

*Education at a Glance 2011*

*OECD Indicators*

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## *Education at a Glance 2011*

### **Country note – China**

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***China has produced and will produce an increasing number of people with tertiary education, and this will substantially impact the global talent pool.<sup>1</sup>***

More than 255 million people in OECD and G20 countries have now attained tertiary education (Table A1.3a).

While the overall level of tertiary attainment in China is low, because of the size of its population, China represents 12% of the world's tertiary graduates (31 million), compared with 11% in Japan (29 million), 26% in the United States (66.1 million) and 26% in the EU21 countries (65.8 million).

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<sup>1</sup> China has enjoyed more than 30 years of economic growth, partly benefiting from the migration of workers from rural to urban areas. In the recent years, the migration has slowed and the government's one-child-per-family policy is likely to limit the supply of labour. Wages are then likely to increase. Increasing wages could reduce companies' margins and, in turn, promote a shift towards the production of goods or services with larger profit margins for companies – requiring a more- and better-qualified labour force. Although we have no information on labour outcomes of education in China, the development of human capital in China is likely to influence the economies of OECD and G20 countries.

In 2009, less than 5% of 25-64 year-olds in China have a tertiary degree. That proportion is substantially below the OECD average of 30%, the EU21 average of 27% and the United States average of 41% (Table A1.3a). However, considerable progress has been made on this measure: In China, the proportion of the population with tertiary education attainment has almost doubled over the past 30 years. In 2009, some 6.1% of 25-34 year-olds have tertiary education attainment compared to 3.1% of 55-64 year-olds. The rate of expansion of tertiary education has been far greater in China than in OECD countries, in part because China started from very low levels.

Because of the size of China's population, a modest change in rates can have a great impact on absolute numbers. For instance, if the percentage of 25-64 year-olds with higher education were to increase from 4.6% to 6%, it would mean an increase of around 10 million people – or almost 4% of the 255 million people in OECD and G20 countries that have attained tertiary education (or a tertiary education degree).

Because of significant progress in raising baseline qualifications in China, there is room for increasing the number of people with tertiary education further in China. There is more than a 20 percentage-point difference between graduation rates from upper secondary and post-secondary non-tertiary programmes designed to prepare students for tertiary-type A (longer, and largely theory-based) education and entry rates into tertiary-type A education in China (as in Belgium, Chile, the Czech Republic, Finland, Ireland, Israel, Italy and Japan). This suggests that part of those who attain the qualifications that could allow them to enter tertiary-type A programmes do not do so (see Chart A2.2).

### ***More students are enrolled in vocational programmes oriented toward vocational education at both secondary and tertiary level of education.***

It is estimated that 65% of young Chinese today will complete upper secondary education over their lifetimes. This is below the OECD average of 82%, the EU21 average of 85% and the United States' average of 76%, but above the average of 45% in both Mexico and Turkey. In 13 OECD countries, the majority of upper secondary students pursue pre-vocational or vocational programmes. In China, 50.4% of upper secondary students are enrolled in pre-vocational or vocational programmes, compared with 50% or above in most OECD countries with dual-system apprenticeship programmes (Austria, Germany, Luxembourg, the Netherlands and Switzerland) and in Argentina, Belgium, the Czech Republic, Finland, Italy, Norway, the Slovak Republic, Slovenia and Sweden. In contrast, in Brazil, Canada, Chile, Estonia, Greece, Hungary, Iceland, India, Indonesia, Ireland, Israel, Japan, Korea, Mexico, New Zealand, Portugal and the United Kingdom, at least 60% of upper secondary students are enrolled in general programmes, even though pre-vocational and/or vocational programmes are offered (Table C1.3).

The same pattern is evident in China at the tertiary level, where more students enter tertiary-type B (shorter, vocationally oriented) programmes than tertiary-type A programmes. Whereas in OECD countries, some 59% of young adults will enter tertiary-type A programmes during their lifetimes if current patterns of entry continue. In several OECD countries, at least 70% of young adults enter tertiary type-A programmes, while in China (as in Belgium, Indonesia and Mexico), at most 35% do (Chart C2.1). Belgium, Chile and China are the three countries where more students entered tertiary-type B than tertiary-type A programmes in 2009.

### ***The gender gap in secondary education is narrower.<sup>2</sup>***

The gender gap in completing upper secondary education is smaller in China than in the United States or on average among EU21 countries. In 2009, more young women (67%) than young men (62%) graduated

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<sup>2</sup> Chinese birth-control policies contribute to an imbalance in the number of men and women in the total population. The sex ratio (number of men per 100 women) is 108 among 15-19 years-olds, 124 among 1-4 year-olds, and 119 among those under one year. *Le Monde*, "32 millions de petits Chinois", 14 Avril 2009.

from upper secondary education in China. In the United States, 80% of young women and 73% of young men graduated from this level, while in EU21 countries, an average of 89% of young women and 81% of young men did. The average OECD graduation rates from upper secondary education were 86% for young women and 79% for young men (Table A2).

The gender gap in education varies greatly across OECD countries, depending on the orientation of the programmes. On average, more young women (55%) graduated from general upper secondary programmes than young men (43%); conversely more young men (47%) graduated from pre-vocational or vocational upper secondary programmes than young women (44%). In contrast to the OECD average, in China, as in Argentina, Australia, Belgium, Brazil, Chile, Denmark, Finland, Ireland, New Zealand, Portugal and Spain, more young women graduated from pre-vocational or vocational upper secondary programmes than young men. In China, as in Ireland and Korea there is no, or an extremely narrow, gender gap among graduates from general upper secondary programmes. On average across EU21 countries, more young women (51%) graduated from general upper secondary programmes than young men (38%); conversely more young men (54%) graduated from pre-vocational or vocational upper secondary programmes than young women (51%) (Table A2).

***China's direct public expenditure on educational institutions is relatively high as a percentage of total public expenditures but relatively low as a percentage of GDP.***

Investment in educational institutions represents a large part of total public expenditure in China. Some 16.3% of China's total public expenditure is devoted to direct public expenditure on educational institutions and public subsidies to households and other private entities for all levels of education. This can be compared with 13.8% of total public expenditure in the United States, 12.9%, on average, across OECD countries, and 11.7%, on average, across EU21 countries (Table B4.1).

China's direct public expenditure on educational institutions represented 3.3% of the country's GDP in 2008, compared with 5.5% of that across EU21 countries, 5.9%, on average, across OECD countries, and 7.2% in the United States (Table B2.1).

***China's spending per student is low, in absolute terms, compared to other countries, but high as a proportion of GDP per capita.***

In 2008, China spends USD 1 593 per student from primary to tertiary education – the lowest amount of annual expenditure per student among the countries surveyed. In comparison, Brazil spends USD 2 416, Argentina spends USD 3 204 and the Russian Federation spends USD 4 878, all far below the average for OECD countries (USD 8 831) or for EU21 countries (USD 8 702). These figures relate to public institutions only. At the other end of the spectrum, the United States spends USD 14 923 and Switzerland USD 14 977 on public institutions (Table B1.1a).

In tertiary education, Argentina spends the least per student (USD 4 411), just below China (USD 4 550). In comparison, the average expenditure per tertiary student across EU21 countries is USD 12 958, USD 13 717 across the OECD countries, and USD 29 910 in the United States (Table B1.1a).

However, the amount China spends annually per student from primary to tertiary education represents 27% of GDP<sup>3</sup> per capita, which is equal to the OECD average. The United States' annual expenditure per student from primary to tertiary education represents 32% of GDP per capita.

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<sup>3</sup> In 2008, China ranked second according to GDP (almost USD 8 000 billion) after the United States (USD 14 400 billion) and ahead of Japan (USD 4 400 billion). The European Union is the first world economy with a total GDP amounting to more than USD 15 000 billion.

For tertiary education, annual expenditure per tertiary student in China represents 76% of GDP per capita, higher than 64% in the United States, an average of 41% across OECD countries, and 39% across EU21 countries (Table B1.4).

***China's investment in long-term assets is more limited at the upper secondary than at the tertiary level of education.***

Education expenditure includes both current and capital expenditure. Capital expenditure by educational institutions refers to spending on assets that last longer than one year, including spending on the construction, renovation and major repair of buildings. Current expenditure by educational institutions includes spending on school resources used each year to operate schools. The labour-intensive nature of instruction explains the large proportion of current spending in total educational expenditure.

In secondary education, current expenditure ranges from 82% of total expenditure on education (in Luxembourg) to 98% (in Austria). In 2008, China's current expenditure is 97.2% of total education expenditure, compared with an average of 92.4% of total spending on education in OECD countries, and 88.4% of total education expenditure in the United States (Table B6.2a). It implies there is little investment in long-term assets in China.

In tertiary education, China's current expenditure accounts for 93% of total expenditure. This is close to the OECD average of 90.9% of total expenditure and 90.3% of total education expenditure that the United States devotes to current expenditure. Overall current expenditure at the tertiary level of education ranges from 79.4% of total education expenditure in Spain, to 83.5% in Korea, to more than 95% in Denmark (95.5%), Finland (95.8%), Sweden (96.3%), Belgium (96.7%) and Argentina (98.8%) (Table B6.2b).

***China has a large impact on the number of students who study abroad.***

On average, 93% of foreign tertiary students enrolled in OECD countries are from other OECD countries. Meanwhile, some 83.5% of foreign students enrolled in OECD countries are from such G20 countries as Argentina, Brazil, China, India, Indonesia, the Russian Federation, Saudi Arabia and South Africa (Table C3.3). Among international students originating from non-member countries, students from China are by far the largest group, representing 18.2% of all international students enrolled in OECD countries (not including an additional 1.3% from Hong-Kong, China) (Table C3.2).

In absolute terms, the largest number of international students is from China, India and Korea. Altogether, Asian students represent 52% of foreign students enrolled worldwide.

Students from China study primarily in Australia (12.4%), Canada (6.1%), France (4.2%), Germany (4.4%), Japan (14%), Korea<sup>4</sup> (6.9%), New Zealand (2.5%), the United Kingdom (8.3%) and the United States (21.9%). Most of these countries have schemes to facilitate the immigration of international students. The destinations chosen by international students reflect the attractiveness of specific education systems, whether because of their academic reputation or because of subsequent immigration opportunities (Table C3.3).

Conversely, fewer than 2% of foreign students choose to study in China.

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<sup>4</sup> Among OECD countries, the highest percentages of cross-border mobility are found in Korea, where more than 81% of foreign students come from China or Japan (Table 3.6, available on line).

### ***China reports less compulsory instruction time and more students per classroom than the OECD average.***

Students in OECD countries are expected to receive an average of 6 732 hours of instruction between the ages of 7 and 14, and most of that intended instruction time is compulsory. Compulsory instruction time in China is below OECD average, though no information on intended instruction time is available for China. The students between the ages of 7 and 14 in China receive 5 279 hours of compulsory instruction, more than in Poland (4 391 hours) and Hungary (4 925 hours), but below the OECD average (6 497 hours) and the EU21 average (6 458 hours), and far below Australia, Israel, Italy, Mexico and the Netherlands, all of which report 7 500 hours or more of compulsory instruction time (Indicator D1).

The average number of students per class in primary education in China is 37.1, substantially more than the OECD average of 21, and also more than 29.6 in Chile, 23.3 in the United States, 19.8, on average, across EU21 countries, and nearly double those numbers in Luxembourg (15.6) and the Russian Federation (16.2) (Table D2.1).

In China, the average class size increases between primary and lower secondary education from 17.5 to 54.6 students per class. In contrast, in the United Kingdom and, to a lesser extent, Switzerland (public institutions only) and the United States, the number of students per class decreases in lower secondary education (Chart D2.2).

Class size is larger in private institutions than in public institutions by 5.6 in China, similar to four or more students in Japan, Luxembourg and Spain. This is not the case in the United States, on average across the OECD countries, and on average among EU21 countries, (Chart D2.4 and Table D2.1).

The average number of students per teacher in primary education is 17.6 in China, standing between more than 28.1 in Mexico to 10.2 in Poland, and more than 16, on average, across OECD countries, 14.8 in the United States, and 14.5, on average, across EU21 countries (Table D2.1).

### ***That could partly explain why students in Shanghai-China spend more time in after-school lessons.***

Instruction time in formal classroom settings accounts for a large portion of public investment in education and is central to effective teaching and learning. Meanwhile, the amount of instruction time and after-school lessons available to students is one indication of the learning opportunities available to students.

Findings from the OECD's 2009 Programme for International Student Assessment (PISA) survey suggest that the amount of time spent in these after-school lessons differs widely across countries. Students in Shanghai-China<sup>5</sup> spend more time on after-school lessons compared to students in other countries. In Shanghai-China, 23.6% of students reported that they attend after-school lessons for four hours a week or more in mathematics (compared to 5.1% of students in the United States, and 6.1%, on average, across OECD countries), and 14.7% in language-of-instruction (reading, writing and literature) lessons, compared to 4.0% of students in the United States, and 4.7%, on average, across OECD countries (Table D1.3, available on line).

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<sup>5</sup> China has the world's largest population (1.3 billion). In area, China is the largest country in Asia, with almost 9 600 thousand km<sup>2</sup>, almost equal in size to the United States (9 630 thousand km<sup>2</sup>), and smaller than the Russian Federation (17 million km<sup>2</sup>) and Canada (10 million km<sup>2</sup>). Shanghai has more than 23 million inhabitants residing on around six thousand km<sup>2</sup>.

## ***Shanghai-China's top performance could be explained more by students' reading habit than by students' socio-economic background.***

In 2009, Shanghai-China scored 17 points higher in reading than the historical leader in the PISA rankings, Finland.

*Education at a Glance 2011* provides further analysis of those results in Indicator A5, which focuses on how student background affects performance. Shanghai-China, as other three top performers in reading, Canada, Finland, Korea, show a below-average impact of socio-economic status on students' reading performance, proving that a student's socio-economic background does not necessarily determine how he or she will perform in school. On average across OECD countries, 31% of students from disadvantaged backgrounds are resilient, meaning that they perform better in reading than would be predicted from their socio-economic backgrounds. In Shanghai-China, 76% of students from such backgrounds are resilient, meaning that most students from modest backgrounds do far better in reading than would be expected, similar to 56% in Korea.

*Education at a Glance 2011* also discusses the relation between reading for enjoyment and performance in school. PISA results show that students who enjoy reading, and who make reading a regular part of their lives, build their reading skills through practice. The strong association between enjoyment of reading and performance does not mean that there is a direct impact on reading scores; rather, it implies that enjoyment of reading is an important precondition for students to become effective readers.

In Shanghai-China, as in Indonesia, at least 80% of boys and 90% of girls reported that they read for enjoyment. In every country except Korea, girls reported reading for enjoyment more than boys. In contrast, on average across OECD countries, just over half of boys (52%) but nearly three-quarters of girls (73%) said that they read for enjoyment (Chart A6.4).

PISA results show that the group of countries where enjoyment of reading makes the least difference in reading performance tends to have lower reading scores, overall, than those countries where enjoyment of reading makes more of a difference. However, this is not true in Shanghai-China, as in Japan, Korea, where a rather small percentage of the variation in reading performance is explained by the *index of enjoyment of reading* (Chart A6.1).

### ***Definitions***

“Tertiary education” is defined as higher education (HE). Indicators cover both the current performance of the HE system and the proportion of the adult population (25-64 year-olds) who have attained HE qualifications. HE includes three levels:

College – first stage of tertiary education (corresponding to ISCED 97 5B short) refers to first-level tertiary programmes. College programmes typically have a full-time equivalent duration of between two and three years. The typical entry requirement for college programmes is successful completion of an upper secondary programme and performance that meets college-entrance benchmarks in the national tertiary education entrance examination. Until now, almost all college programmes have been transformed into vocational or technical education programmes that prepare participants for direct entry into specific occupations. Successful completion of such programmes leads to a labour market-relevant vocational qualification.

University – Undergraduate programmes (corresponding to ISCED 97 5A and 5B medium) have more advanced educational content than that offered at college level and generally lead to a bachelor degree.

University programmes typically have a full-time equivalent duration of between four and five years. Entry to university programmes normally requires the successful completion of upper secondary programmes and performance that meets university-entrance benchmarks in the national tertiary education entrance examination.

Master's and above – Postgraduate programmes are defined as tertiary programmes devoted to advanced study and original research. The typical entry requirement for a master's programme is the successful completion of undergraduate programmes, success in the national postgraduate entrance examination, and passing an examination organised by a university. The typical entry requirement for a doctoral programme is the successful completion of a master's programme and success in an examination organised by a university.

“Below upper secondary education” is defined as no schooling at all, or participation in pre-school or primary school.

“Upper secondary education” covers general programmes and vocational programmes at both lower secondary and upper secondary levels.