

## Education at a Glance 2004

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**Briefing note – SWITZERLAND**

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**New figures in *Education at a Glance 2004* provide further evidence of the benefits accruing from education**

*The case for more and better education is often made, whether in terms of lifelong learning, expansion or diversification of the provision in particular sectors or simply improving the quality of the education that is already delivered. In all cases, there is a need for an assessment of the benefits that reform can bring both to individuals and to the nation as whole. Recognising these key issues, *Education at a Glance* examines the benefits and outcomes of education. In providing new analyses on trends in the employment prospects of those with different levels of education and with new analyses of the financial returns accruing to individuals' investment in education, the 2004 edition provides some key indicators that can help with that assessment.*

### **The benefits of education**

*For individuals, investing in education brings improved employment prospects ...*

- Employment ratios for those with tertiary qualifications are significantly higher than for those without these qualifications. On average across OECD countries, the proportion of 25 to 64-year-olds with a tertiary qualification and who are employed is 8 percentage points higher than for those who only have high school qualifications (the difference is 10 percentage points for Switzerland). This employment advantage is as high as 22 percentage points in Poland and is in fact negative in Mexico (i.e. graduates have a lower chance of being in employment than those with upper secondary qualifications). [Table A10.2a., p.158]
- The employment advantage of someone with upper secondary qualifications compared with someone with lower qualifications is even more marked than at the tertiary level. Here, employment ratios are on average 18 percentage points higher for those with upper secondary qualifications than for those without them (11 percentage points in Switzerland). This employment advantage is evident in all countries and is strongest in the Slovak Republic (42 percentage points) and Hungary (35 percentage points) and weakest in Korea (2 percentage points) and Iceland (4 percentage points). [Table A10.2a, p.158]



- Despite rapid rises in educational attainment, particularly at the tertiary level, these relationships have remained fairly stable over time, though some subtle change is evident. Over the last decade, the employment advantage had by those qualified to the tertiary level diminished slightly and the advantage of upper secondary graduation strengthened slightly. This is most apparent when looking at comparative unemployment ratios between the levels of education over time: in 2002, the proportion of adults qualified at the upper secondary level who were unemployed was 1.4 percentage points higher than for adults educated at the tertiary level, whereas in 1995 the difference was 1.9 percentage points. In Switzerland, change in the same direction is also evident. In 2002, the proportion of adults qualified at the upper secondary level who were unemployed was actually .1 percentage points lower than for adults educated at the tertiary level. By contrast, in 1995 the proportion of adults qualified at the upper secondary level who were unemployed was .5 percentage points higher than for adults educated at the tertiary level [Table A10.2b, p. 161]
- Education and earnings are closely linked, with education beyond high school bringing a particularly high premium. Earnings of university-level graduates in the 30 to 44 years age group are more than 80 per cent higher than the earnings of those who have completed only secondary education in the Czech Republic, Hungary, Portugal and the United States. In Switzerland, these earnings premiums are 66 per cent for females and 38 per cent for males. [See Table A11.1a, p. 175]
- It is possible to contrast the benefits for individuals of attaining the next level of education (in terms of higher average earnings, lower risk of unemployment and the public subsidies they receive during their studies) with the costs that individuals incur when studying (in terms of tuition fees, lost earnings during studies and higher tax payments later in life). The private returns for those obtaining a university degree or advanced research qualification immediately following earlier study are positive in all countries and particularly so for males in Hungary (19.8 per cent) and females in Finland (15.2 per cent). The returns for such students in Switzerland are 9.8 per cent for males and 7.8 per cent for females. For a 40-year-old returning to study, the rates of return are lower than those for students who progress immediately to the next level at an early age, but the rates are still particularly high for males in Hungary (16.4 per cent) and females in the United Kingdom (9.9 per cent). [Table A11.5, p. 181]

***And as well as benefits to individuals, the wider economic benefits of raising education attainment are well evidenced ...***

- Analysis repeated from *Education at a Glance 2003* examines the driving factors of economic growth and shows that rising productivity accounted for at least half of GDP per capita growth in almost all OECD countries with available data [Chart A12.2, p. 191]. Labour productivity can be increased in several ways and the educational attainment of the working population plays a pivotal role, including through its role in determining the rate of technological progress.
- Studies of the macro-economic returns to education estimate that increasing the average level of attainment by one year raises the level of output per capita by between 3 per cent and 6 per cent. [Indicator A12, p.187].



***Dramatic improvements in educational attainment have driven these personal and economic benefits ...***

- To summarise the current levels of educational attainment amongst the adult population, one can calculate the average number of years of schooling that the stock of qualifications held by the adult population represents, based on the duration of current educational programmes. For OECD countries on average, the level of educational attainment corresponds to 11.8 years of schooling and ranges from 7.4 years in Mexico to 13.8 years in Norway. The stock of qualifications in Switzerland is above the OECD average and represents 12.8 years of schooling on average. [Table A1.1, p. 47].
- Tertiary attainment in particular has grown rapidly in many countries and continues to grow. Evidence on trends can be obtained by comparing attainment rates for different age-groups in the population. The percentages of the population across the OECD countries that have attained a university qualification (Tertiary-type A or advanced research qualification) are higher for successively younger age-groups (11 per cent for 55-64 year-olds, 14 per cent for 45-54 year-olds, 16 per cent for 35-44 year-olds and 19 per cent for 25-34 year-olds). With 16 per cent of its 25-64 year old population having attained a university qualification, Switzerland is exactly in line with the OECD-wide country mean of 16 per cent.[See Table A3.3, p. 71]
- The percentage of the 25 to 64-year-old population with tertiary level education rose again in the latest figures and now stands at 23 per cent on average across OECD countries (25 per cent in Switzerland). However, most of that increase is due to significant increases in tertiary graduation rates in a comparatively small number of countries, with the risk that some countries are being left behind. [Table A3.4a, p.72] Continuing increases in today's entry rates to universities suggest that this expansion will continue. Entry rates to university level education (tertiary type-A) increased in most countries in 2002 compared with the 2001 figures published in *Education at a Glance 2003*.
- On average across OECD countries, 51 per cent of the age-group now enters a tertiary program leading to the equivalent of a bachelor's degree or higher. Entry rates are particularly high in Australia (77 per cent), Finland (71 per cent), Iceland (72 per cent), Poland (70 per cent) and Sweden (75 per cent). Entry rates are particularly low in Austria (31 per cent), Belgium (30 per cent), Czech Republic (30 per cent), Germany (35 per cent), Mexico (33 per cent) and Switzerland (35 per cent). Tertiary enrolment has expanded dramatically in some countries, with enrolment more than doubling in Hungary and Poland between 1995 and 2002. [See Table C2.1, p. 288; Table C2.2, p.289].
- This growth is putting significant pressure on the financing of tertiary education in these and other countries. In seven out of the 24 OECD countries for which data are available, spending on tertiary educational institutions has not kept pace with the expansion of enrolments, with the consequence that expenditure per student has decreased, in real terms, since 1995. However, between 1995 and 2001, Switzerland recorded the fifth highest increase in expenditure per student (after Greece, Ireland, Spain and Turkey) [See Table B1.5, p. 220]
- Together with the financial pressures that tertiary expansion can bring, there is added strain on the system to maintain completion rates. On average, across the OECD, the drop-out rate from first degree programs is 30 per cent. Countries with much lower rates include Japan



(6 per cent), Turkey (12 per cent), Ireland (15 per cent) and the United Kingdom (17 per cent). [See Table A3.2, p. 70. This table does not contain data for Switzerland]

*...and increases in foreign student enrolment have played a part in tertiary level expansion*

- In some countries, increases in foreign student enrolment have contributed to the expansion of tertiary enrolment. **In 2002, 1.9 million students were enrolled outside their country of origin** within OECD and partner countries (see Notes). This represented a 15 per cent increase in total student mobility since the previous year [Table C3.6, p. 313].
- Five countries (Australia, France, Germany, the United Kingdom and the United States) together receive nearly 73 per cent of all foreign students studying in the OECD area (Switzerland receives 2 per cent) [Chart C3.2, p. 297].
- In 19 of the 22 OECD countries for which there are data, the proportion of foreign students amongst all tertiary students increased over the last 4 years and is highest in Australia at 17.7 per cent and Switzerland (17.2 per cent). This proportion is 1 per cent or less in Korea, Mexico, Poland, Slovak Republic and Turkey. [Table C3.1, p.306; Chart C3.1, p.293]
- In terms of the types of study followed by foreign students, university level (tertiary type-A) programmes are the norm, though in Belgium equal numbers follow lower level tertiary programmes. In Finland, Spain and Switzerland, around one in five foreign students is enrolled in highly theoretical advanced research programmes [Table C3.4, p. 312].

*...while, at the high-school level, progress in attainment has been more mixed.*

- The proportions of individuals in the population who have completed high school have been rising in almost all OECD countries, as shown by the attainment rates for successively younger groups in the populations. For the 25-64 year age group, the OECD country mean is 65 per cent. In Switzerland 82 per cent of the population in this age range has attained at least upper secondary education. [See Table A2.2, p. 58; Chart A2.2, p. 53.]
- Young people who have not achieved or who are not pursuing upper secondary education are a particular concern, and the numbers in most countries are not trivial. The proportion of 20 to 24-year olds not in education and without upper secondary education is under 10 per cent in only eight out of 27 OECD countries. The OECD country mean is 19 per cent. The figure for Switzerland is 7.5 per cent. [Table C5.1, p. 350; Chart C5.1, p. 344].

## **Investment in education**

*Accompanying these trends in participation and attainment, there have been significant increases in expenditure on education amongst OECD countries...*

- In 13 out of 18 OECD countries for which data are available, public and private spending on educational institutions increased between 1995 and 2001 by more than 10 per cent in real terms, contributing to an average increase across these 18 countries of 20 per cent. Only in the Czech Republic did spending fall in real terms during the period. [See Table B2.2, p. 232].
- These trends mean that OECD countries in total spend 6.2 per cent of their collective GDP on education, from both public and private sources. The highest spending country on this



measure is Korea with 8.2 per cent of GDP being spent on education, followed by the United States with 7.3 per cent. Both of these countries have much larger private funding of education compared with other countries: 3.4 per cent and 2.3 per cent of GDP respectively compared with the OECD average of 0.7 per cent of GDP. When public funding only is considered, Denmark and Sweden continue to spend the highest proportion of GDP on their education systems (6.8 and 6.3 per cent of GDP respectively). The equivalent figure for Switzerland is 5.4. per cent [See Table B2.1a, p. 229.]

- When the student numbers that this expenditure caters for are taken into account, a slightly different picture emerges. For instance, while the United States does not commit the highest percentage of GDP to expenditure on education, it does achieve, by some margin, the highest expenditure per student from primary to tertiary education (in equivalent US dollars converted using purchasing power parities) at US\$ 10 871. The levels in other countries range from less than US\$ 3 000 in Mexico, Poland and the Slovak Republic to more than US\$ 8 000 per student in Austria, Denmark, Norway and Switzerland. [See Table B1.1, p. 215, Chart B1.1, p. 199.]

*...with the private share of expenditure increasingly important, particularly at the tertiary level.*

- The share of expenditure on primary and secondary education that originates from private sources ranged, in 2001, from less than one per cent in Finland, Portugal and Sweden to 18.9 per cent in Germany and 23.8 per cent in Korea. In most countries the private expenditure comes from households but in the case of Germany and Switzerland, the bulk of private money comes from private enterprises through the funding of the dual system of apprenticeships. (Note that the private shares include public subsidies provided to private entities such as households.) [See Table B3.2a, p. 242.]
- The prevalence of private funding at the tertiary level is far greater. The share of tertiary expenditure that originates from private sources ranged, in 2001, from 3 per cent or less in Denmark and Greece, to 84 per cent in Korea. [See Table B3.2b, p. 243.]
- In 13 out of the 19 OECD countries with comparable data, the private share of expenditure on tertiary education grew between 1995 and 2001. In most countries, however, this growth in private spending was not associated with a decrease in public-sector spending on tertiary education. [See Table B2.2, p. 232, Table 3.2b, p. 243.]

*The public share of educational expenditure is often provided as subsidies to students or households...*

- An average of 17% of public spending on tertiary education is devoted to supporting students, households and other private entities, the remainder being spent directly on institutions. In New Zealand, almost half of public spending on education is provided in the form of this type of support, with percentages of around one third reported by Australia, Denmark, Norway, Sweden and the United States. The figure for Switzerland is 0.8 per cent. Only one other country, Poland, has a lower percentage [See Table B5.2, p. 258].

*.. and public funding of education is a social priority, even in OECD countries with little public involvement in other areas....*

- Across OECD countries, when the size of public budgets relative to GDP is compared with the proportion of public spending that is committed to education, it is evident that even in countries with relatively low rates of public spending, the priority that education is awarded



within that spending is very high. For instance, the share of public spending that goes to education is highest in Mexico (24.3 per cent), Korea (17.7 per cent) and the United States (17.1 per cent) and yet total public spending as a proportion of GDP in these countries is not high. The OECD average for this variable is 12.7 per cent [See Table B4.1, p. 249.]

## Gender differences in educational outcomes

### *In the 1990s women moved ahead of men in educational attainment...*

- Young women are now more likely to obtain first degrees from university-level institutions in most OECD countries: only in three (Japan, Switzerland and Turkey) are young men significantly more likely to do so. [See Table A4.2, p. 84.]. In the past, men typically had better access and earlier indicators show that, in 1990, men still had higher university-level graduation rates than women in half the countries with comparable data.

### *...with higher expectations for the future, but gender differences in study fields...*

- In 40 out of the 42 countries taking part in the OECD's Programme for International Student Assessment (PISA) in 2000, 15-year-old females reported higher expectations for their future occupations than males. This was the case in Switzerland (except that, in Switzerland, a higher percentage of 15-year-old females expected to have a blue-collar low-skilled job than did males of the same age). [See Table A9.1, p. 140.]
- Nevertheless, there remain gender discrepancies in educational and career choices, with young men still favoring physics, mathematics and engineering-based courses at university and young women opting for the social sciences, health and teaching-related courses. In the humanities, arts, education, health and welfare, an average of more than two thirds of the university-level graduates are women, whereas there are less than one third in mathematics and computer science and less than one quarter in engineering, manufacturing and construction. Men are also more likely than women to earn advanced research qualifications such as doctorates. In Switzerland, and considering all fields of study together, 34 per cent of advanced research qualifications are awarded to women. Only two countries, Japan and Korea, have a lower figure [See Table A4.2, p. 84.]

### *...that have consequences for individual careers and salaries.*

- Males are more likely to be in employment than females at all levels of educational attainment but the gender gap decreases with increasing educational attainment. The proportion of the male adult population with lower secondary education who are in employment is 73 per cent compared to 49 per cent for females who are similarly qualified, a gap of 24 percentage points. At the lower secondary level, the gender gap in Switzerland is 23 percentage points. Across the OECD, among persons who have attained university (tertiary Type-A) and advanced research qualifications, the gap is reduced to 11 percentage points. When all levels of education are considered together, the average gender gap across the OECD is 19 percentage points. The equivalent figure for Switzerland is 18 percentage points. [Table A10.1a, p. 155]
- Females still earn less than males with similar levels of educational attainment and the magnitude of the disparity is substantial in most countries. In Switzerland, among 30 to 44-year-olds, and considering all levels of education, female earnings are 50 per cent of those of similarly qualified males (the lowest ratio out of 21 countries). Among 55 to 64 year-olds,



and again considering all levels of education, the proportion of female to male earnings was 46 per cent in Switzerland (2nd lowest) [Table A11.1b, p. 176]

- Career choices emerge early. Gender differences in fields of study at university level are mirrored in the educational aspirations of 15-year-olds. In responses in PISA 2000, career expectations of boys were far more often associated with physics, mathematics or engineering (on average 18 per cent of boys versus 5 per cent of girls) while those of girls were more frequently related to life sciences and health (20 per cent of girls compared to only 7 per cent of boys). [See p. 131 and <http://www.oecd.org/edu/eag2003>.]

*There are also marked gender differences in educational achievement.*

- At the elementary school level, girls outperformed boys in reading in every country in the 2001 International Association for the Evaluation of Educational Achievement's (IEA) Progress in Reading Literacy Study (PIRLS), which provides a profile of students' performances in reading at the 4<sup>th</sup> grade level. [See Table A9.2, p. 141.] And a study of trends in 4<sup>th</sup> grade reading literacy between 1991 and 2001 in nine countries shows that these gender disparities are long-standing and that only in Iceland has there been a significant reduction in the gender gap over the period [Table A5.2, p.94; Chart A5.1, p. 86].
- Females were also better readers by age 15 in every one of the 43 countries taking part in OECD's PISA 2000 study. In about half of the countries, including Switzerland, males remained ahead in mathematical literacy, though the differences were much smaller. In scientific literacy there were few significant differences. [See Table A9.3, p. 142.]

## **Teacher working conditions**

*Salary level is an important factor that can influence recruitment and retention of quality teachers...*

- At US\$ 34,818, starting salaries for primary teachers in Switzerland are the second highest in the OECD area (and well above the OECD average of US\$ 22,910). Only Germany has a higher figure. In Switzerland, starting salaries for lower secondary teachers and for teachers of general programmes at upper secondary level are higher than in any other OECD member country. [See Table D3.1, p. 390.]
- Across OECD countries, salaries at the top of the scale are on average around 70 per cent higher than starting salaries for both primary and secondary education, though this varies between countries largely in line with the number of years it takes for a teacher to progress through the scale. For instance, top-of-the-scale salaries in Korea are almost three times that of starting salaries, but it takes 37 years to reach the top of the scale. For both primary and secondary education, the ratio of top-of-the-scale to starting salaries in Switzerland is lower than average [Table D3.1, p.391].
- While teachers in Switzerland earn salaries that are high compared with those in other countries, direct international comparisons of salaries for teachers may not be of great relevance for recruitment since the teacher labor market is substantially domestic. The more important consideration is how teacher salaries compare with those that might otherwise be available to individuals who might become teachers. One indirect way to make this comparison is to examine teachers' salaries relative to GDP per capita. On this measure (the ratio of teachers' salaries after 15 years to GDP per capita), teachers at the lower secondary



education level in Switzerland rank 3<sup>rd</sup> among 29 OECD countries. [See Table D3.1, p. 390, Chart D3.1, p. 380.]

- Teachers' salaries have risen in real terms between 1996 and 2002 in virtually all countries for which data are available, with the largest increases evident in Hungary and Mexico. In Switzerland, between 1996 and 2002, at the upper secondary (general programmes) level, starting salaries, as well as salaries after 15 years of experience, fell in real terms [Table D3.3, p. 398]

*...and working hours another.*

- Across the OECD, the number of teaching hours per year in public primary schools averages 803 but ranges from 617 hours in Japan to 1 139 hours in the United States. For lower secondary education the average number of teaching hours is 714 and ranges from 513 in Japan to 1 167 in Mexico. [See Table D4.1, p. 406.]
- It is possible to examine what proportion of working time is spent teaching. The percentage of working time that is spent teaching is higher at the primary level than it is at the secondary level. At both levels, however, the percentage of working time spent teaching is greater than 50% in only a minority of countries. [Table D4.1, p. 406 and Chart D4.2, p. 403].

*...and class size*

- Class size is frequently seen as a key working condition, often being the subject of negotiations with employing authorities. Average class sizes at both primary and lower secondary level vary substantially across OECD countries. At the primary level they average a little less than 22 students per class and range from 36 students per class in Korea to less than half that number in Greece, Iceland and Luxembourg. The figure for Switzerland is 19.6. On average across countries, classes at the lower secondary level are around 2 students larger than at the primary level [See Table D2.1, p. 376]. Both Korea and Japan have relatively large class sizes and yet are high performing countries in international comparisons of student achievement. This and other evidence points to there being no simple relationship between class size and learning benefits for students, though there may be a benefit in working conditions for teachers.

## **Context factors shaping the learning environment and educational outcomes**

*The results in this year's Education at a Glance also provide further insights on context factors which influence learning and the learning environment ...*

*.... at the individual student level in terms of engagement in school life.....*

- Students' sense of engagement in school life can be seen as a context for teaching and learning as well as an outcome itself. On average, nearly a quarter of 15-year-olds in the PISA 2000 study expressed negative views about their sense of belonging at school, and an average of one in five reported either recently missing school, arriving late or skipping classes. Students in Austria, Sweden and Switzerland reported a particularly high sense of belonging, while students in Belgium, the Czech Republic, Japan, Korea and Poland reported a below-average sense of belonging. [Table A8.1, p. 128; Chart A8.1, p. 118].



- Analysis of the school level results shows that students' sense of belonging and their participation tend to go hand in hand and are closely related to school performance, suggesting that schools with high levels of engagement also tend to have high levels of academic performance [Chart A8.3, p. 124].

*...at the school level in terms of school admission and grouping policies...*

- School policies for admitting and grouping students are important policy levers which influence the learning environment. Based on survey reports from school principals in 2002, students' academic performance is the most commonly used criterion for admitting students to upper secondary schools, though there is wide variation among countries. More than 80% of students in Finland, Hungary and Norway attend schools where students' academic performance is always used as a criterion for admission. In Switzerland, 25% of students attend such schools [Table D5.1, p. 419; Chart D5.1, p. 409]).
- For grouping students, the most commonly used criterion is the student's choice of specific subject or programme; on average some 73% of students attend schools where this criterion is always used (the figure for Switzerland is 63%). By contrast, in Mexico, almost half the students attend schools where this is never the practice. Grouping students to ensure that classes contain a mixture of abilities is the next most common policy, followed by grouping students by similar age [Table D5.3, p. 421).
- Schools in the Flemish Community of Belgium, Hungary, Ireland and Italy are, on average, more selective both in admitting and in grouping students than the international average. In Switzerland, schools appear to be less selective in their admission policies than the international average [Chart D5.3, p. 416].

*..and at the system level in terms of the decision making structure in which the school system operates*

- An analysis of the decision making responsibilities at the lower secondary level of education sheds light on the degree of decentralisation that exists within countries' systems.
- Overall, based on data for 2003, decision making is most highly centralised (decisions taken at the central and/or state level of government) in Australia, Austria, Greece, Luxembourg, Mexico, Portugal, Spain and Turkey, with central government particularly dominant in Greece (88% of decisions taken by the central administration) and Luxembourg (66%). Decisions are more often taken at the school level in the Czech Republic, England, Hungary, New Zealand and the Slovak Republic and in particular in the Netherlands where all decisions are taken at the school level [Table D6.1, p.432; Chart D6.1, p.423. Data for Switzerland are not reported in this table and chart].
- Between 1998 and 2003, decision making in most countries became more decentralised, most notably in the Czech Republic, Korea and Turkey. The opposite trend was evident in the French Community of Belgium and Greece [Chart D6.3, p. 429. Data for Switzerland are not reported in this chart].

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