



Education at a Glance 2005

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OECD Briefing Note for Japan

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*Education and lifelong learning today play a critical role in the development of economies and societies. This is true in the world's most advanced economies as well as in those currently experiencing periods of rapid growth and development. The 2005 edition of **Education at a Glance** provides a rich, comparable and up-to-date collection of indicators on the performance of education systems, examining both the investments in education as well as their returns.*

Several indicators confirm Japan's prominence in the global knowledge economy. Among them, OECD's number of triadic patent families, that indicates inventive performance, diffusion of knowledge and internationalisation of innovative activities, shows Japan second only to the United States in absolute terms and third after Switzerland and Finland when compared on a per-capita basis. This year's education indicators also suggest a strong supply of qualifications to future labour-markets, with the steadily increasing level of tertiary educational attainment putting Japan now second only to Canada and Japan's 15-year-old students performing at world class standards in key subject areas. Last but not least, Japan is becoming one of the most attractive destinations for foreign students, with a market share that has risen faster in recent years than in any other OECD country and now reaches 4%.

However, the indicators also suggest that further progress is needed if Japan is to retain its high standing. The entry rate to universities, that will influence the future supply of high-level qualifications, has slipped considerably relative to the OECD average and is, among women, one of the lowest in the OECD area. A significant gender gap is visible also among young science graduates from university in employment: While the number of male science graduates stands at 1,656 per 100,000 young employees above the OECD average of 1,398, the corresponding number for women is, at 372 less than half of the OECD average (858) and lower only in Switzerland, the Netherlands and Austria. Noteworthy, a sizeable gender gap is already visible in the negative attitudes of 15-year-old girls towards mathematics, which suggests that combating gender disparities will need to start early on in schools.

Between primary and tertiary education, educational spending per student in Japan is close to the OECD average. However, a comparatively high share of this investment is tied up in salaries, leaving schools with only 12.3% of current expenditure for other purposes in primary and secondary schools. Spending per child remains well below the OECD average at the pre-primary level that OECD's research suggests can have a powerful influence on shaping children's future.



Moreover, without the above-average share of household spending on early childhood education, these spending levels would be considerably lower. Also importantly, when relating spending on education to the high level of GDP in Japan, Japan falls considerably behind educational investments in many other OECD countries and the share of the public budget that is devoted to education is, at 3.6% of GDP, the lowest level among OECD countries. Moderate spending on education has not prevented Japan from becoming one of the best performing education systems, but can this success be sustained?

More people are studying for longer, but tertiary graduation rates vary widely

In most OECD countries educational attainment continues to grow among the adult population, fed by the rising number of young people obtaining upper secondary and tertiary level qualifications.

- In Japan, 91% of the relevant age cohort now graduates from upper secondary education that the OECD considers the essential baseline qualification for a successful entry into the labour market (OECD average 78%). Only Germany, Greece and Norway attain higher rates (Table A2.1). The high performance of Japanese 15-year-olds in key subject areas, as demonstrated in OECD's Programme for International Student Assessment (PISA) suggests that the output of Japanese schools is not only strong in quantitative terms, but also qualitatively (Tables A4.2 and A5.2).
- At the tertiary level, 34.2% of the Japanese population at the typical age of graduation now graduates from a first university-level degree (tertiary type A); slightly more than the OECD average level of 32.2% (Table A3.1). Among the OECD countries, current tertiary type A graduation rates range from less than 20% in Austria, the Czech Republic, Germany and Turkey to more than 40% in Australia, Denmark, Finland, Iceland and Poland. Such differences are associated with different kinds of tertiary education systems. High graduation rates are more common in countries with more flexible degree structures.
- On the other hand, the entry rate into tertiary-type A education, which will influence the future supply of high-level qualifications, shows Japan only at 42% (Table C2.2). This represents an increase of 6 percentage points since 1998 but, during the same period, the OECD average increased by 13 points from 40 to 53%. The entry rate is particularly low for women, 35% compared to an OECD average of 57%, a value that is lower only in the Czech Republic, Belgium, Mexico and Turkey (Table C2.2). In such comparisons it should, however, not be ignored that Japan has the highest "survival rate" at the tertiary-type A level. 94% of those who enter the university level complete with a first degree, compared with an OECD average of only 70% (Table A3.4).
- Among non-university tertiary qualifications (tertiary type B) Japan's graduation rate is, at 26.4%, the highest among OECD countries (OECD average 9.3%) (Table A3.1).
- At 0.8%, the graduation rate from advanced research programmes (such as PhD's) is comparatively low in Japan. Among the 27 OECD countries with available data, Japan comes 22nd on this measure (OECD average 1.3%) (Table A3.1).
- Between the 1960s and 1980s Japan has seen very significant progress in terms of the years of education that individuals attain: Among 55-64-year-olds, Japanese males rank 17th and Japanese females 18th in their years of schooling among the 30 OECD countries. In contrast, among 35-44 year-olds, most of whom obtained their qualifications in the 1980s, Japanese males rank 9th and Japanese females 12th. Since then, years of schooling remained broadly constant in Japan while they rose further in many other OECD



countries, so that that Japanese 25-34-year-olds males now come 13th and females 14th in terms of their years of schooling (Table A1.4).

- Many OECD countries where large numbers failed to complete secondary education in the past are rapidly catching up in terms of upper secondary completion: In Belgium, France, Greece, Ireland and Korea, where around half of those born in the 1950s did not complete secondary school, between 72% and 97% of those born in the 1970s have done so (Table A1.2a).

Females remain a largely untapped resource among Japanese high-level qualifications

- While in most OECD countries, women are now in the majority of first-degree university-level graduates (OECD average 57%); only 40% of Japanese first-degree graduates at the tertiary-type A level are women, the lowest figure among the 27 OECD countries with available data. Furthermore, only 27% of the Japanese second-degree graduates and only 25% of the Japanese advanced research graduates are women while the corresponding OECD averages are 52% and 41% respectively (Table A3.6).
- The gender gap is clearly visible also among young science graduates in employment. Among 100,000 Japanese 25-34-year-olds in employment, the number of science graduates at tertiary type A and advanced research programmes is, at 1,140 persons, slightly below the OECD average of 1,157. While the number of male science graduates stands at 1,656 per 100,000 young employees, above the OECD average of 1,398, the corresponding number of women is, at 372 less than half of the OECD average (858) and lower only in Switzerland, the Netherlands and Austria. Among the 27 countries with available data, at tertiary level the number of science graduates per 100 000 employed persons ranges from below 700 in Hungary, to above 2 200 in Australia, Finland, France, Ireland, Korea, and the United Kingdom (Table A3.2). Gender differences are also visible in the interest of 15-year-olds in mathematics. Levels of Japanese students' interest in mathematics are below the OECD average for both males and females, but much more so for females than for males (Table A3.3).

Japan has become an attractive destination for foreign students.

In 2003, 2.12 million people studying in OECD countries were foreign students, *i.e.* enrolled outside their country of origin. This represented an 11.5% increase in total foreign students' intakes reported to the OECD since the previous year.

- Australia, France, Germany, the United Kingdom and the United States receive 70% of foreign students in OECD countries. Since 1998, Australia's market share has risen, but those of the United Kingdom and the United States have fallen (Table C3.1).
- Japan comes fifth on this measure with a market share of 4% and, with a 54% increase in foreign enrolment since 1998 (Table C3.1). No other country has seen a faster rise in the market share of international students. 84% of these students (from OECD countries) come from Korea. Other popular OECD countries of origin are the United States, the United Kingdom, Australia, Germany, France and Canada (Table C3.2).
- The number of Japanese studying abroad is still larger than foreign enrolment in Japan, resulting in a net outflow of 0.9% of total tertiary enrolment (Table C3.1).
- In absolute numbers in the OECD area students from France, Germany, Greece, Japan, Korea and Turkey represent the largest sources of intakes from OECD countries. Students from China, India and Southeast Asia comprise the largest numbers of foreign students from partner countries (Table C3.1).



Clear returns to education can be measured in terms of individual job prospects, individual earnings and overall economic growth.

Investment in education brings both individual and collective rewards. In most countries, better-educated adults are more likely to work, and earn more on average when they do so. However, these effects are less pronounced in Japan than in most other countries:

- Employment prospects have traditionally been strong in Japan and remained so over recent years. Among 25-64-year-olds, 67% of individuals without upper secondary qualifications, 74% of individuals with upper secondary qualifications, and 79% of those with tertiary qualifications were in employment in 2003, compared with OECD averages of 56%, 74% and 83% respectively (Table A8.3a).
- However, males with low levels of education are particularly likely to be unemployed, both compared with females with low levels of education and males with higher levels of education: While unemployment among upper secondary and tertiary graduates in Japan does not vary significantly between the genders, males without upper secondary qualifications are almost twice as likely to be unemployed than females (with the corresponding unemployment rate being 8.0% and 4.6%). This gender difference is much larger than at the OECD average level, where the corresponding figures are 9.8% and 10.8% (Table A8.2a).
- Although unemployment has grown slightly for all population groups in Japan between 1998 and 2003, this trend is most clearly visible for those without upper secondary qualifications. Here the unemployment rate rose by 1.6 percentage points from 3% in 1998 to 4.6% in 2003. In contrast, for individuals with tertiary qualifications, the unemployment rate rose by only 0.6 percentage points, from 3.5% to 4.1% (Table A8.4c).
- Rising labour productivity accounted for at least half of GDP per capita growth in most OECD countries from 1990 to 2000. The estimated long-term effect on economic output of one additional year of education in the OECD area generally falls between 3 and 6%. Consideration is also given to the evidence for effects of education on health and social cohesion (Indicator A10).

Spending on education has generally risen, but not always as fast as GDP

OECD countries are expanding the scope of their education systems, but at the same time trying to contain the cost burden on hard-pressed public budgets. Conflicting pressures have produced varying trends. In tertiary education, where student numbers are rising fastest, pressures to cut unit costs are greatest. In primary and secondary education, where in some cases demography causes a fall in enrolments, spending per student is rising in many countries.

- Annual spending per student from primary to tertiary education is, at 7,438 US\$ per Japanese student, close to the level of spending in the OECD area as a whole (7,343 US\$, all data converted into US\$ using purchasing power parities), but considerably lower than in Switzerland, the United States, the Nordic countries and Austria (Table B1.1).
- However, at the pre-primary level it is, at 3,691 US\$, considerably below the OECD total of 4,922 US\$ and less than half the corresponding spending levels per child in the United Kingdom or the United States (8,452 US\$ and 7,881 US\$) (Table B1.1). On the other hand, the enrolment of 4 year-olds and under as a percentage of the population of 3-to-4-years is, at 79.8%, considerably higher than at the OECD average level (69.8%) (Table C1.2).
- Like many other countries, Japan has capitalised on declining enrolments in primary and secondary education (-15%) and spending per student raised by 25% between 1995 and



2002 (OECD average increase 26%) (Table B1.4). In tertiary education, spending increased by 20% while enrolments rose only slightly by 2% during that period, resulting in an increase in per-student spending of 18% (OECD average 12%). Larger increases in tertiary per-student spending occurred only in Italy, Mexico, Denmark, Ireland, Spain, Greece, Switzerland and Turkey, albeit often from much lower levels (Table B1.4). In contrast, in many countries, tertiary enrolment rose much faster than spending levels, often resulting in a net decline in per-student spending. In some countries, spending per tertiary student has fallen by over 10%, as spending levels have not kept pace with expanding student numbers. This was the case in the Czech Republic, Poland, the Slovak Republic and Sweden (Table B1.4).

- When relating spending on education to the high level of GDP in Japan, Japan falls considerably behind educational investments in many other OECD countries. Public spending on educational institutions amounts to only 3.5% of GDP, a figure that is lower only in Turkey (OECD total 4.9%). At 1.2%, private spending on educational institutions as a percentage of GDP is at the OECD average level (1.2%). Public and private spending on educational institutions as a percentage of GDP amounts to 4.7% in Japan, compared with an OECD total of 6.1% and figures of over 7% in Iceland, the United States, Denmark and Korea (Table B2.1a). In Ireland, where the GDP grew particularly rapidly, spending on non-tertiary educational institutions grew only about half as fast, although tertiary spending nearly kept pace with GDP. Spending on educational institutions grew over twice as fast as GDP in New Zealand and Turkey at the non-tertiary level, and in Greece, Hungary, Italy, Japan, Mexico, Poland, Switzerland and Turkey at the tertiary level (Chart B2.3).
- At 10.6%, Japan spends a comparatively small share of its public budget on educational institutions (OECD average 12.9%) and this share has declined from 11.1% in 1995 (Table B4.1). The share is smaller only in Hungary, Italy, Germany, the Czech Republic, Greece and the Slovak Republic.
- On average in OECD countries, public budgets declined relative to GDP but public education spending grew as a share of those budgets, because it grew more slowly than GDP. Denmark, New Zealand and Sweden saw particularly significant shifts in public funding in favour of education.
- A comparatively large share of spending on primary and secondary institutions goes to the compensation of staff, leaving Japanese schools with only 12.3% of current expenditure for other purposes (OECD average 19%). At the tertiary level, the share of current expenditure devoted to staff is, at 68.2%, around the OECD average level (66.1%) (Table B6.3).

Private spending on education is substantial in some areas, but resources for education continue to depend heavily on the allocation of public budgets

Public funding today provides for most spending by educational institutions, with over 90% of primary and secondary expenditure in OECD countries coming from this source. In tertiary and pre-primary education, private funding is more significant, particularly in certain countries. In recent years, public spending on education has been threatened by a decline in most countries in the percentage of GDP spent publicly overall. However, the allocation of a growing proportion of these budgets to education has helped to reduce the impact.

- Japanese households and other private entities pay a particularly large share of the costs of education prior to the beginning and after the end of school education. At 49.9%, the private share in expenditure for pre-primary education in Japan is considerably larger than at the OECD average level (17.9%), and second only to Korea (68.2%) (Table



B3.2a). Similarly, at the tertiary level, private spending on education is, at 58.5%, considerably above the OECD average level (21.9%). Here the percentage of funding coming from private sources varies widely, from less than 4% in Denmark, Finland, Greece and Norway to more than 50% in Australia, Japan and the United States and even above 80% in Korea. In some countries, tertiary institutions are now relying more heavily on private sources of funding such as fees than they did in the mid-1990s. The contribution of private sources rose by more than five percentage points in Australia, Mexico, Portugal, the Slovak Republic, Turkey and the United Kingdom from 1995 to 2002. In Japan, there have not been significant changes (Table B3.2b).

- For primary and secondary education private spending on educational institutions in Japan is, at 8.3%, around the OECD average level (7.2%) (Table B3.2a).

Despite average spending levels Japan can afford above-average teacher salaries, because there are fewer instruction hours and larger classes.

- In terms of primary teachers salaries after 15 years of service and minimum training, Japan comes, at 45,515 US\$ converted using purchasing power parities, fifth after Luxembourg, Switzerland, Germany and Korea (Table D3.1). This is similar at the lower secondary level whereas, at the upper secondary level, Japan comes 8th. Japanese teachers also fare well when comparing salaries to GDP per capita. On this measure, countries vary widely. Mid-career salaries for teachers in lower secondary education are over twice as high as GDP per capita in Korea and Mexico, whereas in Iceland and the Slovak Republic salaries are less than 75% of GDP per capita.
- The average class size in Japan is 28.6 at the primary level and 34 at the secondary level, compared with OECD averages of 21.6 and 23.9. Larger classes only exist in Korea (Table D2.1). In contrast, at the tertiary level conditions in Japan are more favourable than at the OECD average level. The ratio of students to teaching staff in full-time equivalents is 12.4 at the university level (Type A) and 8.4 at the non-university tertiary level (Type B), compared with corresponding OECD averages of 15.7 and 14.1 (Table D2.2).
- The total number of instruction hours that students are intended to receive in accordance with national curricula between the ages 7 and 14 averages 6 852 hours among OECD countries. However, formal requirements range from 5 523 hours in Finland to around 8 000 hours in Australia, Italy, the Netherlands and Scotland (Chart D1.2). With an average number of intended instruction hours per year of 656 for 7-to-8-year-old students, Japan ranks 20th among the 27 countries with available data (Table D1.1). However, learning does not only occur in the classroom. While in Austria, Belgium, the Czech Republic, Iceland, Japan, Norway, Portugal, Sweden and Switzerland, learning in classroom settings makes up 80% of total school-related learning, students in Greece report spending more than 40% learning in other settings, including through homework and out-of-school classes (PISA 2003).

Participation in continuing education and training of people in the labour force varies markedly between countries

The need for labour force members to continue developing their skills and knowledge is greater now as job tasks become more complex and job mobility increases. However, the extent to which this is happening in countries varies widely (no data on this are available for Japan).

- In Denmark, Finland, Sweden, Switzerland and the United States, more than 40% of the labour force took part in non-formal job-related education and training within a 12-month



period. This contrasts with Greece, Hungary, Italy, Spain and Portugal where the rate was less than 10% (Table C6.2).

- Adults with tertiary qualifications are, in all countries, more likely to participate in non-formal job-related continuing education and training than adults with lower educational attainment.
- In all countries, workers in upper tier service industries are more likely to participate in non-formal job-related continuing education and training than workers in other industries.

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