularly important. The disbursement of earmarked central-government transfers to regional governments, notably for programmes to foster the integration of immigrant children, should be linked to the results of evaluations, conducted by the central government, of the effectiveness of such programmes in raising educational outcomes and attainment levels.

Combating school failure in compulsory education

The Organic Education Law (LOE), approved in 2006, provides a number of measures aimed at improving education outcomes in all schools, as well as increasing educational attainment rates at the lower and upper secondary level (Box 1). To this end, the new legislation widens the scope for offering remedial programmes for pupils who have fallen behind, notably the *programas de diversificación curricular*, and foresees measures to identify and support pupils falling behind early in primary schools. Indeed, some evidence suggests that they have been successful in raising weak students' chances of obtaining the compulsory schooling certificate (OECD, 2006), although relatively few pupils have so far participated, and that programmes for the early identification and support of weak-performing students

17. See Castaño *et al*. (2008), who quote evidence on children from the Dominican Republic.

help reduce grade repetition (OECD, 2007g). Application of these programmes has been uneven across the regions, and the programmes also vary across schools, which have autonomy over their design. However, no evaluations are available at the national level that would allow an assessment of the impact of these different forms of programme on education outcomes. The programmes of curricular diversification and for the early identification of learning needs need to be implemented and evaluated to determine best practice.

The LOE also introduces new programmes aimed at pupils who have failed lower secondary education or are close to doing so in the final stage of lower secondary education. The new programmes may be more successful in offering opportunities to acquire formal qualifications that facilitate integration into upper secondary education. On the other hand, they may also entail a risk of raising incentives for teachers and schools to "deal" with weak students by separating them from others, by making them repeat grades and subsequently placing them into these special programmes. In any case, both of these programmes deal with school failure at a late stage, when problems – notably grade repetition – have already occurred, and need to be complemented by preventive measures.

Grade repetition fosters early departure from school

The high rate of school failure in lower secondary education is closely related to the very high proportion of pupils repeating one or more school years, which is much higher than in all other OECD countries for which data are available in the PISA study (Figure 7). The frequency of grade repetition rises sharply towards the end of compulsory education, from age 14 onwards, whereas repetition is tightly restricted by regulation in primary education. More than 40% of pupils at age 15 have repeated at least one school year. A large number of pupils who have attained the upper age ceiling of compulsory education of 16 years leave school without completing all grades up to the compulsory schooling certificate. Almost 20% of students of each age cohort appear to leave lower secondary school in this way,[18] accounting for about two thirds of the total number of pupils failing to obtain the certificate. Since 2000 the rate of pupils leaving lower secondary school without the GESO has increased, which reflects the implementation of the increase in the compulsory schooling age to 16.

Empirical evidence shows that grade repetition is of little educational benefit for the pupils concerned (see *e.g.* Seibel, 1984, for evidence on France; and the references quoted in OECD, 2008 or OECD, 2007a). Moreover, as a result of repeating, students subsequently lose a year of earnings and generate additional government outlays. As repetition has little positive impact on academic performance of the pupils concerned, it also does little to diminish any negative peer effects of weak performers on fellow students. Hence, to the extent that repeaters stay on in school for longer, they exert whatever negative effects there might be on fellow students for a longer period of time, further adding to the social costs of repetition. To the extent pupils abandon school prematurely when they reach the age limit on compulsory schooling, as appears to happen frequently in Spain, social costs are likely to be very high, as repeaters fail to gain access to upper secondary education and are thus denied reasonable job prospects.

To reduce school-year repetition the LOE requires schools to improve the early identification of learning problems. It stipulates that schools should provide additional teaching for pupils who have fallen behind in basic competencies and adapt the organisation of teaching flexibly to deal better with diversity, although how this is implemented will depend on regional governments and individual schools. However, the international comparison of PISA results suggests that education outcomes in core competencies may not account for most of the high repetition rate. As noted above, owing to the compressed distribution of PISA results in Spain, the share of pupils who fail to attain basic competency levels in reading, mathematics and science is not substantially higher than in many other high-income countries, which all

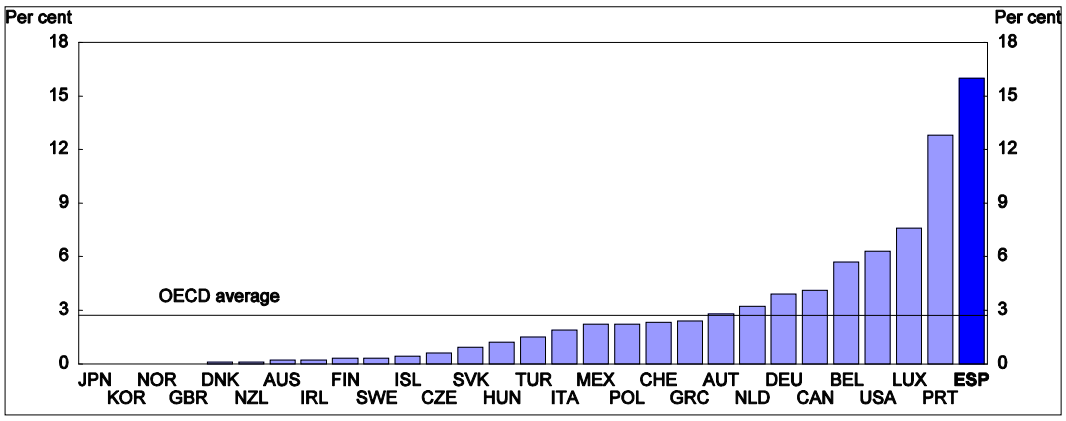
18. Estimated on the basis of an age cohort of 428 000. OECD estimates based on MEC (2008a).

have much lower repetition rates. While repeaters do less well than their fellow students who have not repeated in PISA, for example on the science scale (MEC, 2007d), their average score still lies in the middle of competency level 2, which denotes "adequate scientific knowledge to provide possible explanations in familiar contexts or draw conclusions based on simple investigations" (OECD, 2007a). PISA-rating differences between repeaters and non-repeaters are similar in reading and mathematics.

The rules with respect to school marks which trigger automatic relegation of pupils have been softened somewhat with regard to the previous legislation, although the rules are still tougher than in the period between 1990 and 2002 (specified in the *Ley orgánica general del sistema educativo*, LOGSE), a period in which school year repetition was, however, also frequent. Pupils can be forced to repeat a grade if they fail three or more (out of nine) subjects. Once pupils are deemed to have failed four subjects or more, relegation to the previous grade is automatic. By contrast school-year repetition is much more restrictive in primary education, where at most one repetition is allowed over the period of six years.

Almost all the subjects pupils take in lower secondary school are prescribed by law and are of an academic rather than vocational nature. To obtain the GESO pupils need to obtain a pass mark in *all*

Figure 7. **Repetition rates in lower secondary education across OECD countries[1]**



1. School principals were asked what percentage of students in their school repeated a grade at the levels of lower secondary education (ISCED 2), in the previous year of schooling.

Source: OECD, PISA 2006.

subjects. While the equal weight given to all subjects by this rule is, in practice, weakened by lowering the standards required in subjects that are not considered core skills, this rule may encourage early school departure. Education experts suggest that there are complementarities between academic and vocational subjects in the learning process of those pupils whose interests are vocational (OECD, 2006). These arguments suggest that it could be beneficial to further widen the scope of schools to offer and for pupils to choose further options, including in vocational subjects. Moreover, introducing more optional vocational content into compulsory lower secondary education could create links to upper secondary vocational education tracks. Extending options could help appeal to the interests of highly gifted pupils, thereby helping to improve performance at the top range of the performance spectrum. While the LOE has introduced somewhat broader possibilities for pupils to follow vocational options, these opportunities remain limited. Scope for choice of options in the final stage of compulsory schooling should be widened further, including offering more vocationally oriented subjects. The criteria for granting pupils promotion to subsequent grades and access to upper secondary education should be more narrowly focussed on core competencies that are needed to follow any type of upper secondary education.

The nature of the social costs attached to grade repetition suggests that these may not necessarily be internalised in teachers' decisions. Teachers may, for example, use grade repetition to remove weak students from their classes. Indeed, teachers in lower secondary school sometimes keep their classes in consecutive years, although this does not appear to be the rule. Teachers also face obligations to cover a certain curricular content over the school year, which can prompt them to fail students (OECD, 2006). A large majority of teachers themselves believe that grade repetition decisions do not take into account the affected student's best interest at all or only to a limited extent (MEC, 2003). These arguments suggest that schools need to be held accountable for the learning outcomes of pupils, with the objective of reducing grade repetition to a minimum so as to shift teacher incentives away from completing a set curriculum to improving all pupils' learning results (see also below). Indeed, grade repetition is strongly negatively correlated with the presence of external exams, a major instrument to raise school accountability (OECD, 2007a, and below). Indeed, across all countries which participated in the PISA 2006 study, the presence of external standards-based exams explains almost 25% of the cross-country variation in repetition rates. Indeed, such external exams could focus incentives in schools towards improving all pupils' educational outcomes, even if they advance at different speeds, rather than towards covering a set curricular programme.

Raising learning outcomes in primary and secondary education

Empirical evidence suggests that increased autonomy in schools that are held accountable improves student achievement. Schools that are held accountable for their outcomes are most likely to utilise their autonomy to find the best means to improve achievement, given the specific nature of the pupil intake. For example, school autonomy with regard to teacher salaries has been estimated to increase maths outcomes somewhat.[19] However, these effects were estimated to occur only if accountability mechanisms, such as external final exams, are in place (Wößmann, 2005a).[20] School autonomy in procedural matters, for example in the choice of books, the purchase of teaching materials, the hiring of teachers and the use of the budget, was also estimated to have a positive impact on schooling outcomes. According to Wößmann (2005a), besides reducing repetition, externally set final exams improve education outcomes: indeed, the boost is about as large as what pupils learn on average in one school year; and the effect appears to be considerably greater if there are also regular standardised tests to monitor pupil performance in the course of their school careers.[21] Several methods of enhancing school accountability have been used across OECD countries: centralised final exams and regular, repeated external testing of pupils' progress as well as the publishing and qualitative monitoring of school results. Whichever method is employed, the collection of information on results needs to be followed up by analysis of results to allow recommendations to be drawn for school practices.

School accountability is weak

Accountability is only weakly developed in the Spanish school system (Figure 8). Externally set final exams are neither conducted at the end of lower secondary nor at the end of upper secondary education,

19. In PISA by 4 points and in TIMSS (Trends in International Mathematics and Science Study) by 20 points (relative to an international average of 500 points in both studies).

20. Conversely, external final exams can be counterproductive if schools do not have autonomy with regard to teaching contents. With external final exams, the PISA score in maths is estimated to improve by 19 points if schools have autonomy over teaching content, whereas they deteriorate by 12 points as a result of such autonomy if no external final exams are set.

21. With standardised tests, PISA maths results are estimated to improve by 28 points as a result of the introduction of centralised exams. When standardised tests are absent the gain is only estimated to be 9 points (Wößmann, 2005a). Moreover, if external exams are absent, regular standardised tests were found to be counterproductive.

although pupils who have passed the *bachillerato* do have to pass a centralised exam if they want to proceed to university. School inspection is mostly oriented toward the implementation of rules concerning inputs. The LOE requires regular evaluations of 10 and 14 year-old pupils' competencies at randomly selected schools. A pilot study was conducted in April this year and will be followed by testing of pupil performance in samples of schools every three years. Testing in samples of schools has already occasionally been conducted at the national and regional levels in the past at various points in compulsory education, highlighting, for example, shortcomings in foreign language skills. However, such studies have thus far not been used to investigate the contributions of differences in regional educational policies to education outcomes.

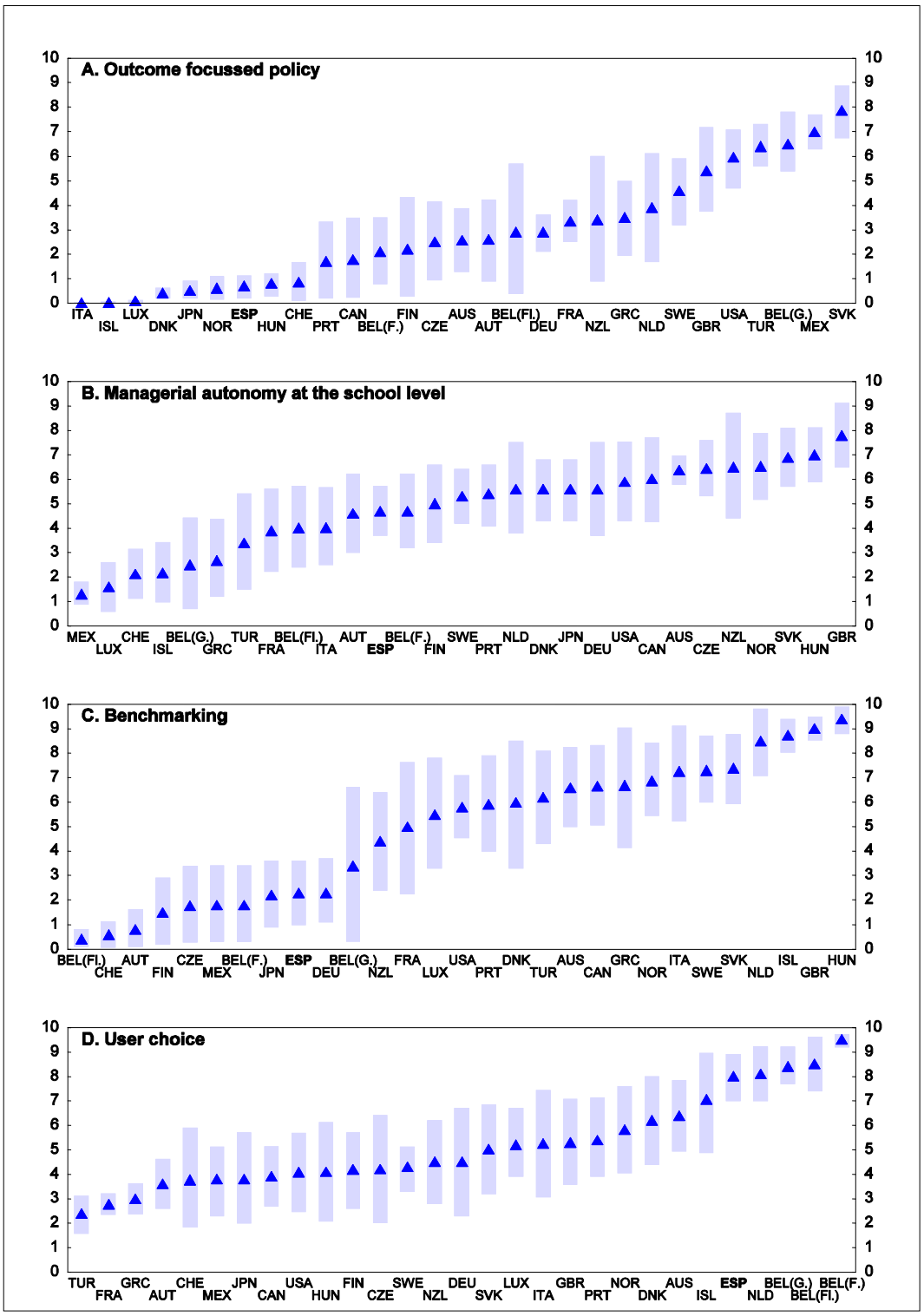
The considerable role of regional education policies (Box 2), with significant differences in the way national framework programmes (such as the *programas de diversificación curricular*) are carried out, suggests that such an evaluation could provide guidance to regional policies and improve incentives for policy innovation. Moreover, testing a sample of schools cannot serve to hold individual schools accountable. Whether these tests will be extended to all schools depends on the decisions of regional governments. While the LOE has introduced basic competencies that pupils are expected to reach, no education objectives have yet been defined at the national level against which school performance can be measured, although more than half of the curriculum within compulsory schooling is set by the national government. However, the government intends to develop indicators showing the degree to which basic competencies are achieved and which can be used for the setting of benchmarks (MEC, 2007a). The government also intends to propose agreements between schools and government in which school objectives are fixed, although such agreements would need to be implemented by regional governments. Some regions, such as Andalucía, have introduced such agreements. Nation-wide sample-based testing of pupils' education outcomes should be used to evaluate the differential impact of regional educational policies to help determine best practice. Accountability of individual schools should be raised. To this end, external testing at the school level should be extended to all regions and should be used to benchmark performance against targets and identify priorities for improving performance. Consideration could be given to complementing these with centralised exit exams at lower and upper secondary schools.

School autonomy is modest

Spanish schools enjoy less autonomy than those in most OECD countries. The choice of teaching materials is – as in most OECD countries – largely a matter for schools to decide, and schools enjoy budgetary autonomy, although the latter is limited by the high weight of teacher salaries, over which schools have no discretion. Few principals report that they have any autonomy in the setting of course content and the choice of courses. Public schools do not have autonomy with respect to the hiring of teachers, although the LOE has introduced some margin for schools to influence these decisions, Hiring decisions are taken by regional governments on the basis of centralised competitive exams. Privately run schools, including those which are publically funded do have autonomy with regard to the hiring and dismissing of teachers (MEC, 2007d). All schools are also bound by collectively bargained contracts on pay.

The LOE allows regional governments to assign further responsibilities to schools. For example, regional governments have been given the right to devolve competencies for the contracting of services. However, the LOE still limits school autonomy in many ways: decisions on the hiring of teachers continue to be made by regional education administrations, and changes in the organisation of timetables and the number of hours taught and the introduction of experimental teaching projects need to be approved by the administration (European Commission, 2007). Moreover, the LOE still applies detailed prescriptions on educational inputs which schools are required to use. For example, to improve reading outcomes the LOE prescribes that teaching time be specifically devoted to reading across all subjects.

Figure 8. **Institutional policy settings in primary and lower secondary education across OECD countries**



1. The figure gives the average and the range that contains 90% of the 1 000 random weighted indices. The data refer to the situation in 2006.

Source: Gonand, F. (2006), Public spending efficiency in primary and secondary education: institutional indicators.

Box 2. **Attribution of competencies across levels of government and regional funding of education**

A process of devolving decision-making powers to regional governments was initiated in the early 1980s and was concluded in 2000. Ninety-five per cent of all public education spending is conducted by the regional governments, with central government funding largely limited to grants awarded to low-income families with children. Although regions are subject to input requirements set by the central government in the area of primary and secondary education, differences in spending are considerable across regions on both compulsory education as well as in early childhood education and childcare, although differences in the pay of teaching staff across regions are mostly minor. To some extent regional differences in expenditure are explained by differences in the share of pupils attending private schools, which receive less funding per pupil. Empirical evidence suggests that differences in resources (including human resources) devoted to education do not contribute to regional differences in educational outcomes (Santín, 2006). However, the study is based on PISA results from the year 2000, which did not yet fully reflect the effects of growing regional differentiation of policies. Differences in spending per capita on education are not strongly related to GDP per capita.

Across all levels of government the central government remains in charge of ensuring equality of access at all levels of education and sufficient homogeneity of programmes across regions. The central government also regulates academic and professional titles and financial support to students. Legislative responsibilities have been furthest devolved in tertiary education, where the central government's jurisdiction is limited to the legal framework and the grant system.

In early childhood education as well as in primary and secondary school education the central government sets general curricular guidelines and minimum content. At schools, the central government sets 65% of total content in regions in which only Castilian is spoken, and 55% in regions with an additional official language. The regions determine the remaining curricular content, implement legislation from the central government level and are in charge of personnel and student welfare. Inspection services are a regional responsibility, whereas evaluation is a shared responsibility. The conference of education ministers co-ordinates education policies. The local authorities are in charge of providing and maintaining the physical infrastructure of childcare, early childhood education and primary education facilities and can contribute to extra-curricular activities at all schools. They are also represented in schools' decision-making bodies (the school council).

While the degree of school autonomy is limited, the lack of mechanisms to make schools accountable for their results suggests that further independence might not by itself contribute to better education outcomes. Indeed, while the private, publicly funded schools, which are considerably more autonomous than their public counterparts, have better average PISA results, their performance advantage disappears once adjustment is made for the socio-economic background (Calero and Escardíbul, 2007; OECD, 2006a). Possibly, the lack of accountability may prevent the realisation of any gains the private schools might make on account of their greater independence. These arguments suggest that developing accountability at Spanish schools further should be the policy priority for improving education outcomes. Once measures have been put in place to improve accountability, autonomy of schools, notably with respect to hiring decisions of teaching staff and curricular content, should also be widened. Indeed, the government intends to give schools teaching hours at free disposal (MEC, 2007a).

Schools that are held accountable and become increasingly independent need well qualified management teams. While the LOE has introduced specific qualification requirements for the selection of head teachers in public schools, the duration of the required training is short, and the responsibility of head teachers for improving education outcomes is not clearly formulated. Cross-country evidence suggests that head-teacher training geared towards raising a school's contribution to education outcomes and clearly defined responsibilities help schools benefit more from autonomy (Pont *et al.*, 2008). Candidates for head-teacher positions must be chosen from the pool of teachers of the school in question; this can be widened only if there are no suitable candidates. This procedure limits the degree to which best-qualified school managers can be chosen. The government is considering reinforcing leadership by the school directors, strengthening their powers in the management of personnel of schools as well as in the setting of teaching-method priorities. Head teachers are paid little more than classroom teachers, which provides

little scope for attracting qualified managerial staff, a problem that will become more acute if more accountability and autonomy are introduced. Indeed, experience from other OECD countries shows that significant pay premia for head teachers, as well as hiring criteria that are strictly based on aptitude, are important complements to school autonomy and accountability (Pont *et al*., 2008). The responsibility of head teachers for improving educational outcomes should be more clearly defined. The pool of candidates among from which head teachers can be hired should be widened, making their selection exclusively dependent on their potential. Pay premia for head teachers should be raised.

Framework conditions for the teaching profession need to be improved

The reform of teacher training marks progress

While the social inclusiveness of Spanish schools in comparison to other countries is likely to have helped to limit the impact of socio-economic performance on education outcomes, the high degree of PISA score variation within schools also places particular attention on Spanish teachers. While demanding qualification requirements are placed on aspiring secondary school teachers with regard to their competency in the academic discipline they intend to teach, teachers have thus far had to undergo fairly modest pedagogical training and qualification requirements. This qualification profile suggests teachers may find it particularly hard to deal with weak performers who are alien to their own learning experience (OECD, 2006a). Pedagogical qualifications have thus far been required only for teachers of secondary education (Certificado de Aptitud Pedagógica, *CAP*), and the CAP has usually taken candidates less than two months to complete. Indeed, at primary school, only 40% of pupils are taught reading skills by staff who have received specific training on how to teach reading, considerably less than in other countries which participated in PIRLS (MEC, 2007b). One half of teachers report not being trained in how to adapt teaching methods and organisation to diversity among pupils, and most teachers recognize that diversity in the classroom requires pedagogical changes for which they have not been prepared. Perhaps as a result, most teachers rejected the principle of comprehensive education up to the age of 16, especially at public schools (MEC, 2003).

Certified pedagogical qualifications of teachers appear to be a strong predictor of school performance (Clotfelter *et al*., 2007), even after controlling for the level of resources invested in the school system (Sutherland and Price, 2007), suggesting that their weakness is a considerable lacuna. To address this shortcoming, a reform of teacher training has just been launched, requiring higher standards in pedagogical skills, covering pre-primary up to upper secondary education teachers (Box 1). This reform is timely, as in the next 10 years one third of primary and pre-compulsory education teachers need to be replaced, and more generous early retirement provisions may accelerate the shift in composition of the teacher body towards better qualified staff. Nonetheless, incentives for established teachers as well to acquire the new certified qualifications could help to improve education outcomes.

The empirical evidence, however, also suggests that specifying a general optimal profile for teachers is not possible. Conversely, there is empirical evidence that principals can identify well performing teachers in terms of value added to student learning (Hanushek and Rivkin, 2006; OECD, 2005). This evidence reinforces the case for decentralising decisions on hiring, promoting and dismissing teachers to the school level, once schools are made more accountable. Indeed, observers have noted the current centralised hiring procedures for teachers, which are focused on formal entry requirements, have not been conducive to ensuring the selection of the most apt candidates. This rigid structure of hiring criteria, which is administered by hiring tribunals whose members are not chosen according to professional criteria related to their capacity to assess candidates (del Pozo Ortiz, 2008), may also have deleterious effects on the quality of the training process of future teachers, as the skills they acquire are unlikely to be appropriately valued. Conversely, school autonomy could also have beneficial feedback effects on the courses offered by

universities, which would be better able to adapt them to the schools' teaching needs. Teacher selection procedures are therefore in need of reform.

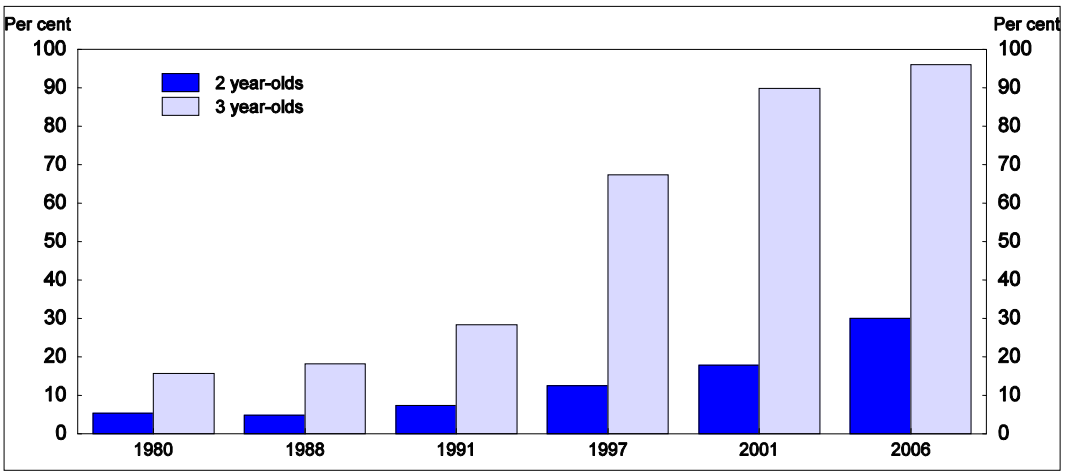
Teacher careers need to be reformed

Public school teachers, who are civil servants, enjoy a high degree of job protection and are comparatively well paid but face few incentives through promotion and pay structure. Promotion is largely based on seniority. In general, neither school managers nor teachers are given financial rewards linked to results obtained. However, a few regions have introduced performance-related pay elements (*e.g*. Andalucía), and limited incentives for school leaders result from quality contests among schools ("*Marta mata*"), which are combined with small financial rewards. Recent evidence suggests that performance-related career incentives can have a positive impact on education outcomes (Hanushek and Rivkin, 2006, and references therein; OECD, 2005). The central government is also considering introducing prizes for teachers for outstanding contributions to better educational practices. Opportunities for promotion or other forms of reward for teaching staff and management should be enhanced.

Places in childcare are still scarce for those families that need them the most

While full coverage has been virtually attained in early childhood education for ages from three upwards, childcare coverage for children below the age of three is still modest and uneven across regions, although much progress has been made in its expansion. Thirty per cent of two year-olds and 16% of one year-olds attended accredited childcare facilities in 2006 (Figure 9). The number of children attending any childcare facility – including unaccredited institutions – is considerably larger, but care and education standards are often lower in the latter. The large expansion of early childhood education in recent years offers the opportunity to raise children's subsequent education outcomes significantly, in view of the evidence on the cumulative effects of education. This shows that schooling at a very young age raises educational opportunities at later stages, especially for those with fairly poorly educated parents (Cunha *et al.*, 2006).

Figure 9. **Enrolment rates in childcare and early childhood education at ages 2 and 3**



Source: Ministry of Education and Science.

Children appear less likely to attend a childcare facility if the mother's educational background is relatively limited, suggesting that the scope to increase coverage is especially large among children who are likely to benefit the most,[22] perhaps because some less educated women may have a smaller propensity to enter the labour market, and could prefer to take care of the children themselves. Places in public accredited childcare facilities are subsidised, and fees are means-tested, giving free access to the families with the lowest incomes. While children from low-income households are given priority, it appears that rationing also affects the supply of places to children in families with low socio-economic background. Fees for private institutions, which provide about half of the places, are considerable.

While funding of childcare facilities falls under the responsibility of regional governments, the central government provides co-funding. It has launched an ambitious plan to extend coverage of children between the ages of 0 and 2 by about 30 percentage points on average by 2012, requiring 300 000 new places. In addition to offering an opportunity to make an early start in raising education outcomes for children, the expansion of places also generates scope to increase labour supply and raise mobility of young families, who will depend less on relatives for the provision of informal childcare. Central government funding for childcare facility provision is appropriate, as the associated education benefits are likely to be subject to significant geographic externalities, in part because children benefitting from such education may well reside elsewhere when active in the labour market as adults.

These arguments suggest that central-government subsidies for accredited childcare facilities should be targeted on children in low-income families. To this end, the subsidies could be disbursed in the form of vouchers to low-income households with children, covering the full cost of a place in an accredited facility. Moreover, the geographic externalities also suggest that minimum education objectives in childcare facilities should be regulated at the central-government level, as already occurs for early childhood education facilities.

Financial support to families with children above the compulsory schooling age could be improved

Students in upper secondary and tertiary education can apply for means-tested grants from the central and regional governments. However, about two thirds of the funds spent for this purpose are directed to university students. Although the resources devoted to supporting low-income families with dependants in upper secondary education have been raised significantly, they remain limited: one tenth of students in upper secondary schools received a grant averaging €450 per year in 2006 (MEC, 2008b). Grants are awarded on application only and are contingent on family income and academic success.

This grant system suffers from some weaknesses. *First*, the grants are not available for pupils who have reached the age of 16 before completing lower secondary school and who therefore can leave school.[23] For these pupils the perceived opportunity cost of staying on at school rather than taking up a non-qualified job is likely to be very high, especially if the benefits of education are not valued appropriately by the parents, which is likely in many cases, or discount rates are high because of borrowing constraints or lack of financial wealth. The low level of child benefits[24] – among the least generous in the OECD – may further push young people into early take-up of a job. Indeed, poverty among families with

22. Household survey data show this for the total of childcare facilities, Fundación Alternativas). For accredited facilities this is argued by Calero (2006) and OECD (2006a).

23. A separate means-tested grant system exists for early childhood education and compulsory education, but the amounts paid per pupil are considerably lower.

24. Child benefits amount to €291 per year and child. The benefits for the first child are fully withdrawn as annual gross family income rises above approximately €9 000 (the threshold rises with each further child) (OECD, 2007e).

children is relatively widespread (see OECD, 2008c). Furthermore, child benefits are paid up to the age of 18 only, when many students have not yet completed upper secondary education.

Second, the concentration of the funds on tertiary-level students is likely to reduce their effectiveness in raising educational attainment of youth from disadvantaged backgrounds. This is because the benefits of upper secondary education are less likely to be perceived by potential participants (as a result of their young age), providing a stronger case to consider upper secondary education to be a merit good. Loan schemes with income-contingent repayments for students would be a more appropriate funding mechanism in tertiary education. Moreover, students need to complete upper secondary education before moving on to tertiary education. Indeed, the incidence of the grants at the upper secondary level on the overall distribution of household income are mildly redistributive towards households with lower income, whereas grants paid for tertiary level students have a regressive impact (Calero, 2006b).

Third, the low number of upper secondary students receiving grants reflects not only social stratification in the access to upper secondary education but also a significant number of students entitled to the grants and their families failing to apply, perhaps because they are unaware of their entitlement. Indeed, empirical evidence from the United States suggests that, while targeted student aid programmes can be effective in raising enrolment rates of young people from disadvantaged socio-economic backgrounds, complexity and perceived uncertainty of grants undermine the impact of targeted student aid on enrolment even to the point of making them completely ineffective (see Dynarski and Scott-Clayton, 2008; and references therein).

Indeed, academic research has provided evidence that raising disposable income among families with children helps raise education outcomes.[25] Financial support for students in secondary education should improve incentives for pupils to remain in education beyond the age of 16. To this end, child benefits could be raised and be made conditional on continued attendance in full-time education. Payment of more generous benefits could be linked to an in-work benefit for low-income families (see also OECD, 2008c).

Further reform of the regulatory framework of tertiary education could raise earnings prospects

Funding policies distort decisions to take up tertiary education

A government-sponsored loan scheme with income-contingent repayments has been in place since 2007, but only for postgraduate students enrolled in Master's courses, for which they were introduced in 2007. The absence of such a loan scheme for other tertiary-level students limits the resources that can be raised to fund tertiary education from students themselves through tuition fees. Indeed, students pay a moderate fee at public universities (on average €631 in 2003), and students in tertiary vocational courses (*ciclos de formación professional superior*, CFPS) pay no fees at all. Moreover, many students subject to liquidity constraints may well be financially unable to take up tertiary studies (Figure 10) or may be able to take up only tertiary vocational education even if they are better suited to university education, because study duration for vocational courses is shorter[26] and direct costs lower. Conversely, students from wealthy families may be prompted to take up university studies even if they are better suited to vocational studies. Indeed, few students with modest socio-economic background study at university: among young people whose parents do not have secondary education only 13% take a university course, whereas this proportion is 65% for those youths whose parents have taken a long university degree.[27] By contrast, access to overall

25. Akee *et al.* (2008) find that children who are in households affected by the cash transfer programme have higher levels of education in their young adulthood and a lower incidence of criminality for minor offenses.

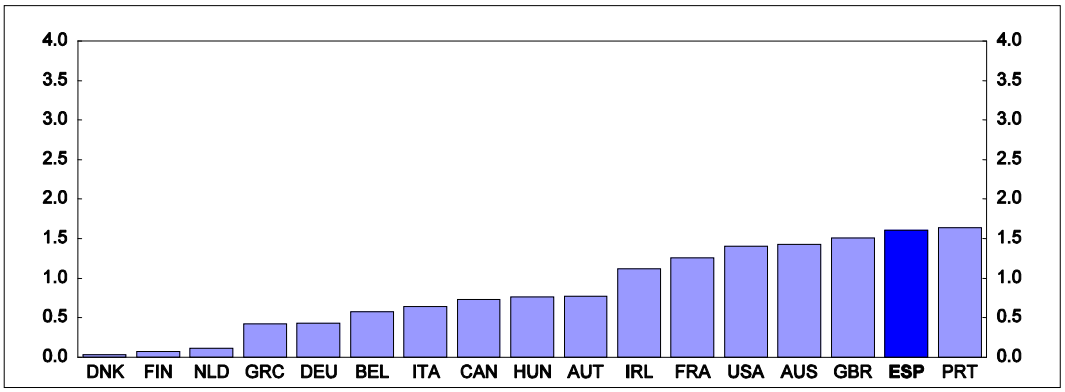
26. While the duration of a first degree at university is four years, following implementation of the Bologna process, vocational tertiary studies take one to two years to complete.

27. See OECD (2008a) which quotes research carried out in 2003.

tertiary education (including tertiary vocational education) seems relatively equally distributed across different socio-economic groups (OECD, 2007d). Besides the inequities involved, the resulting mismatch of students to education pathways contributes to lowering returns to tertiary education. Loans with income-contingent repayments should be introduced for all tertiary students, including vocational students. University fees at public universities should be increased, and fees should be introduced for tertiary vocational courses.

Figure 10. **Estimated impact of easing liquidity constraints on tertiary graduation ratios** [1]

2006, percentage points



1. Effect of an alignment of the ratio of investment costs to financing resources on the minimum in the sample, Sweden.

Source: Oliveira Martins, J., R. Boarini, H. Strauss, C. de la Maisonneuve and C. Saadi (2007),'The policy determinants of investment in tertiary education ', *OECD Economics Department Working Paper* No 576.

A recent reform of university education is a step forward in improving teaching outcomes

A new university law, passed in April 2007, strengthens quality assessment of university education, widens universities' autonomy over the content of their courses and introduces modular course structures to encourage mobility of students across universities (see the 2007 *Economic Survey of Spain* for a detailed discussion of the draft law). Moreover, the two-tier structure of degrees has been reformed, in line with the EU *Bologna* process. While short- and long-cycle degrees used to run in parallel, which often required students to take a decision as to the length of their studies at an early stage, master's degrees can now be taken after a first degree, which may help lower barriers to study longer degree courses, which appear to have the highest returns (Table 1).

There is still much scope for progress. Some regions – such as Valencia – have moved to funding universities according to output indicators. In others, funding is still fully determined by historical entitlements. The current funding arrangements appear to have encouraged inefficient resource use, as reflected in very high teaching staff-student ratios in comparison with other OECD countries (Santiago *et al.*, 2008). Actual study duration is often very long – on average eight years in engineering – much longer than programmed statutory durations, although the national accreditation process of the new degrees complying with the *Bologna* process take study programmes and realistic programme durations into consideration. There also appear to be few incentives to seek cost savings, for example, through joint use of facilities across universities (Santiago *et al.*, 2008). The independence of universities remains limited with respect to the contract and pay conditions for teaching staff. For example, universities are still obliged to award 51% of posts through civil service contracts (see the 2007 *Economic Survey* and MEC, 2007c). Reform of universities needs to be pursued further. University funding should be more

widely linked to indicators of teaching quality. Strengthening the independence of universities, notably with regard to the setting of contract conditions and pay, would be beneficial.

Universities have developed little specialisation, thereby foregoing opportunities to develop centres of excellence (MEC, 2007c). There is little competition among universities across regional borders, neither through competitive funding elements – as universities are funded by the regions – nor through mobility of students. The lack of rental housing contributes to low mobility, pushing students to live with their parents and choose a local university. Measures recently taken to encourage mobility, notably through improving access to rented accommodation for young people, will also benefit students (see OECD, 2008c). A government loan scheme with income-contingent repayments for all students could also contribute to raising mobility by reducing students' dependence on parental accommodation.

While mobility of young people – both during and after their studies – is desirable and may well increase in future, especially if an income-contingent loan scheme is widely introduced and rental housing becomes more readily available, it might aggravate geographic externalities resulting from regional responsibilities for providing and funding tertiary education. As mobility increases, the regions might be discouraged from providing resources for high-quality teaching in universities. This is because a larger part of the ensuing benefits, in terms of higher earnings and employment prospects of graduates, would accrue to students who originate from other regions or who obtain a job in another region. Indeed, such geographic externalities would be particularly strong for centres of excellence, which would attract students from all over the country. The fact that subsidies for student accommodation needed to be provided by the central government may be an illustration of such externalities.[28] All externalities would also exist in the absence of mobility, to the extent that regions do not keep tax revenues generated by their residents.[29] These arguments suggest that a nation-wide funding mechanism is needed to foster incentives among universities to encourage the development of centres of national and international significance. Consideration should be given to creating a national funding scheme, supplementing existing regional funding, to reward the creation of centres of excellence in university education, which could attract highly qualified students and staff nationally and internationally. Such a funding scheme could introduce an element of competition among universities nationally. Germany is an example of a country that has introduced such a scheme for both postgraduate teaching and university research in the context of decentralised responsibilities for university education.[30]

The attractiveness of vocational education can be raised

To a significant extent, the low number of students graduating with upper secondary vocational qualifications reflects the high failure rate of pupils in the GESO, which is likely to depress participation of vocationally interested pupils in upper secondary education. Moreover, upper secondary vocational schools suffer from poor reputations. The returns to upper secondary vocational education, while still high, have fallen, and returns to tertiary vocational education are lower than in the academic stream. Employability of vocational graduates also appears to decline more strongly with age than is the case for workers in academic streams. Hence, policies which raise the attractiveness of vocational education could make a contribution to increasing upper secondary graduation rates as well as to improving labour-market outcomes of those graduates with vocational qualifications.

28. Provision of student housing by regional governments would attract more students from other regions.

29. Close to one half of regional government revenues does not come from locally raised taxes. See the 2005 *Economic Survey* of Spain.

30. See *e.g.* the 2008 OECD *Economic Survey of Germany* for a discussion of geographic externalities of university education in Germany and the 2006 *Survey* for a critique of the design of the German initiative.

Vocational institutions at both the upper secondary and tertiary levels are closely integrated with secondary schools in the general education stream and therefore have similar institutional characteristics. Measures to improve independence and accountability could help to improve quality and labour-market relevance of vocational degree courses. A step in this direction has been taken by allowing the creation of vocational schools that are separate from the general education stream and that are given autonomy in the hiring of teachers. To raise their accountability, vocational schools could be evaluated with respect to their success in moving graduates into suitable jobs. Publication of such results could improve students' school choice and raise competition among schools. Vocational schools should be evaluated with respect to their success in the transition of graduates to qualified jobs. The qualifications required for teachers in upper secondary vocational schools are in general the same as in lower secondary schools (MEC, 2008b). While practitioners can be hired under current legislation, their number appears to be small. Employers consider the lack of practitioners in the teaching staff a weakness and have argued that teachers are therefore not sufficiently aware of ongoing technological developments (Círculo de Empresarios, 2007). Consideration should be given to opening up the teaching profession in vocational schools to practitioners more widely. Reducing dismissal costs for permanent contracts in general labour law could go some way to facilitate the hiring of practitioners.

The government is advised on vocational training by the General Council for Vocational Education which brings together education experts from central government and the social partners (MEC, 2007c).[31] This helps to ensure that curricula are adapted to skills demanded by employers. Moreover, vocational schools require students to complete a practical training module in an enterprise in the course of their education. However, central and regional governments share the setting of curricular content, which may prevent the adaptation of schools to local labour market needs and the technological capacities of local enterprises, exacerbating the adverse impact of lack of mobility. Indeed, the mismatch between the qualifications of workers with CFPM degrees and the qualification requirements of the first jobs they occupy is significant, with, on average, more than 40% of graduates working in jobs for which they have not been trained. Four years after graduation, this share is similarly high. Moreover, mismatch appears to afflict graduates from most specialities, with construction-related qualifications being the only exception (INE, 2007), suggesting that it does not reflect nation-wide excess supply or demand for specific skills. Consideration should be given to raising vocational schools' capacity to adjust curricular content more substantially to local labour-market needs.

Vocational courses include little general education except to the extent necessary to attain specific vocational education objectives. However, employers have demanded that more general educational content be incorporated in vocational courses, including, for example, oral and written expression or foreign languages (Círculo de Empresarios, 2007). The absence of non-vocational course content in the vocational schools may compromise graduates' capacity to adapt to technological change, lowering employment prospects at later age. The lack of general education or vocationally trained workers may prove to be a particular disadvantage as working lives lengthen and the inflow of young cohorts diminishes. This lack may prove to be a particular disadvantage as working lives lengthen and the inflow of young cohorts diminishes. Employment rates of vocationally trained workers at both the upper secondary and tertiary level diminish more strongly as age advances than is the case for tertiary graduates (Table 2). Non-vocational education content in core competencies should be raised in vocational education.

31. It is advised by the National Institute of Qualifications (INCUAL), which works on the definition and accreditation of courses offered and whose chairperson is appointed by the Ministry of Education.

Table 2. **Employment rates by age group and highest education attainment**

2005, per cent

	Pre-primary to primary	Lower secondary	Upper secondary general	Upper secondary vocational and post-secondary, non-tertiary	Tertiary education – vocational	Tertiary education – academic
	0/1	2	3A	3B,C & 4	5B	5A & 6
				Men and Women		
25 to 34	63.3	73.9	75.3	79.7	82.5	80.9
35 to 44	63.4	69.1	80.6	76.8	83.3	87.8
45 to 54	56.0	66.9	76.6	72.4	84.9	88.3
55 to 64	35.6	44.9	49.9	52.7	55.7	67.2
				Men		
25 to 34	77.0	87.2	82.1	90.0	88.8	83.9
35 to 44	80.2	87.9	91.9	92.4	93.0	94.3
45 to 54	78.7	87.2	88.1	88.0	90.7	93.5
55 to 64	55.6	62.2	60.5	61.4	57.9	71.4
				Women		
25 to 34	44.1	55.1	68.3	69.1	75.6	78.8
35 to 44	44.3	49.6	69.1	60.9	70.7	82.3
45 to 54	36.4	47.0	63.5	61.8	72.9	82.6
55 to 64	19.8	28.9	37.4	45.2	49.0	60.5

Source: OECD (2008), Education and Employment, Labour and Social Affairs Database.

One factor that may contribute to the low reputation of CFPM degrees is likely to be the lack of access of graduates to tertiary degrees. The regular access mode to tertiary vocational courses (CFPS) is the *bachillerato*. In contrast to *bachillerato* graduates, CFPM graduates have access only to a limited range of CFPS degree courses and have to pass a special entry exam. Entry conditions for these graduates appear to be unattractive, as the share of students pursuing any further education immediately upon graduation is only 5% (12% in the subsequent five years).[32] Only 0.5% gain access to university following their graduation, by passing a special exam (Fundación Alternativas, 2008). Introducing non-vocational content into vocational curricula could improve direct progression to tertiary level studies, notably of a vocational type. Opportunities for transferring from upper secondary to tertiary vocational education should be improved.

Box 3. **Recommendations to improve education outcomes**

Maintaining an inclusive primary and secondary school system

- The prohibition of raising fees from parents in publicly funded primary and lower secondary schools as well as of selection criteria should be enforced. A level playing field in the rules assigning resources to public and publicly funded private schools should be ensured.
- Consideration should be given to linking the disbursement of subsidies to upper secondary schools to the obligation of offering schooling free of charge.
- The disbursement of earmarked central-government transfers to regional governments, notably for programmes to foster the integration of immigrant children, should be linked to the results of evaluations, conducted by the central government, of the effectiveness of such programmes in raising educational outcomes and attainment levels.

32. Between 2001 and 2005. See INE (2007).

Raising the share of students graduating from upper secondary education

- To raise access to upper secondary education, scope for choice of options at the final stage of compulsory schooling should be widened further, including vocationally oriented subjects. The programmes of curricular diversification and for the early identification of learning needs need to be implemented and evaluated to determine best practice.
- The criteria for granting pupils promotion to subsequent grades and access to upper secondary education should be focused on those core competencies that are needed to follow any type of upper secondary education.
- Financial support for pupils in secondary education should improve incentives for pupils to remain in education beyond the age of 16. To this end, child benefits could be raised and be made conditional on continued attendance in full-time education. Payment of more generous benefits could be linked to an in-work benefit for low-income families.

Improving accountability and autonomy of schools

- Nation-wide sample-based evaluations of education outcomes should be used to evaluate the impact of regional educational policies to help determine best practice.
- Accountability of individual schools should be raised. To this end external testing at the school level should be extended to all regions, and be used to benchmark performance against targets and to identify priorities for improving performance.
- Autonomy of schools, notably with respect to hiring decisions of teaching staff and curricular content, should be widened. Schools should be given powers to hire, reward and dismiss teachers..

Reforming teacher careers

- Opportunities for promotion or other forms of reward for teaching staff and management should be widened.
- Incentives for established teachers to acquire certified pedagogical qualifications should be strengthened.
- The pool of candidates among whom head teachers can be hired should be widened, making the hiring of head teachers exclusively dependent on their potential.
- School managers' pay should include a larger premium over teacher salaries to attract qualified candidates, especially if accountability and independence of schools are raised.

Further improving access to and quality of early childhood education

- Central-government subsidies for accredited childcare facilities should be targeted on children in low-income families. To this end, the subsidies could be disbursed in the form of vouchers to low-income households with children, covering the full cost of a place in accredited childcare facilities.
- Minimum education objectives in childcare facilities should be regulated at the central-government level.

Raising the returns to tertiary education and improving access to university

- Loans with income-contingent repayments should be introduced for all tertiary students, including vocational students. University fees at public universities should be increased and fees introduced for tertiary vocational courses.
- University funding should be more strongly linked to indicators of teaching output. The independence of universities, notably with regard to the setting of contract conditions and pay, needs to be strengthened further.
- Consideration should be given to creating a nation-wide funding scheme, supplementing existing regional funding, to reward the creation of centres of excellence in university education.

Raising the attractiveness of vocational education

- Vocational schools should be evaluated with respect to their success in the transition of graduates to qualified jobs, and results should be published.
- Non-vocational education content in core competencies should be widened in upper secondary vocational education.
- Opportunities for transferring from upper secondary to tertiary education should be improved.
- Consideration should be given to opening up the teaching profession in vocational schools more widely to practitioners.
- Consideration should be given to raising vocational schools' capacity to adjust curricular content more strongly to local labour-market needs.

Bibliography

Akee, R.K.Q., W. Copeland, G. Keeler, A. Angold and J.E. Costello (2008), "Parents' Incomes and Children's Outcomes: A Quasi-Experiment", *IZA Discussion Paper* No. 3520.

Budría, S. A.and I. Moro-Egido (2006), "Education, educational mismatch, and wage inequality: Evidence for Spain", *Economics of Education Review*, Vol. X, pp. 1-10, October.

Calero, J. (2006a), *La equidad en educación. Informe analítico del sistema educativo español.* Ministry of Education and Science, Madrid.

Calero, J. (2006b), "Desigualdades tras la educación obligatoria: nuevas evidencias", *Fundación alternativas working paper*, No. 83.

Calero, J. and J. Oriol Escardíbul (2007), "Evaluación de servicios educativos: el rendimiento en los centros públicos y privados medido en PISA-2003", *Hacienda Pública Española*, No. 83, 4/2007.

Círculo de Empresarios (2007), *Formación Profesional: una necesidad para la empresa.*

Círculo de Empresarios (2008), *Reflexiones y propuestas para la próxima legislatura.*

Clotfelter, C.T., H.F. Ladd and J.L. Vigdor (2007), "How and Why Do Teacher Credentials Matter for Student Achievement?", *NBER Working Paper*, No. 12828.

Cunha, F., J.J. Heckman, L. Lochner and V. Dimitriy Masterov (2006), "Interpreting the Evidence on Life Cycle Skill Formation", *Handbook of Education Economics*, Elsevier-North Holland, Amsterdam, pp. 697-812, Chapter 12.

Del Pozo Ortiz, A. (2008), "La necesaria reforma de la función pública docente recogida en la LOE", *Revista de Educación*, Vol. 345, pp. 457-479.

Dynarski, S, and J.E. Scott-Clayton (2008), "Complexity and Targeting in Federal Student Aid: A Quantitative Analysis", *NBER Working Paper*, No. 13801.

European Commission (2007), *Eurybase, The Information Database on Education Systems in Europe, Directorate-General for Education and Culture Spain*, Brussels.

Fundación Alternativas (2008), Sistema de indicadores. http://oed.falternativas.org/.

García Castaño, F.J., M. Rubio Gómez and O. Bouachra (2008), "Población inmigrante y escuela en España: un balance de investigación", *Revista de educación*, No. 345, Ministry of Education and Science, pp. 23-60.

García Montalvo, J. (2008), *The returns to education in Spain*, mimeo, paper prepared for the OECD Economics Department.

Gonand, F., I. Joumard and R. Price (2007), *Public spending efficiency: institutional indicators in primary and secondary educations, OECD Economics Department Working Paper*, No. 543, February.

Hanushek, E.A and S.G. Rivkin (2006), "Teacher Quality", *Handbook of Education Economics*, Elsevier-North Holland, Amsterdam , Chapter 18, pp. 1051-1078.

Hanushek, E., J. Kain, J. Markman and S. Rivkin (2003), "Does peer ability affect student achievment?", *Journal of Applied Econometrics*, Vol. 18 (5), pp. 527–544.

Instituto Nacional de Estadística (INE) (2007), *Encuesta de transición educativo-formativa e inserción laboral*.

Ministry of Education of Science (2003), *Evaluación de la Educación Secundaria Obligatoria 2000*.

Ministry of Education and Science (2006a), "Resultados de la Evaluación de la Educación Primaria 2003 – Número 1", in *Apuntes del Instituto de Evaluación*, No. 1.

Ministry of Education and Science (2007a), "Informe 2007: Objetivos Educativos y puntos de referencia 2010".

Ministry of Education of Science (2007b), PIRLS 2006, *Estudio Internacional de Progreso en Comprensión Lectora de la IEA, Informe español* .

Ministry of Education and Science (2007c), *OECD Thematic Review of Tertiary Education, Country Background Report for Spain*, forthcoming.

Ministry of Education and Science (2007d), *PISA 2006, Informe español.*

Ministry of Education and Science (2008a), *Estadísticas de educación no universitaria.*

Ministry of Education and Science (2008b), *Estadística de Becas y Ayudas al studio, Año 2005-2006.*

Nechyba, T. (2006), "Income and Peer Quality Sorting in Public and Private Schools", in *Handbook of Education Economics*, Elsevier-North Holland, Amsterdam, Chapter 22, pp. 1327-1368.

OECD (2008a), Thematic Review of Tertiary Education, Spain Country Note, Paris.

OECD (2008b), *Economic Survey of Germany*, Paris.

OECD (2008c), *Economic Survey of Spain*, Paris.

OECD (2007a), *PISA 2006*, Vol. 1, Paris.

OECD (2007b), *PISA 2006*, Vol. 2, Paris.

OECD (2007d), *Education at a Glance*, Paris.

OECD (2007e), *Benefits and Wages 2007*, Paris.

OECD (2007f), *Jobs for Youth*, Spain, Paris.

OECD (2007g), *No more failures: 10 steps to equity in education*, Paris.

OECD (2006), *Equity in Education Thematic Review, Spain Country Note*, Paris.

OECD (2005), *Teachers Matter*, Paris.

OECD (2003), *Economic Survey of Spain*, OECD, Paris.

Oliveira Martins, J. *et al.* (2007), "The policy determinants of tertiary education", *OECD Economics Department Working Paper*, No. 576, September.

Pastor, J.M., J.L. Raymond, J.L. Roi and L. Serrano (2007), "Capital Humano", in *Papeles de Economía Española*, Vol. 113, pp. 190-206.

Pont, B., B. Nusche and D. Hopkins (2008), *Improving School Leadership: Case Studies and Concepts for Systemic Action*, OECD, Paris.

Santín, D. (2006), "La medición de la eficiencia de las escuelas: una revisión crítica", *Hacienda Pública Española*, Vol. 177 (2), pp. 57-82.

Santiago, P., J.J. Brunner, G. Haug, S. Malo, P. di Pietrogiacomo (2008), *Thematic Review of Tertiary Education, Spain Country Note*, OECD, Paris.

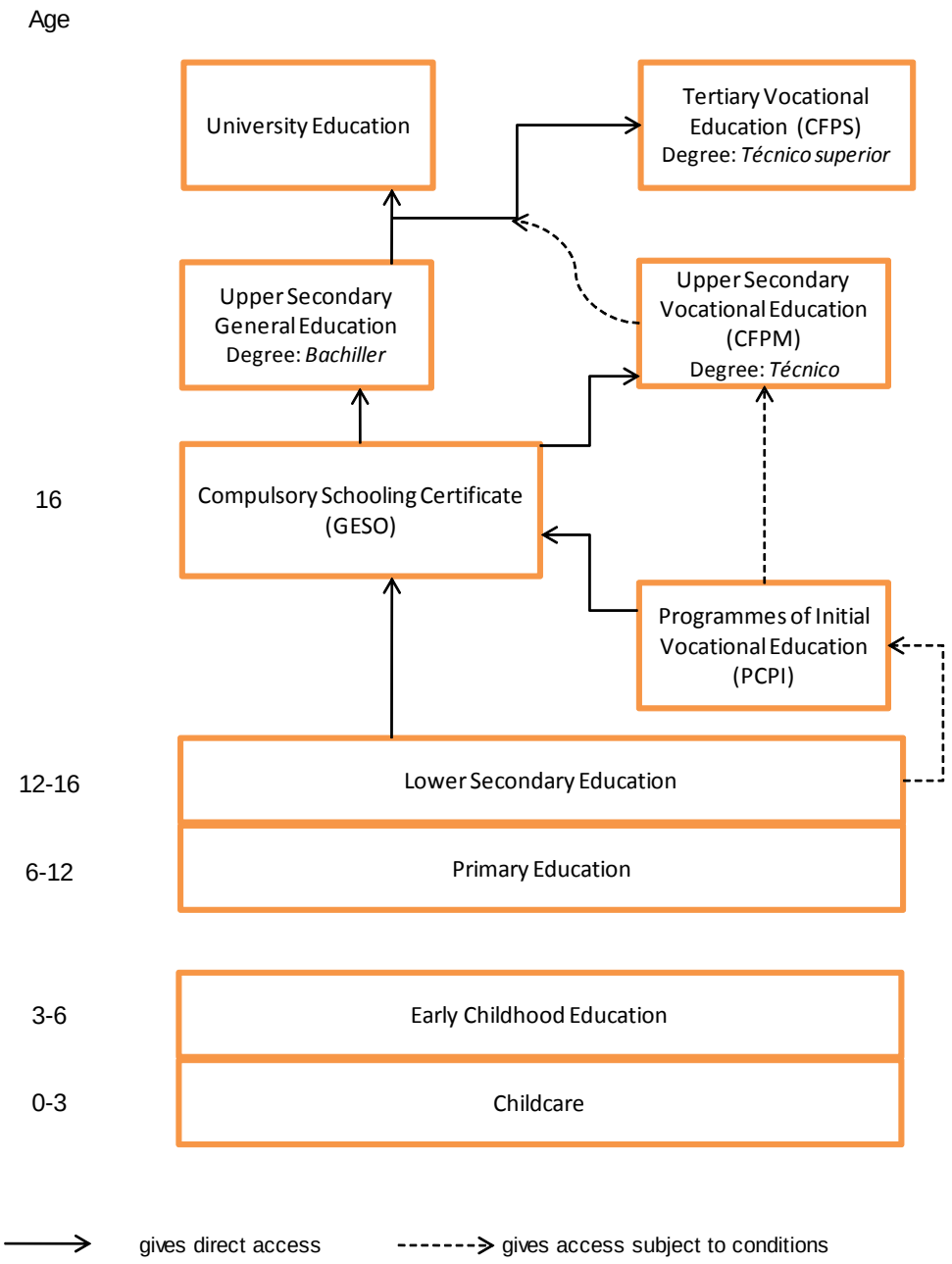
Seibel, C. (1984), "Genèses et consequences de l'échec scolaire: vers une politique de prévention", in *Revue Française de Pédagogie*, 67, pp. 7-28.

Sutherland, D. and R. Price (2007), "Linkages between performance and institutions in the primary and secondary education sector", *OECD Economics Department Working Paper*, No. 558, June.

Wößmann, L. (2005a), "The Effect of Heterogeneity of Central Exams: Evidence from TIMSS, TIMSS-Repeat and PISA", *Education Economics*, Vol. 13 (2), pp. 134-169.

Wößmann, L. (2005b), "Public-Private Partnerships in Schooling: Cross-country evidence on their effectiveness in providing cognitive skills", *PERG Research Paper*, Harvard University, Cambridge, Massachusetts.

ANNEX. **BASIC ELEMENTS OF THE SPANISH EDUCATIONAL SYSTEM**



WORKING PAPERS

The full series of Economics Department Working Papers can be consulted at www.oecd.org/eco/Working_Papers/

665. *Health care reform in the United States*
(February 2009) David Carey, Bradley Herring and Patrick Lenain

664. *The role of R&D and technology diffusion in climate change mitigation: new perspectives using the WITCH model*
(February 2009) Valentina Bosetti, Carlo Carraro, Romain Duval, Alessandra Sgobbi and Massimo Tavoni

663. *Long-run GDP growth framework and scenarios for the world economy*
(January 2009) Romain Duval and Christine de la Maisonneuve

662. *Realising South Africa's employment potentia*l
(January 2009) Geoff Barnard

661. *Making the most of Norwegian schools*
(January 2009) Romina Boarini

660 *Can the financial sector continue to be the main growth engine in Luxembourg?*
(January 2009) Arnaud Bourgain, Patrice Pieretti and Jens Høj

659. *Fiscal policy responsiveness, persistence, and discretion*
(December 2008) António Afonso, Luca Agnello, Davide Furceri

658. *The economics of climate change mitigation: policies and options for the future*
(December 2008) Jean-Marc Burniaux, Jean Chateau, Romain Duval and Stéphanie Jamet

657. *Maximising Mexico's gains from integration in the world economy*
(December 2008) David Haugh, Roselyne Jamin and Bruno Rocha

656. *How do taxes affect investment and productivity? An industry-level analysis of OECD countries*
(December 2008) Laura Vartia

655. *Strategies for countries with favourable fiscal positions*
(November 2008) Robert Price, Isabelle Joumard, Christophe André and Makoto Minegishi

654. *Monetary transmission mechanism in Central and Eastern Europe: Surveying the Surveable*
(November 2008) Balázs Égert and Ronald MacDonald

653. *An Overview of the OECD ENV-Linkages Model*
Jean-Marc Burniaux and Jean Château

652. *Reforming the labour market in Japan to cope with increasing dualism and population ageing*
(November 2008) Randall S. Jones

651. *Enhancing the productivity of the service sector in Japan*
(November 2008) Randall S. Jones and Taesik Yoon

650. *Reforming the tax system in Japan to promote fiscal sustainability and economic growth*
(November 2008) Randall S. Jones and Masahiko Tsutsumi

649. *What Drives the NAIRU? Evidence from a Panel of OECD Countries*
(November 2008) Christian Gianella, Isabell Koske, Elena Rusticelli and Olivier Chatal

648. *Short-term distributional effects of structural reforms: selected simulations in a DGSE framework*
(October 2008) Annabelle Mourougane and Lukas Vogel

647. *Speed of adjustment to selected labour market and tax reforms*
(October 2008) Annabelle Mourougane, Lukas Vogel

646. *The challenge of monetary policy in Turkey*
(October 2008) Olcay Çulha, Ali Çulha and Rauf Gönenç

645. *Improving cost-effectiveness in the health-care sector in Iceland*
(October 2008) Hannes Suppanz

644. *Understanding Russian regions' economic performance during periods of decline and growth – an Extreme Bound Analysis approach*
(October 2008) Rüdiger Ahrend

643. *Do tax structures affect aggregate economic growth? Empirical evidence from a panel of OECD countries*
(October 2008) Jens Arnold

642. *Accounting for one-off operations when assessing underlying fiscal positions*
(October 2008) Isabelle Joumard, Makoto Minegishi, Christophe André, Chantal Nicq and Robert Price

641. *Do corporate taxes reduce productivity and investment at the firm level? Cross-country evidence from the Amadeus dataset*
(October 2008) Cyrille Schwellnus and Jens Arnold

640. *The challenge of rapidly improving transport infrastructure in Poland*
(September 2008) Rafal Kierzenkowski

639. *Bridging the housing gap in Poland*
(September 2008), Rafal Kierzenkowski

638. *Improving the business and investment climate in Indonesia*
(September 2008), Diego Moccero

637. *Growth performance and policy challenges*
(September 2008), Luiz de Mello

636. *A taxonomy of instruments to reduce greenhouse gas emissions and their interactions*
(September 2008), Romain Duval