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Raising Education  
Outcomes in Greece

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**By Vassiliki Koutsogeorgopoulou**

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## ABSTRACT/RÉSUMÉ

### Raising Education Outcomes in Greece

Despite progress over the past decades, Greece's educational indicators lag behind those of other OECD countries. PISA scores are low, a large number of tertiary students study abroad, and attainment rates are low at all levels of education. Resources devoted to education are also modest. Participation in early childhood education and care is particularly low, influencing education outcomes in later years, the child care sector is poorly regulated and under-developed, and the separate administration of pre-school and childcare has led to inefficiencies. Education quality in primary and secondary levels reflects lack of performance incentives for teachers, deficient curriculum, weak school autonomy and accountability. This has driven children to complementary private courses to prepare for university exams. The university system is rigid and lacks a well performing evaluation mechanism. Recent reforms have addressed some of these issues but more needs to be done. Educational outcomes could be improved by giving more autonomy to schools and universities, and increasing accountability by, for example, performance evaluations of teachers and introducing standard nationwide exams at more levels of school education. A more flexible framework for tertiary education would promote responsiveness to changing demand conditions and enhance the quality of the sector. Educational outcomes could also be improved by more initiatives to counteract the effects of disadvantaged backgrounds on performance. The schools should also ensure that the curriculum prepares students with competences needed to succeed in their post-school life. This includes making vocational and technical education more attractive.

This Working Paper relates to the 2009 Economic Survey of Greece.  
([www.oecd.org/eco/surveys/Greece](http://www.oecd.org/eco/surveys/Greece))

**JEL classification:** I20; I21; I22; I28; J24

**Keywords:** education; PISA; early education; child care; teaching quality; upper secondary; school curricula; crammers; vocational and technical; autonomy; accountability; tertiary education; university; tuition fees.

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### Améliorer les performances du système éducatif en Grèce

En dépit des progrès réalisés dans les dernières décennies, les indicateurs de l'éducation de la Grèce sont en retrait par rapport à ceux des autres pays de l'OCDE. Les résultats de l'exercice PISA sont médiocres, un pourcentage élevé d'étudiants effectuent leurs études supérieures à l'étranger et les taux de réussite sont faibles à tous les niveaux. Pareillement, les ressources consacrées à l'éducation sont modestes. L'accueil et l'éducation de la petite enfance sont très peu développés, ce qui se répercute sur les performances éducatives ultérieures, le système de prise en charge des tout jeunes enfants est sous-développé et peu régulé, et la séparation administrative opérée entre l'éducation préscolaire et la garde des tout jeunes enfants est source d'inefficacités. La qualité de l'enseignement primaire et secondaire reflète le manque d'incitation à la performance pour le corps enseignant, les carences des programmes scolaires, le manque d'autonomie et de responsabilité des établissements scolaires. Ce tableau conduit les parents à faire donner des cours privés complémentaires à leurs enfants pour les préparer aux examens universitaires. Le système universitaire est rigide et il ne dispose pas d'un mécanisme d'évaluation performant. Les réformes récentes se sont attaquées à certains de ces problèmes, mais cela ne suffit pas. Les performances du système éducatif pourraient être améliorées en donnant plus d'autonomie aux écoles et aux universités et en augmentant le niveau de responsabilité, par exemple en évaluant les performances des enseignants et en introduisant des examens nationaux standard à un plus grand nombre de niveaux d'études. Dans l'enseignement supérieur, un cadre plus flexible autoriserait une meilleure réactivité à l'évolution de la demande et se traduirait par un gain qualitatif. Les performances du système éducatif pourraient également être améliorées en prenant davantage d'initiatives pour compenser les effets d'antécédents défavorables sur

les performances. Les établissements scolaires devraient en outre s'assurer que leurs programmes permettent aux élèves d'acquérir les compétences requises pour réussir dans leur vie post-scolaire, ce qui passe notamment par une plus grande attractivité de l'enseignement technique et professionnel.

Ce document de travail se rapporte à *l'Étude économique de l'OCDE de la Grèce 2009* ([www.oecd.org/eco/etudes/Grèce](http://www.oecd.org/eco/etudes/Grèce))

**Classification JEL :** I20; I21; I22; I28; J24

**Mots clés :** éducation ; PISA ; éducation préscolaire ; crèche ; qualité de l'enseignement ; éducation secondaire supérieur ; curricula scolaire ; répétiteurs ; éducation technique et professionnelle ; autonomie ; responsabilisation ; éducation tertiaire ; université ; frais de scolarité.

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## **Raising Education Outcomes in Greece**

By Vassiliki Koutsogeorgopoulou<sup>1</sup>

1. To stay competitive and continue to raise living standards in the face of increasing international competition Greece needs to improve its educational outcomes. Although educational outcomes have improved considerably over the past three decades, the stock of Greek human capital measured by educational attainment is below the OECD average. The quality of educational outcomes is also comparatively poor as indicated by international tests pointing to much scope for improvement. While important challenges remain at all levels, early childhood education and care, and upper-secondary education are in most need of reforms, as discussed below. The government has recognized these challenges and has intensified discussions on education reform aiming at upgrading its quality, with efforts focusing initially on upper secondary education.

### **An overview of the education system**

#### *Administrative control remains focused at the central level*

2. Compulsory education runs from age 5 through 15. This includes one year of pre-primary school (kindergarten), six years of primary school, and three years of lower-secondary school. Kindergarten attendance is optional for four-year olds and child centres (paidikoi stathmoi) and infant centres (vrefikoi stathmoi) provide education and care for children under four (European Commission, 2008a). “All day” institutions, providing longer hours of services than the regular kindergartens and primary schools, are also in operation.

3. Post-compulsory education comprises both general and vocational streams. At the secondary school level, vocational lyceums (EPAL) (lasting three years) combine general education with specialised technical and vocational training, while vocational schools (EPAS) (lasting 2 years) are organised by occupation.<sup>2</sup> EPAL graduates can take entry exams for higher education along with those from the Integrated Lykeio, offering general education. Students from EPAS do not have the possibility to continue to tertiary education.

4. At the tertiary level, education is provided through public universities and technological institutes. Private higher-education institutions are not allowed by the Greek Constitution. Distance learning is available through the Hellenic Open University for students aged 22 years and over (entering via a lottery rather than on performance tests). This initiative aims at addressing the educational needs of remote areas given differences in population density characterising Greece.

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1. The paper was originally produced for the 2009 OECD *Economic Survey of Greece*, published in July 2009 under the authority of the Economic and Development Review Committee of the OECD. I would like to thank, without implicating, Andrew Dean, Robert Ford, Peter Hoeller, Piritta Sorsa, Claude Giorno, colleagues in the Directorate of Education, and Greek government officials for valuable comments and/or discussions. I am also grateful to Joseph Chien, Marie-Christine Bonnefous and Agnès Cavaciuti for technical assistance and to Deirdre Claassen for secretarial assistance.

2. EPAS can be attended by graduates of the first class of the General Lyceum or EPAL.

5. The management of the pre–university education system is centralized, although steps have been taken in recent years to devolve responsibilities at the regional level.<sup>3</sup> The Ministry of Education and Religious Affairs has responsibility for the formulation and implementation of educational policies, the budgets and their administration, co–ordination and supervision of decentralised services, approval of primary and secondary school curricula and the appointment of teaching staff (European Commission, 2008a). The majority of educational establishments, including private schools at the primary and secondary levels without government subsidies, are under the supervision and inspection of the Ministry of Education.

6. Higher education institutions are self–governing under the auspices of the Ministry of Education. The Constitution gives universities academic freedom. The need for state control arises primarily from the fact that higher education institutions are state–financed. The state also provides grants, academic textbooks, and accommodation and board under specific conditions.

### *Spending is below the OECD average*

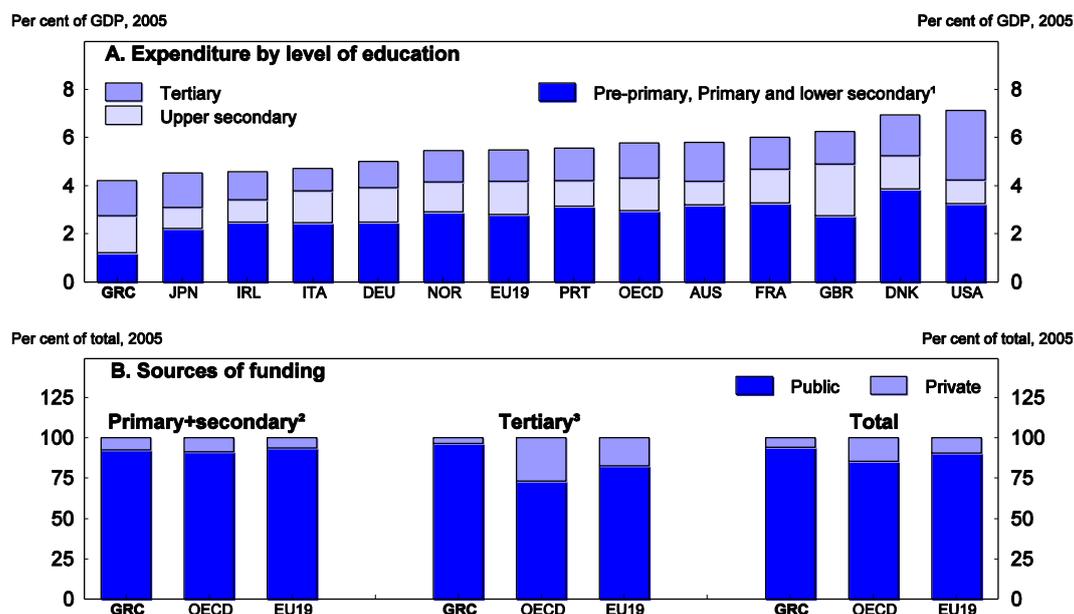
7. Despite a rapid rise in recent years, total public and private expenditure on education remains below the OECD average (Figure 1, upper panel). Greece stands out with a very low spending on the compulsory part of its education system (pre–primary to lower–secondary education), which is about half of the OECD average. Spending is somewhat above the OECD average in upper secondary education, and at average for universities. In contrast to many OECD countries, Greece at 94% has a relatively high share of public spending in its total educational outlays (Figure 1, lower panel). Public education is provided free of charge at all levels including in universities.<sup>4</sup> In 2006–07, 94% of the students enrolled in primary and secondary education attended public schools (European Commission, 2008a). While private higher education providers are not allowed by the Constitution, private schools are fully self–financed with the level of tuition fees depending on the level of education.

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3. There are 13 Regional Education Directorates under the Ministry of Education that implement educational policies and have the responsibility for the administration and supervision of the other decentralised services in their area and for the co–ordination of local school advisors. Education Directorates in each prefecture and district offices provide administrative support and supervise and co–ordinate school units (European Commission, 2008a).

4. The provision of services in the municipal child care centres are subject to a small fee, though there is no fee for certain categories of families (European Commission, 2008a).

Figure 1. Resources spent on education



1. Pre-primary covers children aged three years and older. Upper secondary includes post secondary non-tertiary education. For the United Kingdom, primary and lower secondary only covers primary education, and upper secondary covers all secondary education. No pre-primary data available for Greece.
2. Primary, secondary and post-secondary non-tertiary education.
3. Private funding in tertiary education includes work-related training.

Source: OECD (2008), *Education at a Glance* and OECD (2007), *PISA 2006: Science Competencies for Tomorrow's World*, OECD Publishing.

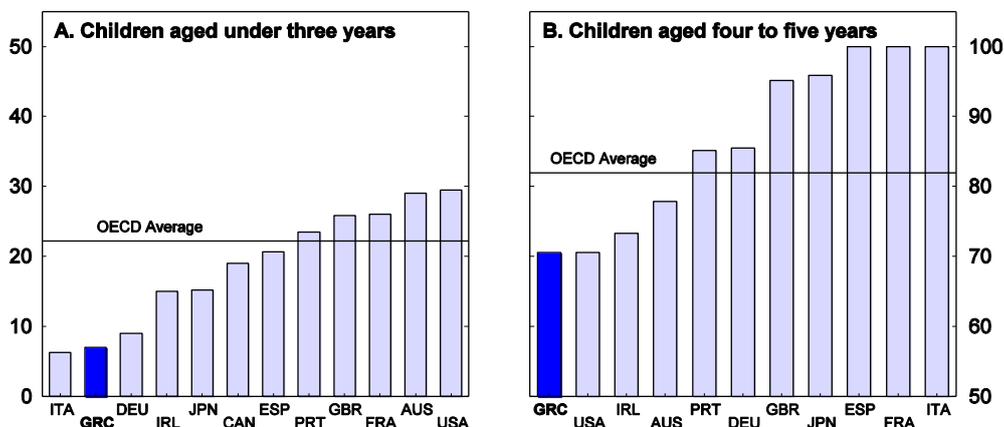
## Education outcomes

### *Attainment is low at all levels of education*

#### *Participation in pre-primary programmes is well below international benchmarks*

8. The low enrolment rates of younger children can affect subsequent learning outcomes. Only 7% of children 3 and under were enrolled in childcare in 2003 compared to 22% in the OECD area on average (Figure 2, left panel), and the enrolment rate in pre-primary institutions of children aged 4–5 falls below the OECD average and countries such as France and Italy where participation is universal or nearly so (Figure 2, right panel). Participation in early childhood education and care is of major importance because the learning skills acquired at a young age have an impact on education outcomes in subsequent stages of education (Carneiro and Heckman, 2003). Evidence from PISA 2003 suggests that students who attended pre-school programmes performed better in mathematics at age 15, even when socio-economic background is taken into account, and that the benefit tends to increase with the years of pre-school attendance (OECD, 2004). Access to early childhood education is also important because of its impact on labour market participation for women (OECD, 2001). For example, in 2002, the EU set an enrolment target for pre-primary education (90% for all children aged between 3 years and the beginning of compulsory education) to raise employment rates in Europe, especially among women (European Commission, 2007a). It is clear that Greece needs to catch up with the best performing countries in the critical area of early childhood education and care.

Figure 2. Enrolment rates in early childhood services, 2003/04<sup>1</sup>



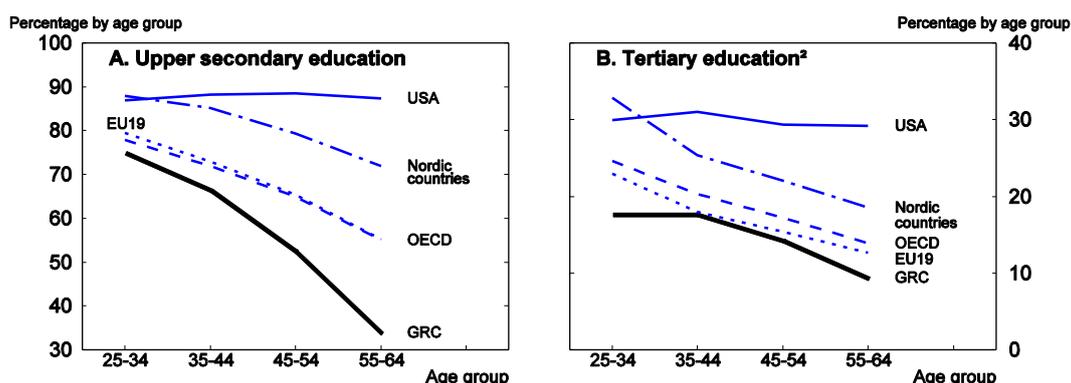
1. 2001 data for Canada and Germany; 2002 for France; 2003 for Greece and 2005 for the United States.  
 Source: OECD Family database and *Education at a Glance* (2008).

*Completion rates of upper secondary education are low in most age groups ...*

9. Despite progress in recent decades, upper secondary attainment levels remain below the OECD average, tending to reduce labour force participation rates, although the gap has narrowed considerably for the younger cohorts (Figure 3, left panel). Recent EU data suggest that the percentage of 20–24-year olds in Greece having completed at least upper secondary education (82%) was somewhat above the EU19 average (80%) in 2008. The large difference in education levels between younger and older cohorts points to rapid progress in recent years. However, further increases in secondary education completion rates are important as it has been shown to increase participation in the labour market, especially for women (OECD, 2008a). The employment rate of persons with below upper secondary education was 60% compared to 70% for upper secondary graduates in 2006 for the 25–65 age group. The gap was nearly three times larger for women compared to men.

Figure 3. Education attainment in international comparison

Population that has completed at least the level of education indicated, 2006<sup>1</sup>

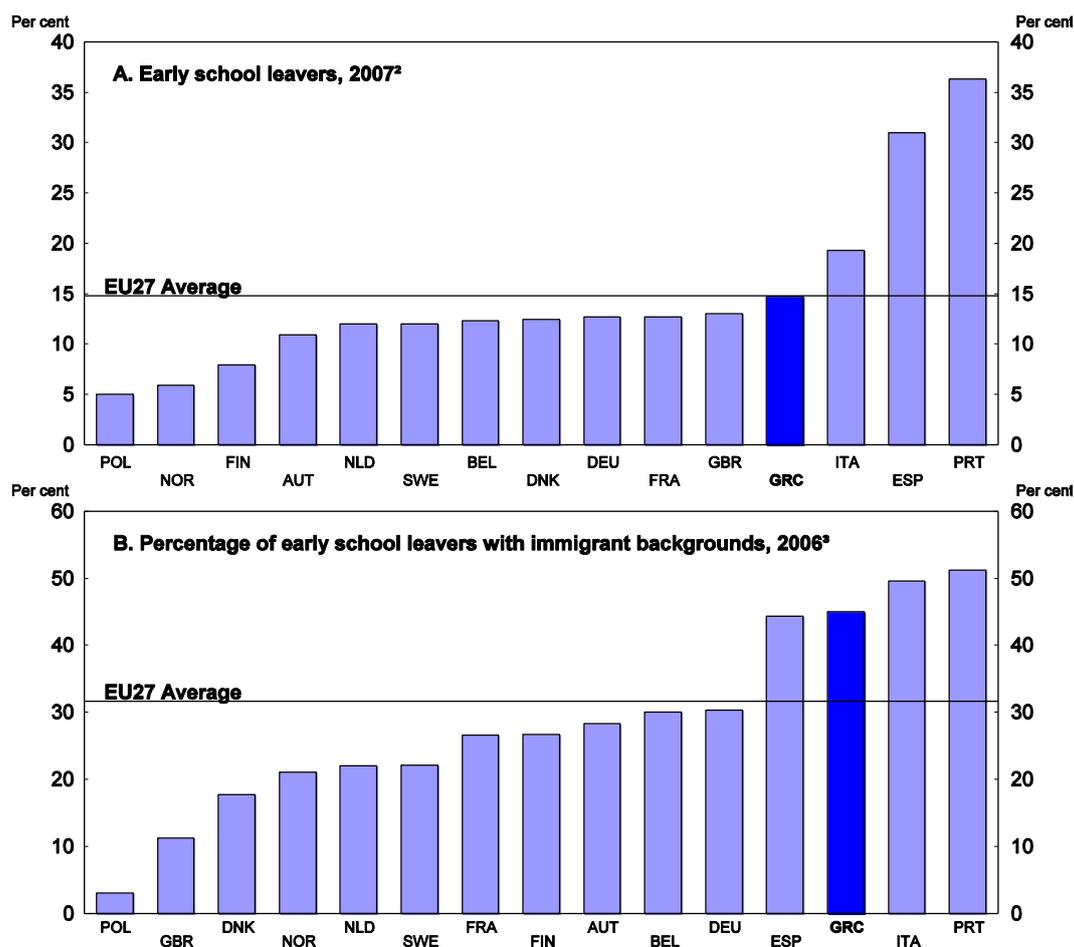


1. The aggregates for the OECD and EU19 are unweighted averages.  
 2. Tertiary type A and advanced research programmes.  
 Source: OECD (2008), *Education at a Glance*.

10. About 15% of the 18–24 age group left school with less than upper secondary education in 2007 and did not participate in any further education or training (Figure 4, upper panel). Furthermore, while

three-fifths of early school leavers had completed lower secondary school, 2% of this group did not have any formal education and a fourth had only primary education. These levels are double the EU average. Nearly half of the early school leavers had an immigrant background, which again is above the EU average (European Commission, 2008b) (Figure 4, lower panel). As skills impact productivity, reducing the dropout rate has become a policy priority in the Lisbon agenda, which targets an early school leaving rate of 10% for the EU area. Both productivity and equity in Greece would benefit from more attention to special education needs of those with immigrant backgrounds.

Figure 4. Early school leavers<sup>1</sup>



1. Percentage of the population aged 18–24 with less than upper secondary education and not in education or training.
2. Provisional data for Portugal and Finland.
3. Limited reliability because of low number of non-nationals for Poland, Denmark, Norway and Finland.

Source: Eurostat.

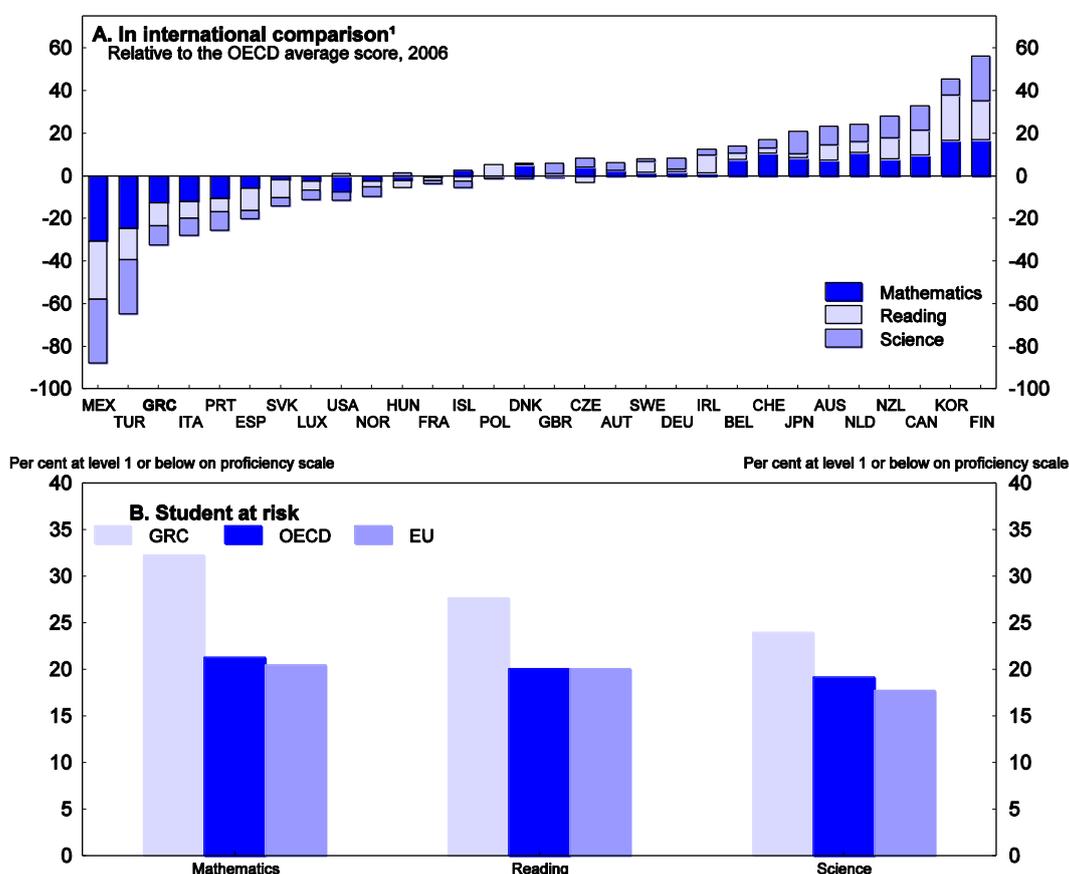
... with scope to raise attainment at the tertiary level

11. Although an increasing number of younger people now complete university (Figure 3, right panel), graduation rates remain among the lowest in the OECD. While enrolment rates tend to be relatively good, the number of drop-outs is high (OECD, 2007a). As discussed later in the paper, the graduation patterns in Greece are affected by both supply and demand factors. These include the inflexibility of the higher education system, the relatively low private internal rate of return to tertiary education, and the absence of a student loan system to help students financing tertiary education studies.

**Overall achievement is below the OECD average**

12. Greece fares poorly in international comparisons in terms of qualitative output indicators in secondary education and has large internal differences in performance. The 2006 PISA scores for mathematics, reading and science at age 15 are all well below the OECD average (Figure 5, upper panel). The average reading scores also registered a statistically significant decline between 2003 and 2006, while Greece was one of the two OECD countries (along with Mexico) where performance improved in mathematics. There are also a large number of very poor performers. Evidence from the 2006 PISA study suggests that a fourth of 15-year olds performed below the scientific “baseline” proficiency ( proportion of students falling below proficiency level 2), with even higher shares for reading and mathematical skills. These are well above the OECD average (Figure 5, lower panel).

**Figure 5. PISA performance**  
Student performance at age 15



1. The three skills are weighted equally in the total score. Data for the United States in reading proficiency is from PISA 2003. Source: OECD (2007), *PISA 2006: Science Competencies for Tomorrow's World*, OECD publishing.

13. Socio-economic background explains much of the variance in student performance in science. Although both native students and those with an immigrant background score below the OECD average and their performance difference has decreased overtime, the gap remains at 49 score points (Table 1). While below the OECD average, this represents more than one year of schooling on average in the OECD countries. Students who do not speak the language of assessment (or other official languages or national dialects) at home are 2.3 times more likely to be at the bottom quarter of the science performance distribution. Differences in the schooling conditions contribute to the performance gap (OECD, 2007b). As in many other OECD countries, immigrant students tend to attend schools with a more disadvantaged socio-economic intake and a lower quality of educational resources (for example, instructional materials and computers). Dealing with students at risk is a special challenge for the Greek school system.

**Table 1. The impact of immigrant background on student performance**

	Native students <sup>2</sup>	First-generation students <sup>3</sup>	Difference in science performance between first generation and native students	Differences in science performance between students with an immigrant background (first and second generation <sup>4</sup> ) and native students	
				PISA 2006	PISA 2000
	Performance on the science scale				
Australia	529	527	-3	-2	-13
Canada	541	519	<b>-22</b>	n.a	<b>-22</b>
France	505	438	<b>-67</b>	<b>-53</b>	<b>-66</b>
Germany	532	455	<b>-77</b>	<b>-85</b>	<b>-93</b>
Greece	478	428	<b>-49</b>	<b>-44</b>	<b>-66</b>
Ireland	510	500	-10	-11	n.a
Italy	479	418	<b>-61</b>	<b>-58</b>	n.a
Portugal	479	412	<b>-67</b>	<b>-55</b>	<b>-31</b>
Spain	494	428	<b>-66</b>	<b>-60</b>	n.a
United Kingdom	519	479	-41	<b>-33</b>	n.a
United States	499	442	<b>-57</b>	<b>-48</b>	<b>-39</b>
OECD average	506	453	<b>-58</b>	<b>-57</b>	<b>-61</b>

1. Values that are statistically significant are indicated in bold.
2. Born in the country of assessment with at least one of their parents born in the same country.
3. Born in another country and whose parents were born in another country.
4. Born in the country of assessment but whose parents were born in another country.

Source: OECD (2007), *PISA 2006: Science Competencies for Tomorrow's World*.

14. Cross-country comparisons of the performance of higher education point to quality problems in Greek universities. In the Shanghai Jiao Tong annual world ranking, only two Greek universities were included in the top 500 in 2006.<sup>5</sup> This ranks poorly compared to countries with similar, or even smaller, shares in global GDP. For example, universities in Finland and New Zealand were among the 1% of the top 500. The very high rate of Greek students studying abroad, despite a largely free education at home, is partly due to access restrictions, but it may also reflect low standards in local universities (OECD 2007a).

5. The Shanghai Jiao Tong ranking is primarily a measure of research output rather than teaching output, and the methodology is likely to favour English-language institutions and, also larger institutions over smaller ones. Other rankings, which are less comprehensive but probably less subject to these biases, though also rank Greek universities relatively low. The UK Times Higher Education Supplement, for example, a kind of "peer review" which ranks institutions on the basis of the subjective opinions of university researchers, places the University of Athens in last place out of 200 top world universities.

The small share of foreign tertiary enrolments in total (2.5% compared to an OECD average of 9.6%) constitutes an additional indicator of quality, although linguistic considerations are very important in this regard.

## **How to improve the performance of the education system?**

### ***Increase participation in early education and care and enhance its quality***

15. The early childhood education and care (ECEC) sector – comprising both child care arrangements for infants and toddlers and pre–primary education<sup>6</sup> – faces a number of challenges related both to access and quality. This is particularly so in the case of services for children aged under 3 years, which has not yet been recognised by society as a “fully–fledged” level of schooling (European Commission, 2009). Petrogiannis (2002) concludes that the quality offered to children in the day care centres in Greece ranges between “minimal” and “marginally good”. Access and quality are also affected by the separation of the “child care” and “early education” into different administrative settings.

#### *Concerns relating to access*

16. Social preferences and supply problems influence low enrolment of very young children in formal childcare (Figure 2, left panel). Many parents prefer to leave infants to the care of grandparents,<sup>7</sup> although child care costs (net of benefits and tax concessions) are very low by international comparison (OECD, 2007c – Figure 6.5). Enrolment is also influenced by an insufficient supply of child care (Daouli *et al.*, 2004). A recent OECD study supports previous findings that public provision of nurseries for children under 3 years is insufficient (Immervoll and Barber, 2005). Under–supply is particularly acute in urban areas (Petrogiannis, 2002). Existing arrangements grant priority access to poorer families. Combined with the low cost, this shifts the undersupply problem from one group of parents to another without providing a comprehensive policy solution.

17. Access to early childhood education and care is further constrained by the low number of opening hours and limited number of services. Subsidised provision is offered only on a part–time basis (European Commission, 2009), which has led to low opening hours. The type of services offered are also limited, constraining parents’ choice. A European Union review of childcare statistics found that Greece provides only four types of childcare services, compared with 14 in the United Kingdom with the other member states equally distributed between 5 and 11 and (Eurostat, 2002).

#### *Quality considerations*

18. The lack of a national framework for setting quality standards for early childhood education and care influences quality of services. While national standards exist for pre–primary services (for example, staff to child ratio and maximum class size), in child care it is mostly with the local authorities that set their own standards. There are also marked differences between child care and pre–primary education in their pedagogical frameworks. This is centrally set for pre–school (with contents and methods of primary schooling introduced at the age of 4) but not for child care services. In addition, the child care sector lacks

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6. The term “pre–primary” refers to kindergartens (nipiagogeia) which provide preschool education for children 4 to 6 and operate independently, under the supervision of the Ministry of Education, or in centres together with the state nursery schools (child centres) supervised by the Ministry of Interior Affairs (European Commission, 2007b). Education for children aged 4 or under is provided at the child centres (and at infant centres that are either municipal (under the supervision of the Ministry of Interior Affairs) or private (under the supervision of the Ministry of Health).

7. For a discussion see, Hank and Buber (2007).

a regulatory framework for the establishment and operation of providers, which has led to differences across providers in terms of fees charged, required staff qualifications and quality of services. Petrogiannis (2002) assesses that the whole system of day care provision in Greece has been structured in a “haphazard and rather poorly regulated manner”, resulting in a patchwork of services and wide disparities in the standards of provided services. The lack of standards has also contributed to poor infrastructure. There are no technical specifications and standards for child care premises, while kindergartens, especially those sharing their premises with a primary school, are often given a minimal space with no play areas or rooms for creative activities (OECD 1997; Xochellis and Kesidou, 2007).

19. Quality of early childhood services is also influenced by the absence of systematic evaluation and reporting procedures in contrast to many OECD countries (European Commission, 2009). In the Netherlands, for example, the government has set up a special body that monitors the outcomes of early childhood education and care policy, with the municipal authorities being asked to provide data on participation rates, implemented programmes and staff training.

*There is ample scope for further action*

20. The government has sought to improve access to and quality of early childhood education and care services. Recent measures for pre-primary education (kindergartens) include a revision of curricula, and increased investment for pre-primary services (including in the number of teaching staff). Flexible “zone” programmes – implemented on a pilot basis – aim to improve the capacities and skills of pre-primary students through activities centred on specific objectives. Moreover, “all-day school” programmes were extended to the pre-primary level. All-day” kindergartens operate an extended timetable and engage children in creative activities for at least 8 hours per day (compared to 4 hours a day in the case of regular kindergartens). There have also been initiatives to ensure equitable access to pre-school for children with special needs, such as parallel support classes in mainstream kindergartens and the establishment of special education kindergartens, and measures to reduce geographical disadvantages. Students living in remote or sparsely populated regions which do not have easy access to pre-primary school units are provided with transport facilities, as well as accommodation and meals at school premises, which are free of charge. In addition, the government has extended compulsory education to the second year of pre-primary education (5-year olds), with plans to make kindergarten attendance compulsory for four-year olds as well.

21. The establishment of a regulatory framework for child care services is also underway. A *special committee* has been set up in the Ministry of Interior Affairs – the supervisory authority – that will make proposals to modernise the operational framework by setting technical standards for its premises, the development of a pedagogical programme for pre-school education, and the establishment of parameters which would ensure quality services for all attending children.

22. The government’s initiatives go in the right direction but more reforms are needed. Moving towards a better regulated and more uniform child care sector is critical for the quality of services. Plans to enhance the participation of four-year olds in pre-primary education are welcome (Figure 2, right panel). In most OECD countries with high enrolment, pre-school education is optional (Choi, 2004). Universal access – ensuring an affordable place for all children who need it – has been preferable, because needs and demand for early childhood education and care vary according to family circumstances, especially for young children (OECD 2001). The European Commission has set an objective towards universal provision of early childhood education and care according to which member states would provide subsidised full-day places for one-third of children aged 0–3 years and for over 90% of all 3–6 year olds by 2010 (OECD, 2006). However, there are also benefits from compulsory pre-primary attendance policy. In Greece, for example, such policy would help to ensure that more immigrant children participate in pre-primary education. It would also ensure the effective use of the infrastructure to be built for the early childhood education needs, minimising the risk of overcapacity for the four-year olds.

23. Access and quality of services can also be enhanced by adopting an integrated approach to early childhood education and care (OECD 2001, 2006). A split regime – like the current regime in Greece, where responsibility is divided between the Ministry of Interior (child care sector) and the Ministry of Education (pre–primary education) – is detrimental to the rapid expansion of early childhood services (OECD, 1997). The split structure further creates inefficiencies due to the duplication of administrative costs, as the first year of kindergartens (4 to 5 year olds) is also provided by child centres, and complicates regulation and service delivery. International evidence on efficient administrative structures supports having a lead ministry in charge of early childhood education and care (OECD 2001, 2006). Moreover, to ensure high quality standards, public funding should only be available to providers who respect set standards. Systematic data collection and monitoring are imperative for a high quality early childhood policy.

24. Well trained staff, good working conditions and the pedagogical frameworks are also essential for enhancing the quality of services. A recent study by the European Commission highlights the importance for the member countries of broadening the initial and in–service training of pre–primary educators and the need to develop strategies to recruit and retain a qualified workforce (European Commission, 2006a). Pedagogical frameworks should facilitate the transition between early childhood services and schools, without a risk of “schoolification” of early childhood institutions. This is particularly important in countries like Greece which adopt a “pre–primary” approach to education, with contents and methods of primary schooling introduced at earlier ages (in particular, at the age of 4 in Greece) (OECD, 2006).

25. The planned and suggested reforms to enhance access and quality in early childhood education and care would require additional government financing. This would be warranted by Greece’s comparatively low level of education expenditure (OECD 2007c, Chart 6.1), and the recommendations of the OECD Thematic Reviews for significant public funding to support a “sustainable and equitable” early childhood system (OECD 2001, 2006). Fiscal constraints nevertheless imply that public resources would need to be freed from other sectors, such as public administration.

### ***Promoting high quality schooling for all students in other levels***

#### *Reducing school failure and improving equity*

26. The authorities have introduced a number of initiatives to reduce early school leaving and help under–performing students. These include evening junior high schools for working students, additional instructive teaching for students who perform poorly in specific subjects, educational programmes operating in all–day schools, and measures to facilitate the integration of students with different cultural and linguistic background. The latter benefit approximately 136 000 repatriate and foreign students.<sup>8</sup> In addition, the new curricula and school textbooks of the mainstream educational system (discussed below) largely take into account the multi–cultural composition of Greek schools and the principles of intercultural education.

27. These initiatives reduce inequality in the education system and create conditions for more successful schooling, but more needs to be done. Official evaluations of the measures adopted are positive in improving integration of return migrant and immigrant children. However, more measures are needed to address factors stemming from inequities in social backgrounds. Consideration could be given to changing public school admittance arrangements which can favour socio–economic segregation by allocating students to schools solely on the basis of residence criteria.<sup>9</sup> This implies that only the most advantaged

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8. Initiatives take the form of reception and support classes and the so called “intercultural schools” attended by students of native and immigrant origin and staffed by specially trained teachers.

9. The only exception is the experimental schools where students are accepted by means of a public draw.

groups have the choice to either put their children in a good private school or to buy/rent a home near a good public school, with consequences for the socioeconomic composition of public schools. The PISA findings for scientific literacy suggest that the socio-economic context of the school is more important to learning outcomes than the students' socio-economic background (OECD 2007b). Governments often allow for parental choice of schools. This policy option, however, requires careful management to avoid increasing differences in the social composition of schools, as popular schools tend to be oversubscribed. Student selection methods, such as lottery arrangements or additional support to schools attracting students from disadvantaged backgrounds, should be considered (OECD, 2008b). Hoxby (2006) indicates three conditions to be met for school choice to be successful: *i*) supply flexibility, implying that schools in demand can increase capacity and those rejected have to close; *ii*) money follows the student; and *iii*) independent management of schools.

28. Efforts to reduce geographic disparities in dropout rates are welcome and need to continue. Early school leaving is a more common phenomenon among children living in rural areas than in urban centres, though the difference was reduced considerably over time, reflecting, in addition to the need to support family finances, the student's place of residence.<sup>10</sup> Long distances between the school and place of residence reduce the incentives for students to continue schooling (Alimisis *et al.*, 2007) despite the fact that Greece already has a very high share of "small" schools among OECD countries (Sutherland *et al.*, 2007a, Figure 2). Measures to facilitate transport to schools of students in remote areas, are in the right direction. Distance learning at the school level could also be considered. Overall, it needs to be ensured that students residing in sparsely populated and remote regions are provided with adequate teaching and learning conditions.

### *Ensuring high teaching quality*

#### Enhancing the attractiveness of teaching

29. Well motivated teachers are central to achieving good school results and reducing achievement gaps. Greece appears to have no major difficulty in attracting people into the teaching profession, given high degree of job security and good overall working conditions (Stylianidou, *et al.*, 2004). There is even some evidence of over-supply in the case of secondary teachers. However, teaching quality may be influenced by the quality and motivation of teacher trainees. Only 16% of university candidates in 2003 indicated primary teacher education among their top three preferences for study (OECD, 2005). The strict monitoring and control by the state of teachers' work in areas such as delivery of curriculum and students' assessment constitute additional factors for demotivation (Stylianidou, *et al.*, 2004).

30. Teachers are also dissatisfied with pay and opportunities for career progression (Koustelios, 2001). Relative salaries for teachers in Greece are below the OECD average, although recent trends do not stand out in international comparison (Figure 6). Salary progression reflects the length of teaching service and pay scales are comparatively flat.<sup>11</sup> It takes at least 30 years for lower-secondary school teachers to move from the bottom to the top of the statutory pay scale, which exceeds the average (24 years) of countries examined by the 2005 OECD review of teachers' policy (OECD, 2005). As for career streams, the current model involves three levels of automatic promotion for teachers in the public sector over a period of 8 years. Opportunities for promotion and career diversification in classroom teaching (including mainly the positions of deputy principal or principal) are limited (Stylianidou, *et al.*, 2004).<sup>12</sup>

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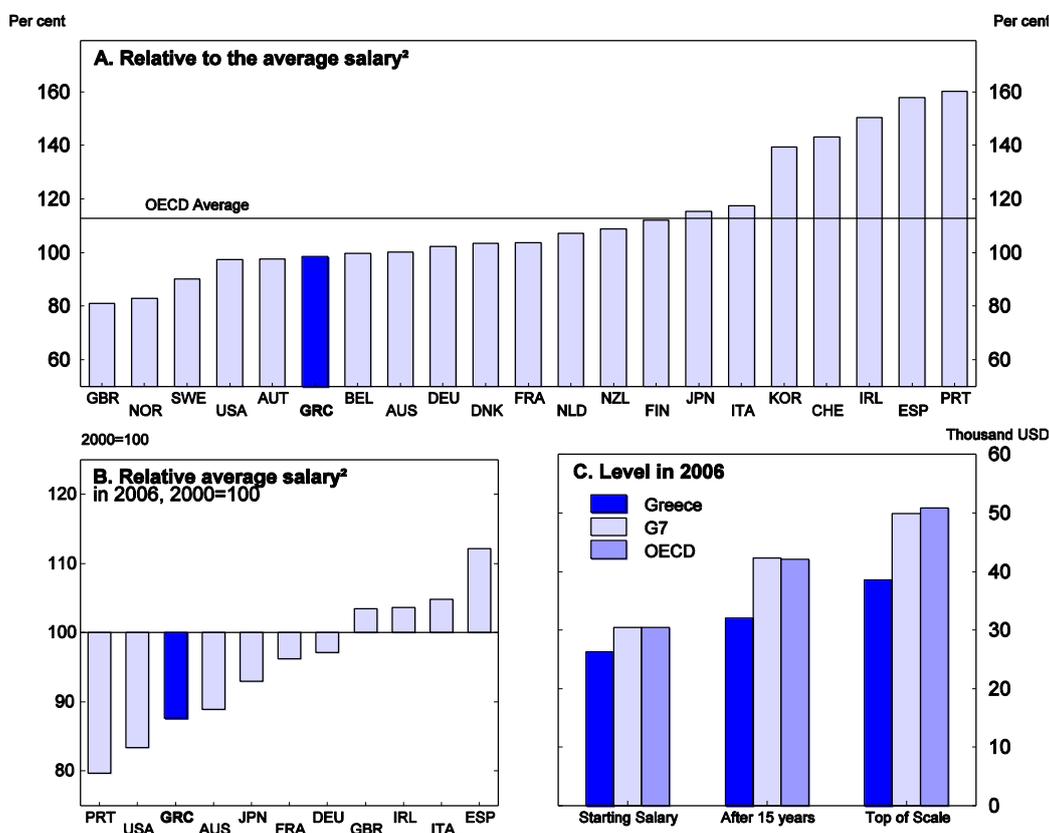
10. For a discussion see, Lariou-Drettaki (1993), Ministry of Education-Pedagogical Institute (2006), Alimisis *et al.*, 2007, and Rouseas, and Vretakou (2008a).

11. The differential between the initial and top salary is around 50% compared to an OECD average of 70%.

12. There are also possibilities for moving to non-classroom teaching posts, including, for example, becoming responsible for environmental or health education, head of an education directorate or school advisor at secondary or primary level (Stylianidou, *et al.*, 2004).

31. Strategies to recognise and reward quality teaching would strengthen school quality. The introduction of a coherent system of performance evaluation (discussed below) is indispensable for such a policy to work. Lowering the comparatively high teacher to student ratio could release resources to reward good teachers, though such a reform should be combined with developments in distance learning. The teaching profession would further benefit from greater career diversification (OECD, 2005). The ageing of the teaching workforce provides an opportunity to transform teaching jobs in a way that the profession is made more attractive (Figure 7). Measures by the authorities to attract teaching staff to disadvantaged areas include through recruitment priority, an increase in the number of points for career advancement and the introduction of settling-down allowances. Additional resources in areas with particular needs, however should be allocated on a school-by-school basis, taking account of relevant needs, rather than on the basis of specific geographic areas (OECD, 2007d). Consideration could be given, as noted earlier, to distance learning at the school level in remote regions.

**Figure 6. Teachers' salaries: an international comparison<sup>1</sup>**  
Average for primary, lower and upper secondary education, 2006

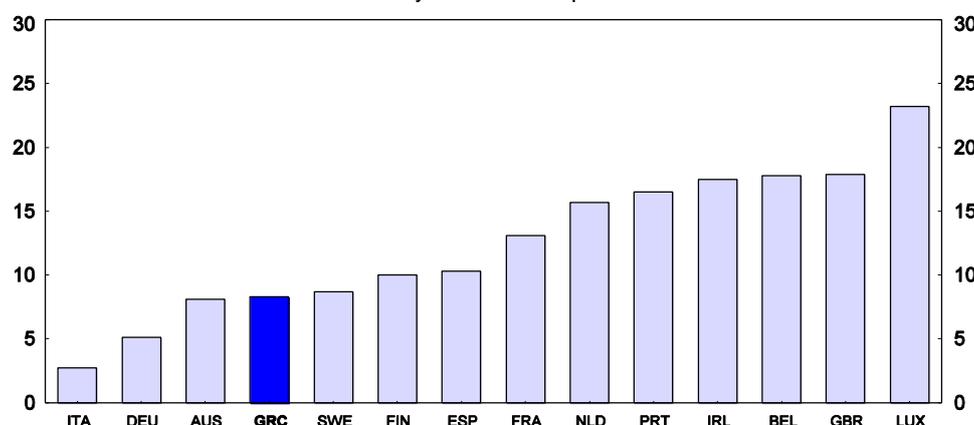


1. Annual statutory teachers' salaries in public institutions. Salary and wage data are in US dollars converted using purchasing power parities. The G7 (excluding Canada) and OECD aggregates (21 countries) are unweighted averages. No data is available at the top level of the scale for the United States in 2006.
2. Average of the three salary scales (starting, after 15 years and top) in per cent of annual average gross wage for a single person without children.

Source: OECD (2002 and 2008), *Education at a Glance* and OECD (2008), *Taxing Wages 2006/2007*, OECD Publishing.

**Figure 7. The ageing of the teaching force, 2005**

Teachers less than 30 years old as a per cent of all teachers



Source: Eurostat.

### Further improving the training of teachers

32. Better training of teachers is also key to enhancing quality of education. A series of training programmes have been introduced by the government in recent years to upgrade teacher skills and improve their managerial capacity. An innovative programme was implemented in 2008 focusing on administrative education bodies (school principals, school advisors and heads of education directorates). Further initiatives should focus on the introduction of pedagogical training for secondary school teachers. Greece follows a “concurrent” education model for primary teachers, which combines pedagogical and practical training. But in the case of secondary teachers, initial education remains largely restricted to the subject of their specialisation, without any systematic pedagogical training (Stylianidou *et al.*, 2004). This raises questions about their capacity to deal constructively with heterogeneity in student abilities and their approaches to learning. A compulsory year of pedagogical training should be introduced for secondary school teachers, as required by legislation passed in 1997.<sup>13</sup> It is also important to ensure a better match between the anticipated needs of the education system and initial education of teachers, in view of the over-supply of secondary teachers.

33. Reinforcing “on-the-job” training is another way to enhance teaching quality. Compulsory programmes for new teachers in the public sector, which include theoretical and practical training sessions, have been available since 1999. However, there is no minimum requirement for teachers to engage in professional development activities (“in-service” training). The completion of such activities is not required for the promotion or recertification of teachers, though it is generally considered beneficial for career advancement (OECD, 2005). In-service teacher training is an important element of teaching quality, affecting positively student achievement (European Commission, 2007c). The relatively large share of teachers still entering the profession on the basis of candidate lists (“epetirida”)<sup>14</sup> creates a need for re-training, as newly qualified teachers may need to remain on the list for ten years or more before being appointed. Based on the 2000 PISA study, less than 10% of teachers participated in professional development, compared to an OECD average of 40% (OECD, 2005, Figure 4.3). While this figure may not reflect more recent developments, the gap *vis-à-vis* other EU countries is likely to have remained large.

13. The 1997 law was never implemented as some subjects related to pedagogical issues and teaching methods were included in the core curriculum of secondary teachers.

14. In 1998, the system of “waiting list” was replaced (though provision was made for a five year transition period). However, 40% of teachers are still entering the profession on the basis of candidate lists (epeterida) with the remaining entering on the basis of national competitive examinations (ASEP).

The ageing of the teaching workforce increases the need to update skills and knowledge of those who have been teaching for a long time (Figure 7).

34. The quality and co-ordination of training programmes also needs to be improved. Until early in the decade, the main decisions for in-service training were taken at a central level with limited evaluation of programmes (Stylianidou, *et al.*, 2004). As a positive step, a new organisation (OEPEK) was established in 2003, focusing on planning, co-ordination and implementation of in-service training. OEPEK also allocates and manages funds for teacher training and accredits and certifies teacher trainings bodies. Efforts to establish well-coordinated and sustained in-service training programmes should continue. However, the systematic monitoring and evaluation of in-service training are still pending (European Commission, 2006b). Schools should be able to help to identify the type of training that is needed, so as to make the system more demand driven (Guichard and Larre, 2006). Besides training, a comprehensive evaluation and feedback system is essential for teachers' professional development. This is linked to the needed reforms in the evaluation mechanisms (see below).

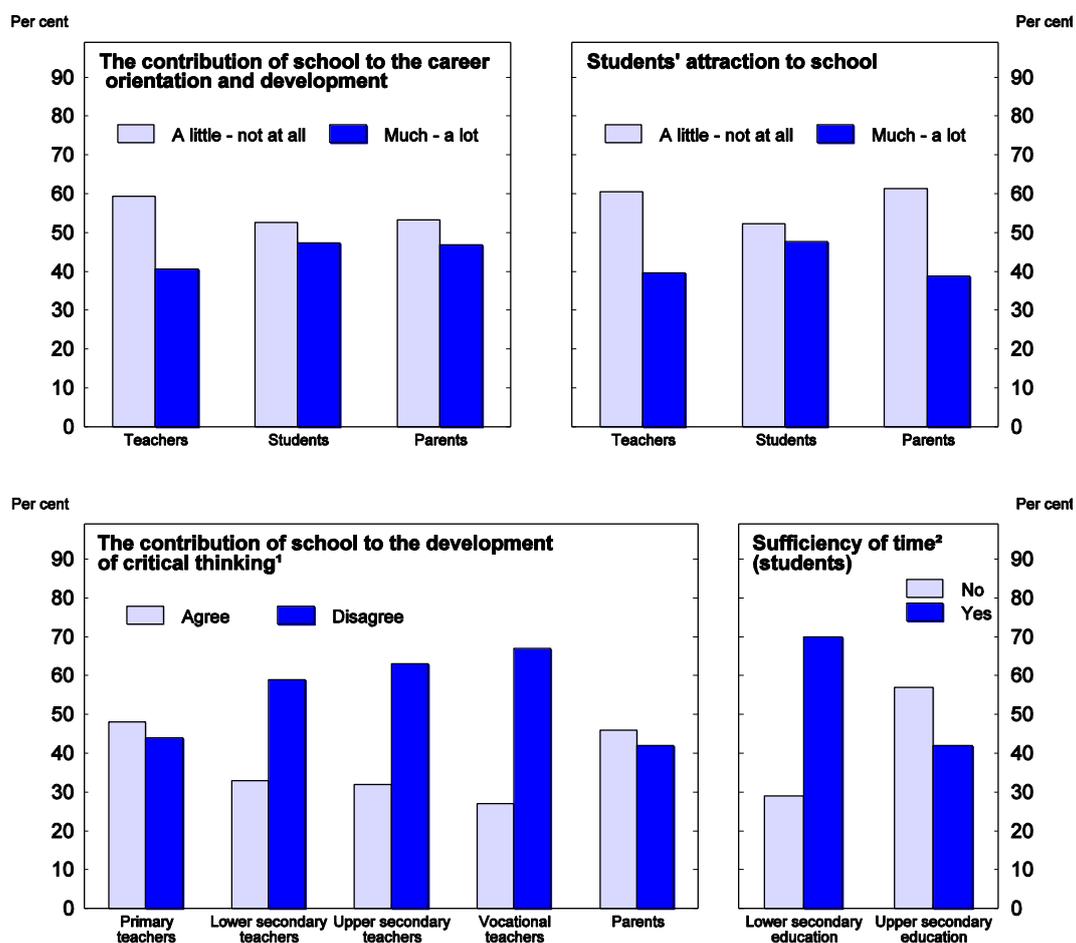
#### *Improving school curricula*

35. The poor PISA scores suggest that there may be weaknesses in the curricula of key competences. The general public in Greece has a negative opinion about the contribution of today's school to the development of critical thinking and its links to the labour market (Pedagogical Institute, 2008) (Figure 8). The education system is perceived as too examination-centered, which reduces creativity and initiative and provides an incentive for rote-learning (Stylianidou *et al.*, 2004). This is especially so in the case of upper secondary education, where schoolwork is exclusively oriented to the university entrance examinations (Xochellis and Kesidou, 2007). This suggests that schools should better prepare students to apply knowledge to solve real-world problems, a view reinforced by the difficulties young people appear to face in their transition from school to work. Greece has one of the highest unemployment rates among young people aged 15 to 24 years, with the incidence of long term-unemployment standing at around 40% (Figure 9). Equally alarming is the fact that only a quarter of 15–24 year-olds (mostly not in education) was working in 2006, compared with an OECD average of 45% (Figure 9, lower panel).

36. Schools also do not trigger students' interest for the taught subjects (Figure 8). The large number of subjects is seen as problematic. About a third of students in lower secondary education consider the time devoted to the teaching of each subject as insufficient for its deep understanding, with the share of dissatisfied students doubling in upper secondary education. A lack of focus promotes memorisation, which, in the absence of a comprehensive assessment system for student performance (see below), results in a large number of students not being prepared properly to cope with the demands in the next stage of education (Xochellis and Kesidou, 2007).

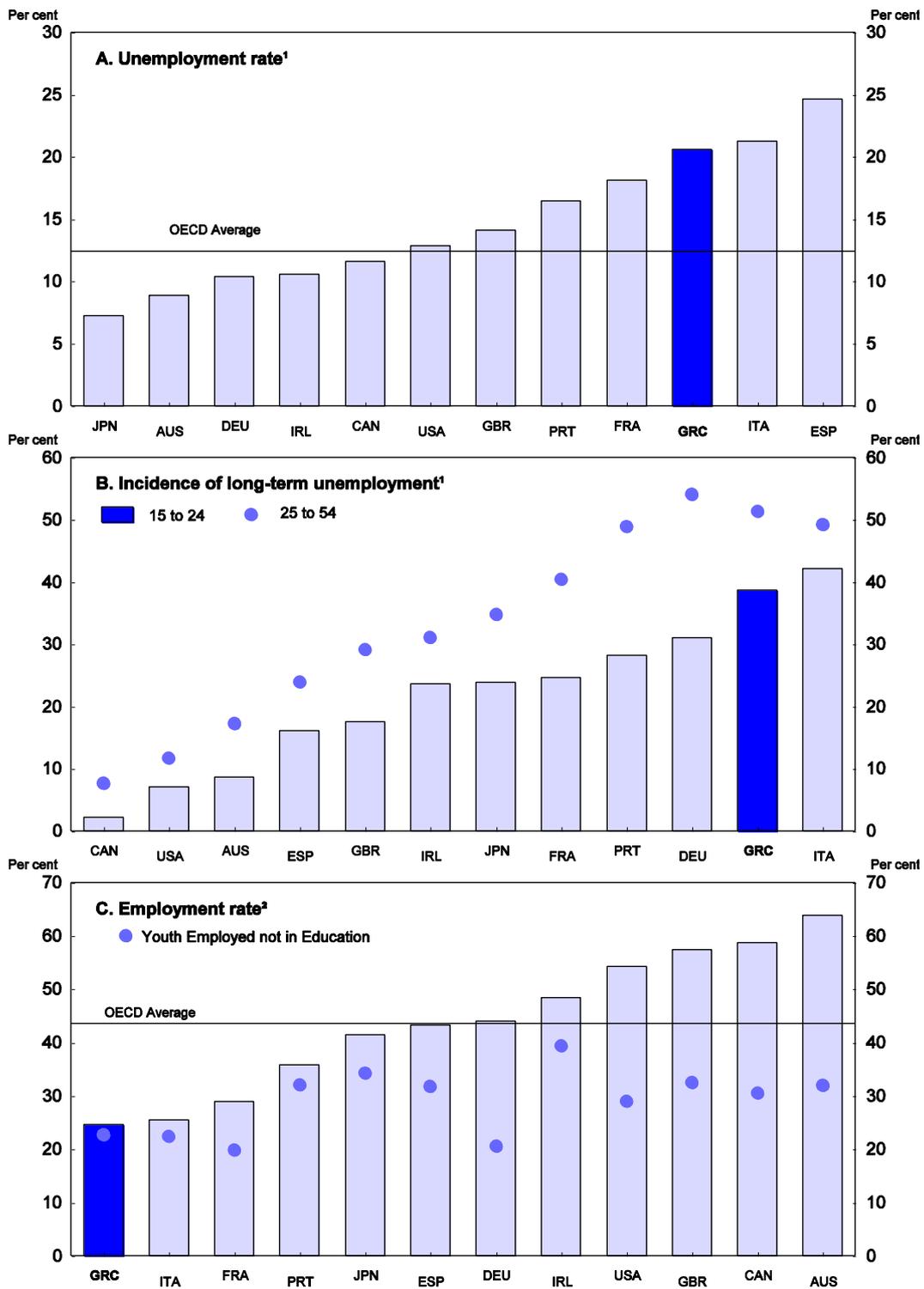
37. The problems with the quality of school system are highlighted by the extensive use of a parallel private system of additional classes (crammers, or "frontistiria") by students who can afford it. According to the Pedagogical Institute, over 50% of students at primary and lower upper secondary education and 77% in upper secondary education indicated the need for additional support for their schoolwork, mainly in the form of private cramming courses (Figure 10, left panel). The dominant role of *frontistiria* is closely connected to the parents' perception that success in the university entry exams is due to preparation at the cram schools (Figure 10, right panel). On the other hand, supporting teaching courses (Additional Instruction Programmes) provided for free at public schools have not so far gained the trust of students or parents, reflecting organisational and staffing problems (Pedagogical Institute, 2008). Reliance on cram schools also perpetuates social inequalities with regards to university entry between students whose parents cannot afford the cost of frontistiria and those who cannot (Giamouridis and Bagley, 2006).

Figure 8. Public perception about schools



1. Percentage of teachers and parents considering that schools cultivate students' critical thinking.
  2. Percentage of students consider the time devoted to the teaching of each subset as sufficient or not.
- Source: Pedagogical Institute (2008) and Makridis, G. (2008).

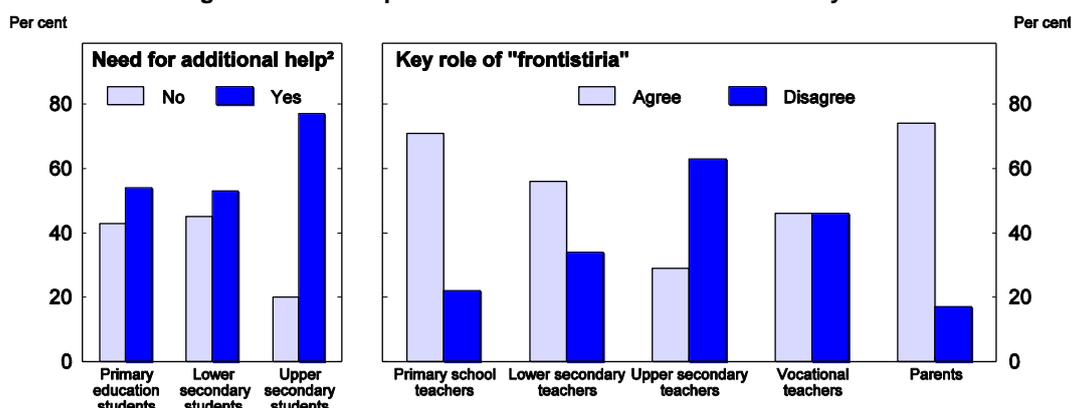
**Figure 9. Youth employment**  
15-24 years old



1. Year of reference 2008.

2. Year of reference 2006.

Source: OECD Labour Force Statistic database and *Education at a Glance*, 2008.

Figure 10. The importance of 'frontistiria'<sup>1</sup> in education system

1. Percentage of parents and teachers considering frontistiria as the key factor for such a success.
2. Percentage of students indicating the need for additional support for their schoolwork.

Source: Pedagogical Institute, 2008.

38. Reform initiatives in recent years have aimed at upgrading the school curricula, with a particular emphasis on inter-disciplinary activities.<sup>15</sup> The revised curricula are expected to promote the development of critical thinking, collaborative skills and creative activity (European Commission, 2007b). New textbooks were also introduced in 2006–07, in line with new curricula, which enhance critical thinking and reduce rote-learning. A second foreign language (in addition to English, which is compulsory) was introduced in the primary school as an optional subject. This is a welcome step in light of the important role that the knowledge of a foreign language plays for the employment potential of secondary education graduates (Paleocrassas *et al.*, 2002).<sup>16</sup> Advancement in linking schools to the internet are also worth mentioning, with more than 95% of schools being connected in 2006, although Greece still needs to close the sizeable gap in digital competency *vis-à-vis* other OECD countries (European Commission, 2008b).

39. School curricula have also become more flexible in recent years in ways that should enhance quality of schooling. The “flexible zone” programmes, for example, enacted on a pilot basis in compulsory education, set aside a few classes per week for cross-curricular activities. Moreover, “all day” schools not only provide an extended timetable, but also offer more activities and thematic units (Education Research Centre, 2006). But curriculum policy is still determined largely by the “one-textbook rule” for each subject. The 1997 *OECD Education Review* assessed that such a rule imposes a “stifling uniformity”, providing disincentives to teachers’ and students’ creativity and an incentive to rote learning (OECD, 1997). Teachers must follow the national curriculum and use the approved textbook for each subject, although they can adapt teaching methods to the particular needs of their classes (European Commission, 2008a).

40. Although the recent measures towards upgrading schooling are welcome, there is ample scope for improvement. A necessary condition for adjusting curricula further, as also recognised by the government, is to change the system of entry to university in order to reduce the negative effects on secondary education (see below). Overall, a critical element for enhancing performance is that there be a close monitoring of student achievements on the basis of nationally consistent and well designed measures, and that the outcomes of these assessments be used to inform future policy development and, where necessary, intervention programmes (see below).

15. The Uniform Cross-Curricular Thematic Framework for compulsory education was adopted in 2003, along with the revised curricula.

16. The extensive use of private cramming courses by students in lower levels of education for the learning of foreign languages provides further evidence in this regard (Pedagogical Institute, 2008).

*Developing vocational and technical education*

41. The Greek education system is characterised by a bias in favour of general programmes preparing students for tertiary education rather than for work. Despite initiatives to diversify upper secondary education and to upgrade vocational and technical education, only a third of students in upper secondary education were enrolled in vocational programmes in 2006 compared to an EU27 area average of over half (European Commission, 2008b). Young people still consider vocational education as last resort (Vretakou and Rouseas, 2003). The marked difference in the drop-out rates between general and vocational secondary upper education programmes, at 3% and 20%, respectively, is a telling sign (Alimisis, *et al.*, 2007). Research further suggests that vocational programmes cater for students of relatively low socio-economic background and academic potential (Rouseas and Vretakou, 2008b). Moreover, according to the 2003 PISA study, Greece has one of the highest differences in mathematics between general and vocational programmes, even after controlling for the socioeconomic characteristics of students.

42. Vocational and technical education needs to be better adapted to labour market needs. Around 12% of graduates from upper-secondary vocational institutions were unemployed 6½ years after their graduation (Rouseas and Vretakou, 2008b). Those employed stated that they needed two years on average to find a job. In addition, only about a quarter of students found employment matching their training, raising additional questions about the effectiveness of the system. Based on the views of a pilot network of labour market “correspondents”, a recent study also highlights the need for revising vocational curricula, making them more responsive to employment needs (Paleocrassas, 2008). The study proposes to include a larger number of general courses in vocational curricula in light of the importance of general skills in firms’ hiring decisions, so long as such a change would not deter students from enrolling in vocational education. It also proposes to streamline training specialisations offered by the vocational schools and to enhance career advice and orientation at the lower secondary education level.

43. The structure of upper secondary vocational education was reformed in 2006 by providing students with more study choices. The recent law established two new types of vocational institutions, Vocational Lyceums (EPAL) and Vocational Training Schools (EPAS), and enabled pupils at the former to continue to tertiary education.<sup>17</sup> The number of technical-vocational specialisations provided in secondary education was also reduced. Preliminary evidence indicates some positive outcomes in terms of increased participation in vocational training and reduced student dropouts (Ministry of Economy and Finance, 2008). By widening the range of “pathways” to further education, the 2006 law is also expected to reduce the considerable difference between graduates from general and vocational schools as regards their interest and participation in post-secondary education and training (Rouseas and Vretakou, 2008b).

44. Efforts should continue in this direction. Improving the standing of vocational education so that it becomes a first choice for appropriate students is important to enhance Greece’s position in the international ranking of upper secondary education attainment. The scheduled re-examination of curricula and design of qualifications in vocational institutes (post-secondary Institutes of Vocational Training and Schools of Initial Vocational Education and Training) therefore need to proceed rapidly. Furthermore, a broad based vocational system is important for lifelong learning. The enhanced role of social partners in the planning and implementation of vocational training policies, envisaged by government, is a welcome step in this regard. The network of labour market correspondents, discussed above, although still in a pilot phase, could provide a useful basis for updating curricula contents and reducing the deficit in work experience of the curricula developers, who are currently hired mainly on the basis of their scientific qualifications (Paleocrassas, 2008).

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17. Graduates from EPAL receive a school leaving certificate which enables them to continue their studies in higher education institutions, if they succeed the national entry examinations. Students from EPAS do not have the possibility to continue to tertiary education.

45. Despite steps towards simplification, the process of determining professional rights for the practice of a vocation remains complex and should be simplified. The process is too time-consuming due to the fragmentation of the system,<sup>18</sup> which can reduce the attractiveness of vocational education. The determination of professional rights for all specialities plays an important role for the effectiveness of vocational and technical education.

46. Effectiveness of the system would further improve from the full and rapid implementation of the *National System of Linking Vocational Education and Training to Employment*. This registers the needs of the labour market at national and local level, coordinates initial (including at secondary school level) and continuing training, and provides accreditation of vocational training qualifications. It also focuses on counselling and vocational guidance.<sup>19</sup> A systematic approach to disseminate information on VET and to provide effective career advice and counselling is essential for better understanding the patterns of required skills and the potential career paths available to school leavers.

#### *Spending better*

47. Recent OECD analysis suggests that the potential for eliminating inefficiency in primary and lower secondary education by reducing input, while holding outputs constant, or increasing output, holding inputs constant, are substantial for Greece (Sutherland *et al.*, 2007b, Figure 8). A major example of inefficiency is the extensive resort of students to the private cramming courses (frontistiria), which, as discussed above, can be seen as compensating for the poor performance of the public education system. According to Psacharopoulos (2004), each year more than one billion euros (around 0.4% of GDP) are spent on preparatory courses aiming to help students enter university. This implies that upper secondary education comes at high cost. The resources absorbed by the private tutoring system could be used for improving the quality of instruction if the money flowed to the public school system.

48. The overall allocation of resources could also be improved by raising the share of non-wage spending. The wage bill accounts for the bulk of spending in primary and secondary education (92% compared with an OECD average of around 80%). As a result, many schools lack the necessary infrastructure (laboratories and teaching equipment), and are often overcrowded in the larger cities, despite progress in recent years. Inefficiencies also arise from the relatively large share of small schools, although geographic constraints need to be taken into account.

#### *Improving school accountability and autonomy*

49. Education quality would benefit from greater school autonomy. OECD indicators of institutional settings in primary and secondary education rank Greece below best practice in terms of decentralisation, and especially managerial autonomy at the school level (Figure 11, upper and middle panels). As discussed above, the central government is the primary decision maker in the education sector, having responsibility for budget administration, approval of school curricula, and the appointment of teaching staff. Cross-country evidence suggests that greater school autonomy and accountability tend to be associated with higher levels of educational efficiency (Sutherland, *et al.*, 2007b). School autonomy in procedural matters in formulating the school budget, for example, is estimated to have a positive impact on school outcomes (Wößmann, 2005). Greater autonomy could help teachers to better adapt to the variable learning needs of

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18. The professional rights of graduates of the Vocational Apprenticeship are established in a Presidential Decree. For the implementation of the Decree the involvement of the Ministry of Education and Ministry of Employment is necessary as well as that of other co-qualified Ministries and social partners, should the occasion arise, is required (National sources).

19. The sub-systems of ESSEKA for the development and implementation of an integrated system for the analysis of labour market needs, and of an advisory system within the framework of lifelong learning are currently being developed under the framework of the Operational Programme "Human Resources Development" (Ministry of Economy and Finance, 2008).

students depending on their socio-economic background, also increasing the sense of responsibility and motivation for the job. However, while autonomy with regards to teacher salaries can improve schooling outcomes, this impact is subject to the presence of accountability mechanisms (Wößmann, 2005).

50. Greater school autonomy needs to be accompanied by enhanced accountability. Assessments that monitor student performance and allow benchmarking between schools are widely recognised as prerequisites for raising performance (Sutherland, *et al.*, 2007b). Standardised tests across schools are currently available in Greece only for entry to university, which are conducted at the national level and their results are published. External exit exams (which report performance relative to an external standard) is a common accountability device in OECD countries, altering the incentive structure compared to school-based or teacher-based examination (Wößmann *et al.*, 2007). The results of central exit examinations also provide more valuable signals to the job market than those from non-central examinations, since the former are comparable (OECD, 2007e). The authorities should consider introducing more nationwide tests. Such national tests could be mandatory at the level where a tracking decision needs to be taken (for example, at the end of primary education and/or lower secondary school). They can also help detect and correct individual learning and school problems if they are conducted on a regular basis at different grades in primary and secondary education (OECD, 2008c). The results of national assessments could be used to set priorities on the allocation of resources to schools and curriculum planning. School accountability could be further enhanced through benchmarking schools on the basis of student performance assessments (Sutherland *et al.*, 2007b; Wößmann *et al.*, 2007). The use of benchmarking is underdeveloped in Greece (Figure 11, lower panel).

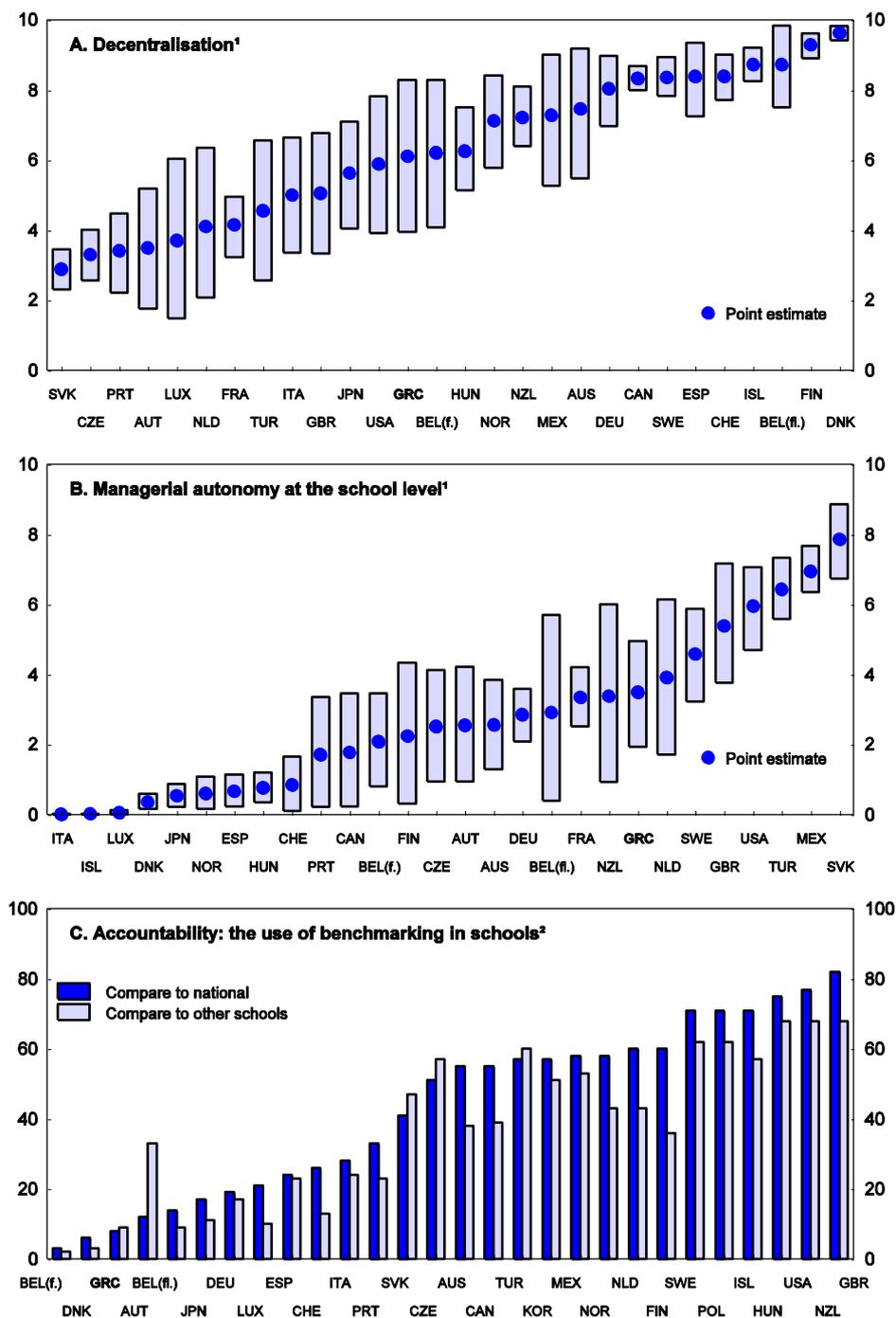
51. Accountability policies concerning teachers can also have positive effects on achievement. Greece has currently no systematic evaluation of teachers. Legislation was introduced in 2002 – but never implemented – that would have required all teachers to be periodically evaluated by external evaluators and principals. Teacher evaluation could be used to identify priorities and to reward teaching excellence – though the design of the evaluation programmes is of crucial importance in building a closer link between evaluation and rewards (OECD, 2005). Evaluation should take into account that at the secondary level of education teamwork is more important than at higher education level (Chant, 2005). OECD (2005) concludes that, in many circumstances, group recognition and rewards at a school or grade level have been more effective performance incentive schemes than individual teacher rewards.

52. Assessments should be used more as a policy making tool. Results from the 2006 PISA survey suggest that only half of the 15-year olds are enrolled in schools which reported that achievement data were tracked over time by the administrative authority. The proportion fell to less than 10% in the case of teacher performance evaluation, and especially that of decisions about resource allocation to the school. The publication of school achievement data is also limited in Greece. Only a third of students are enrolled in schools where the principals reported that such data were posted publicly. This is somewhat below the OECD average (38%) and far behind the percentages reported for other countries, such as 90% in the United Kingdom and United States (OECD 2007b, Figure 5.9). While the extent to which information on student performance should be publicly reported is a widely debated issue, analysis of the impact of accountability policies on PISA performance shows that students in schools positing their results publicly performed about 15 score points better than their counterparts in schools that did not.<sup>20</sup>

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20. The association remains positive even after taking into account the demographic and socio-economic background of students, though it no longer statistically significant (OECD, 2007b).

Figure 11. Autonomy and accountability in primary and secondary education



1. The figure gives the average and the range that contains 90% of the 1000 random weighted indices.
2. Share of schools in the PISA 2003 database reporting using assessment to compare with national performance and other schools.

Source: Gonand, F. et al., (2007), *Public spending efficiency: institutional indicators in primary and secondary education*; and Sutherland D. et al., (2007), *Performance indicators for public spending efficiency in primary and secondary education*.

*Directions of reform*

53. Education reform is high on the government's agenda and a public consultation on education reform has been initiated.<sup>21</sup> Efforts will focus initially on upper secondary education, which is the most in need of reform, including through a change in the university entry process. In this context it is important to ensure that upper secondary school becomes an autonomous educational level that does not serve solely as a preparatory stage for the exams to university. A more autonomous upper secondary education would enhance the quality of public education and reduce the extensive reliance on private cramming courses. To this end, the *National Council of Education* (ESYP) proposes the introduction of preparatory courses for university in the last two grades of upper secondary school, which will take place after the regular daily teaching hours and will be compulsory for those interested in studying at a university. As an alternative, a preparatory year could be added to upper secondary school for such students, which will focus only on the specific subjects required for university exams. In addition, the Council recommends that the final certificate provided at the end of upper secondary education ("Apolytirio") be given a value in its own right – obtained through a different set of exams which precedes the ones for the university entry and would be conducted at the school or regional level.<sup>22</sup> To promote depth in understanding and reduce rote-learning, ESYP suggests a reduction in the number of subjects taught. The proposals also include an increased focus on career orientation from the first grade of upper secondary school and academic research requirements for students to increase their competencies.

54. These proposals go in the right direction towards upgrading upper secondary school curricula and disconnecting this level of education from the university entry exams. Nevertheless, as acknowledged by the government, they need to be accompanied by a change in the system of entering university. One alternative would be to have only one national exam, based on an improved curriculum, at the end of upper secondary education, leading to the final school certificate. This would measure achievement in the upper secondary school curriculum. The selection for entering tertiary education would be left to the universities themselves. Granting higher education institutions discretion over student admission can facilitate a better matching between their profile and students' characteristics. This strategy would also be in line with international experience (Santiago, *et al.*, 2008).

55. An alternative proposal that has been brought forward in the current debate regarding the process of entering university is to abolish the entrance requirements altogether. This matter needs careful attention, in light of the sizeable demand for higher education, which is perceived as a means of social mobility, the lack of infrastructure and, most importantly, the weakness of the secondary education system in providing students with adequate knowledge and key competencies. The strong demand for universities may be further reinforced by the lack of tuition fees which may create the wrong incentives for students. Favouring a more rigorous selection system would avoid a potential waste of resources, a view further supported by the high number of drop-outs from higher education.

***Improving the performance of tertiary education***

56. The lack of responsiveness and flexibility of the university system was found as a key policy issue in the 2007 *Economic Survey of Greece*. Recent OECD indicators suggest that the current institutional framework for tertiary education is among the most centralised and least flexible by international comparison, falling short of best practice by a wide margin (Figure 12). As discussed in detail in the previous *Survey*, this reflects Greece's poor scores for all three sub-components of the composite

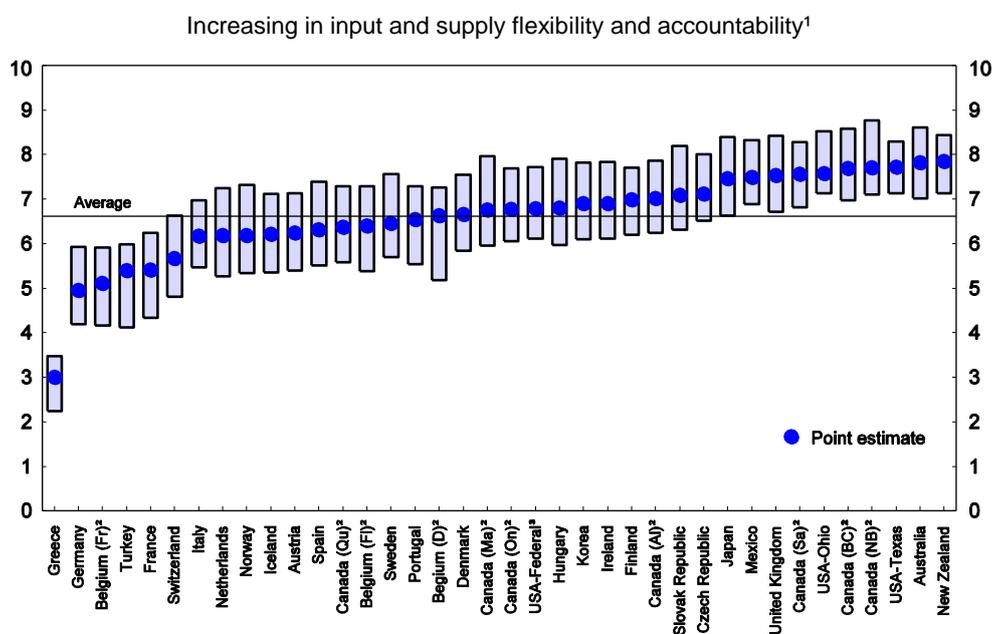
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21. The government indicated that its education policy will be a "tabula rasa" (Kathimerini, 14 January 2009).

22. Under current arrangements, graduates of upper secondary education are provided not only with a leaving certificate but also with the relevant attestation ("veveosi"), which proves that its holder can claim admission to university (European Commission, 2007b).

supply indicator (*i.e.* input flexibility, output flexibility, and accountability of the tertiary institutions). Rigidities arise, for example, from the civil servant status of faculty and administrators, access restrictions to tertiary education, and the Constitutional obstacle to the establishment of private universities. The introduction of an evaluation system for universities in 2005 has been a step in the right direction.<sup>23</sup>

**Figure 12. Composite supply indicator of tertiary education, 2005–06**



1. The bars correspond to the 95% confidence intervals obtained through the random weight technique.
2. Belgian regions are: Fr: French Community, Fl: Flemish Community and D: German-speaking Community. Canadian provinces are: Al: Alberta, BC: British Columbia, Ma: Manitoba, NB: New Brunswick, On: Ontario, Qu: Québec and Sa: Saskatchewan.
3. In interpreting this value for Federal provisions concerning supply flexibility and accountability it should be taken into account that federal funds only account for a small share of total funding of US tertiary education institutions.

Source: Oliveira-Martins *et al.* (2007), *The Policy Determinants of Investment in Tertiary Education*.

57. Tertiary education outcomes are also influenced by a relatively low internal rate of return, especially for Greek men<sup>24</sup> (Oliveira-Martins *et al.*, 2007). Private returns are reduced by the long duration of study. The average time taken for a student to graduate from one of five recently assessed university departments was eight years (Kathimerini, 11 February 2009). This reflects the lack of tuition fees for undergraduate students and, until recently, no constraint on the length of study time. Financing constraints may also affect education outcomes. The private cost of tertiary studies (cost of living) is largely met by intra-family transfers, while the grant system is not generous and no student loan scheme is in place (OECD, 2007a).

23. *Input flexibility*, for example, is especially low because of the civil servant statuses of faculty and administrators, the inability (due to the Constitutional obstacle) to charge tuition fees for undergraduate students and access restrictions to tertiary education. *Output flexibility* is also limited as major decisions are on a central level and private universities are not allowed. In terms of *accountability*, no evaluation system for universities was available before 2005, when the Quality Assurance Agency for Higher Education was established (OECD, 2007a).

24. Gender differences in the internal rates of return to higher education may reflect differences in the employability *premia*, which are much higher for women. In addition, wage *premia* are relatively low in Greece in international comparison, reflecting the poor performance of the tertiary education.

58. Unemployment is also high among young tertiary education graduates, indicating a mismatch between the acquired and demanded skills. Even the “upper” segment of the higher education system adapts “rather slowly” to the requirements of a knowledge-based economy (Liagouras *et al.*, 2003). As tertiary education is entirely provided and largely financed publicly, since there are no tuition fees for the undergraduate students, the poor academic and labour market outcomes raise questions about the effectiveness of public spending.

59. Some reforms are underway, but progress is slow. Legislation passed in 2007 included several measures for improving the governance of universities, ensuring independent evaluation, limiting the duration of academic study and raising the provision of student loans. While in the right direction, the previous *Survey* assessed the 2007 reform initiatives as “modest” compared to the policy challenges facing the higher education system and the need to bring its performance in line with other OECD countries. In addition, reforms have been implemented at a very slow pace. In early 2009, the Hellenic Quality Assurance Agency presented to the authorities – around four years since its establishment – the first results of the evaluation of five departments at universities around the country. Lax standards at the universities were the main shortcoming highlighted by the assessment.

*Efforts towards increasing the responsiveness and flexibility of higher education need to continue*

60. Further progress is needed to increase the responsiveness and flexibility of tertiary education to close the performance gap with respect to the other OECD countries (Box 1). The recent OECD Review of Tertiary Education advocates giving tertiary institutions ample autonomy over the management of human resources to increase their responsiveness to societies demands (Santiago, 2008). Empirical evidence from a cross-country analysis points that, Greece would have the largest potential gain among the examined OECD countries in terms of higher graduation rates, if flexibility and accountability could be raised to the level of the best performing country in the sample (Oliveira-Martins *et al.*, 2007). Availability of information and analysis about graduate labour outcomes and strengthened career services are also important in ensuring that tertiary education is responsive to labour market needs, according to the OECD review of Tertiary Education.

61. The needed reforms and their potential benefits were highlighted by the 2007 *Survey*. Particular priority was given to allowing private universities through an amendment of the Constitution.<sup>25</sup> The lack of competition in the higher education sector, arising from the Constitutional obstacle to the establishment of private universities, and the civil servant status of professors, have been blamed for a significant deterioration in the quality of higher education (Psacharopoulos, 2004). The funding of institutions could be related to indicators of performance which are simple and transparent (Santiago *et al.*, 2008). Such initiatives could be complemented, at a later stage, with “deeper” reforms to university finances, notably introducing tuition fees for undergraduate students – though at a moderate level given the relatively low rates of return to tertiary education in Greece (OECD, 2007a); this reform would also require a Constitutional amendment. Tuition fees would help to increase funding for universities and enhance the diversity of its sources. They would also help to raise the performance of universities by reducing the duration of studies. The introduction of tuition fees should be accompanied by income-contingent loans so as to ease liquidity constraints faced by students from poorer families. However, such schemes also imply that income of graduates needs to be monitored. This is usually done by the tax administration, reinforcing the need of an effective tax collection tax system.

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25. In 2007, the government made an effort to tackle the Constitutional hurdle regarding the establishment of private universities by proposing a Constitutional amendment. However, the effort failed because the amendment could not muster an enhanced parliamentary majority. There was also a ruling by the First Instance Administrative Court for the recognition of the post-graduate degrees granted by the private colleges in Greece that are affiliated with foreign universities (Kathimerini, 22 January 2009).

### **Box 1. Recommendations for raising education outcomes**

#### **Improve access to and quality of early childhood education and care**

- Increase the supply of early childhood services, especially for children under 3 years, by eliminating bottlenecks that limit the duration and diversity of these services. This is likely to require more public spending which, given the overall tight budget situation, calls for freeing public resources from other sectors, such as public administration.
- Consider introducing universal access to early childhood education for four years–old in line with international practice, and potentially to three year–olds as well.
- Ensure consistency of supply and quality for early childhood education and care services. Proceed swiftly with the development of a regulatory framework and the modernisation of the child care sector. To ensure more even quality of services this should include, as planned by the government, technical standards for the premises of child care services and the development of a pedagogical programme for pre–school education.
- Develop a more integrated system of early childhood education and care. Having a lead ministry in charge would ensure that policies in the field are coherent. Ensure appropriate mechanisms for monitoring policy implementation and performance.

#### **Improve the quality of primary and secondary education**

- Continue strategies to counteract the effects of disadvantaged backgrounds on performance. Reform public–school admittance arrangements, to reduce the risk of socio–economic segregation.
- Ensure that students residing in sparsely populated and remote regions are provided with adequate teaching and learning conditions. Additional resources in areas with particular needs should be allocated mainly on a school–by–school basis, taking account of relevant needs, rather than on the basis of specific geographic areas. Consideration could be given to distance learning at the school level in remote regions.

#### **Improve teaching quality**

- Change the system of teacher career progression, which currently provides only limited opportunities for promotion, to increase the attractiveness of the profession. Recognise and reward quality teaching. Lowering the comparatively high teacher to student ratio could release resources to reward good teachers, though such a reform should be combined with developments in distance learning.
- Ensure a better match between the anticipated needs of the education system and the initial education of teachers, and introduce a compulsory year of pedagogical training for secondary teachers.
- Improve teachers' professional development. Introduce minimum requirements for "in service" training. Continue efforts towards well coordinated and sustained in–service training programmes.

#### **Improve the curriculum in secondary and vocational schools**

- The curriculum should better equip students with the competences to succeed in their post–school life. Reform efforts should initially focus on upper secondary education, followed by comprehensive reforms of all other levels.
- Introduce a nationwide final exam for upper secondary school and separate it from university access exams.
- Reform of curriculum should also make vocational and technical education more attractive. The scheduled re–examination of curricula and the way qualifications are designed in vocational institutes need to proceed at a fast pace. This should ensure that the vocational system is broadly based, in addition to delivering specialist skills.
- Develop a more systematic approach to disseminating information on vocational and technical training and ensure the provision of effective career advice and counselling, in line with international practice.
- Enhance the role of the social partners in the planning and implementation of vocational training policies and curricula, through the development of the network of labour market correspondents. The process of determining vocational rights should be simplified further.

**Enhance school autonomy and accountability**

- Increase school autonomy. Move towards a less centralised management governance structure. Schools should be given autonomy with respect to staff recruitment.
- Improve school accountability through nation-wide measurement of student achievements. The development of a comprehensive system of teacher evaluation should be given high priority. Accountability measures aimed at entire schools should be considered as a means of improving performance incentives.
- The outcomes of nationwide based assessments should be used to inform future policy development and, where necessary, intervention programmes.

**Enhance quality of tertiary education**

- Proceed with the amendment of the Constitution to allow private universities.
- Ensure the swift implementation of a well-performing evaluation system of universities.
- The funding of institutions could be related to indicators of performance which are simple and transparent.
- Increase the autonomy of universities in terms of selecting staff and students.
- Given the high number of drop-outs, a rigorous selection of students for entry to tertiary education should be maintained but the selection should be left to the higher education institutions themselves.
- Introduce fees for undergraduate students (which also requires a Constitutional amendment) at a moderate level and provide student loans. If feasible to implement, repayment should be contingent on achieving a threshold salary after graduation. Increase the generosity of the grant system, but limit availability to the period over which the course is officially scheduled.

## Bibliography

Alimisis, D., Gavriadi G., Papadopoulou, P. and A. Provata (2007), “Prevention of Early School Leaving Report on the National Situation”, School of Pedagogical and Technological education ASPETE, Greece.

Carneiro, P., and J. Heckman (2003), “human Capital policy”, *Working Paper 9495*, National Bureau of Economic Research, Cambridge, Mass.

Chant, J. (2005), “How We Pay Professors and Why it Matters”, C.D. Howe Institute Commentary, *The Education Papers*, No. 221, November, [www.cdhowe.org/pdf/commentary\\_221.pdf](http://www.cdhowe.org/pdf/commentary_221.pdf).

Choi, S.H, (2004), “Enrolment Gaps in Pre-primary Education: The Impact of a Compulsory Attendance Policy”, Unesco Policy Brief, No. 21, March.

Daouli, J., Demoussis, M., and N., Giannakopoulos, (2004), “Child Care Costs and Employment Decisions of Greek Women”, available at SSRN: <http://ssrn.com/abstract=917681>

Eurostat (2002), “*Feasibility study on the availability of comparable childcare statistics in the European Union*”, Luxembourg, Office for Official Publications of the European Communities, European Commission.

- European Commission (2006a), “Efficiency and Equity in the European Education and Training Systems”, SEC (2006) 1096, Brussels.
- European Commission (2006b), “Quality Assurance in teacher Education in Europe”, Directorate–General for Education and Culture, Eurycide.
- European Commission (2007a), “Progress Towards the Lisbon Objectives in Education and Training– Indicators and Benchmarks–2007”, Commission Staff Working Document, SEC (2007) 1284.
- European Commission (2007b), “The Education System in Greece 2005/06”, Eurybase The Information Database on Education Systems in Europe, Directorate–General for Education and Culture, Eurycide.
- European Commission (2007c), “Improving the Quality of Teacher Education”, Communication from the Commission, COM(2007) 392 final.
- European Commission (2008a), “National Summary Sheets on Education Systems in Europe and Ongoing Reforms”, Directorate–General for Education and Culture, June, Eurycide.
- European Commission (2008b), “Progress Towards the Lisbon Objectives in Education and Training– Indicators and Benchmarks–2008”, Commission Staff Working Document, SEC (2008) 2293.
- European Commission (2009), “Tackling Social and Cultural Inequalities through Early Education and Care in Europe”, Education, Audiovisual and cultural Executive Agency, Eurydice, Brussels.
- Education Research Centre of Greece (2006), *The Greek Education System: Facts and Figures*, Education Research Centre of Greece, Ministry of Education and Religious Affairs, Athens.
- Giamouridis, A. and C. Bagley (2006), “Policy, Politics and Social Inequality in the Educational System of Greece”, *Journal of Modern Greek Studies*, Vol. 24.
- Guichard, S., and B., Larre (2006), “Enhancing Portugal’s Human Capital”, *OECD Economics Department Working Paper*, No. 505, Paris.
- Gonand, F., Joumard, I. and R. Price (2007), “Public Spending Efficiency: Institutional Indicators in Primary and Secondary Education”, *OECD Economics Department Working Papers*, No. 543, Paris.
- Hank, K. and I., Buber (2007), “Grandparents Caring for Their Grandchildren: Findings from the 2004 Survey of Health, Ageing and Retirement in Europe”, Mannheim Research Institute for the Economics of Aging (MEA), June.
- Hoxby, C. (2006), “school Choice: The Three Essential Elements and Several Policy Options”, New Zealand Educati Forum, Wellington, August.
- Immervoll, H. and D. Barber (2005), “Can Parents Afford Work”? Childcare Costs, Tax–benefit Policies, and Work Incentives”, *OECD Social, Employment and Migration working Papers*, No. 31, October.
- Kathimerini (2009), “ND Resits Education Test – Minister: High school, University Reform Talks With All Sides to start with clean slate”, 14 January.
- Kathimerini (2009), “Private College Ruling Snubbed”, 22 January.
- Kathimerini (2009), “Universities are Now Sitting Exams”, 11 February.

- Koustelios, A. D. (2001), "Personal Characteristics and Job Satisfaction of Greek Teachers" *International Journal of Educational Management*, Vol. 15, No. 7, pp. 354–358
- Lariou–Drettaki, M. (1993), *Factors related to dropping out from compulsory education*, Gregoris Publications, Athens (in Greek).
- Liagouras, G., Protogerou, A., and Y. Caloghirou (2003), "Exploring Mismatches Between Higher Education and the Labour Market in Greece", *European Journal of Education*, Vol. 38, No. 4.
- Makridis, G. (2008), "Social Approval or Disapproval of the Educational Reality", in *Education and Quality in Greek Schools: Conference Proceedings*, Pedagogical Institute, Athens.
- Ministry of Economy and Finance (2008), "National Reform Programme For Growth and Jobs 2008–2010", Athens.
- Ministry of Education and Religious Affairs – Pedagogical Institute (2006), *School dropouts in secondary education*, Eptalofos, Athens (in Greek).
- OECD (1997), *Reviews of National Policy for Education: Greece*, OECD, Paris.
- OECD (2001), *Starting Strong: Early Childhood Education and Care*, OECD, Paris.
- OECD (2004), *Learning from Tomorrow's World: First Results from PISA 2003*, OECD, Paris.
- OECD (2005), *Teachers Matter: Attracting, developing and Retaining Effective Teachers*, OECD, Paris.
- OECD (2006), *Starting Strong II: Early Childhood Education and Care*, OECD, Paris.
- OECD (2007a), *OECD Economic Surveys: Greece*, OECD, Paris.
- OECD (2007b), *PISA 2006: Science Competencies for Tomorrow's World*, Vol. 1 and 2, Paris.
- OECD (2007c), *Babies and Bosses: Reconciling Work and Family Life*, OECD, Paris.
- OECD (2007d), *OECD Economic Surveys: France*, OECD, Paris.
- OECD (2007e), *OECD Economic Surveys: United States*, OECD, Paris.
- OECD (2008a), *Education at a Glance*, OECD, Paris.
- OECD (2008b), *No More Failures: The Ten Steps to Equity in Education*, OECD, Paris.
- OECD (2008c), *OECD Economic Surveys: Luxemburg*, OECD, Paris.
- Oliveira–Martins, J., Boarini, R., Strauss H., De la Maisonneuve, C. and C. Saadi (2007), "The Policy Determinants of Investment in Tertiary Education", *OECD Economics Department Working Papers*, No. 576, Paris.
- Paleocrassas, S., Rouseas, P. and V. Vretakou (2002), Secondary Education Graduates in the Labour Market; Evidence and Career Education Policy Issues for Greece", *International Journal of Vocational Education and Training*, Vol. 10, No. 1, pp. 53–63.
- Paleocrassas, S., (2008), "Report of Educational Policy based on Pedagogical Institute Research on the Linking of Vocational Education Training Curricula with the Labour Market", Pedagogical Institute, Athens (in Greek).

- Pedagogical Institute (2008), *Evaluating Education: research into the evaluation of quality characteristics of the primary and secondary education system*, eds. Vlachos D., I. Daglis, and K. Zouganeli (2008), Athens (in Greek).
- Petrogiannis, K. (2002), “Greek Day Care Centres' Quality, Caregivers' Behaviour and Children's Development”, *International Journal of Early Years Education*, Vol. 10, No. 2, June, pp. 137–148(12).
- Psacharopoulos, G. (2004), “The Social Cost of an Outdated Law: Article 16 of the Greek Constitution”, *European Journal of Law and Economics*, Vol. 16, No. 2, Springer Netherlands.
- Rouseas, P. and V. Vretakou (2008a), “4<sup>th</sup> Dropout Survey (2003–04): Dropouts in Secondary Education (Gymnasium, Integrated Lyceum, Technical–Professional Schools)”, Pedagogical Institute, Ministry of Education and Religious Affairs, Athens (in Greek).
- Rouseas, P. and V. Vretakou (2008b), “Survey of Employment of Upper Secondary School Graduates (TEE–Unified Lyceum)”, Pedagogical Institute, Ministry of Education and Religious Affairs, Athens (in Greek).
- Santiago, P., K. Tremblay, E. Barsi, and E. Arnal (2008), *Tertiary Education for the Knowledge of the Society*, Volumes 1 and 2, OECD, Paris.
- Stylianidou, F., G. Bakakis and D. Stamovlasis (2004), “Attracting, Developing and Retraining Teachers”, OECD Activity, Country Background Report For Greece, Education Research Centre, February.
- Sutherland, D., C. and P. Price (2007a), “Linkages Between Performance and Institutions in the Primary and Secondary Education Sector”, *OECD Economics Department Working Paper*, No. 558, Paris.
- Sutherland, D., Nicq, C., Price R., and I. Joumard (2007b), “Performance Indicators for Public Spending Efficiency in Primary and Secondary Education”, *OECD Economics Department Working Paper*, No. 546, Paris.
- Vretakou, V. and P. Rouseas (2003), “Vocational Education and Training in Greece: A short Description”, The European Centre for the Development of Vocational Training (Cedefop).
- Wößmann, L. (2005), “The Effect of Heterogeneity of Central Exams: Evidence from TIMSS, TIMSS\_Repeat and PISA”, *Education Economics*, Vol. 13(2), pp. 134–169.
- Wößmann, L. *et al.* (2007), “School Accountability, Autonomy, Choice, and the Level of Student Achievement: International Evidence from PISA 2003”, *OECD Education Working Papers*, No. 13, OECD, Paris.
- Xochellis, P. and A. Kesidou (2007), “Greece”, in *The Education Systems of Europe*, edited by Hörner, W.; Döbert, H.; Kopp, B.v.; Mitter, W. (Eds.), Springer, ; pp. 326–370.

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