the age structure of each ethnic group population. Participation rates for domestic Asian students fell between 2001 and 2002.

**Figure 17: Age-standardised participation rates by ethnic group, July 2001 and 2002**

Growing participation of older students
Participation rates had been growing across age groups from 1999 to 2002, although there was a slight decrease in participation rates for students under 25 between 2001 and 2002.

Women, at all ages, were more likely to participate in tertiary education than men.

**Figure 18: Participation rates by age and gender, July 2002**

There was a trend towards greater participation in tertiary education at older ages. The proportion of students over 40 years had increased from 17 percent in 1999 to 20 percent in 2002. Less than half of the formal tertiary students were aged under 25 years. In 2002, only 26 percent of first-time students came directly from school.

**Increased participation below degree level**
While the number of students enrolled at the degree and postgraduate levels had been steadily increasing, the major growth to 2002 had been at the sub-degree level. Nearly 55 percent of tertiary students were enrolled for qualifications below degree level in 2002.

**Figure 19: Enrolments in formal tertiary education by qualification level, July 1997–2002**

**Continued growth in industry training**
There has been constant growth in industry trainee numbers since the programme began in 1992. At 31 December 2002, there were 83,466 trainees registered with ITOs. This included 4,344 Modern Apprenticeships. It represented an overall increase of 26 percent from the previous year.

**Figure 20: Participation in industry training, June 1995–2002**

Source: Tertiary Education Commission, Industry Training 2002
Notes: Figures for December 2000 onwards are based on electronic returns and are not exactly comparable with previous years, which were returned through a manual reporting system. Totals include Modern Apprenticeship numbers.
In contrast to formal tertiary education, women are under-represented in industry training. In 2003, women made up only 23 percent of industry trainees. This was an improvement on 1996, when only 13 percent of industry trainees were women, but is still below their representation in the workforce (46 percent). The gender disparity is wider still for Modern Apprenticeships where only seven percent of participants in 2003 were women.

New Zealand tertiary education participation matches OECD average
The OECD provides international comparative data on three measures of participation in tertiary education: enrolment rates, expected years in tertiary and net entry rates.

The best measure for comparing participation in New Zealand with that in other countries is enrolment rates as this measure is relatively undistorted by differing age profiles. This measure takes total enrolments as a proportion of the population in four different age bands. New Zealand tertiary enrolment rates were close to the OECD average at the core ages, but higher at the older ages, although not as high as Australia and the United Kingdom.

Figure 21: OECD enrolment rates, 2001

The other two measures show New Zealand to be in a more favourable position compared with the same countries. However, these measures are distorted by New Zealand’s higher levels of participation in older age groups. Discussion of these measures can be found in Ministry of Education, Participation in Tertiary Education 2003, chapter 4.

Completion of qualifications
This section provides information based on annual counts of completed qualifications.

Qualification completion counts provide indicative information on the extent to which patterns in enrolments do or do not carry through to completions. However, they need to be interpreted with caution as there are lag times of up to several years between enrolment and completion, depending on the nature of the qualification. Also, completion figures are for the full academic year, whereas the enrolment figures used in this report are snapshots as at 31 July each year.

Qualification completion counts by ethnicity, age and gender are not included in this section. It is difficult to interpret these breakdowns meaningfully as they are strongly affected by the choices of the groups in terms of level of study and length of course. Summary information on Māori and Pasifika completions is included in the relevant strategy sections.

The Ministry of Education has developed a longitudinal dataset that matches enrolments and completions. This data will be used in future monitoring reports to provide information on completion rates, retention rates and progression. This will include breakdowns by gender, ethnicity and age group.

Increased number of completed qualifications
The overall number of qualification completions has grown at a faster rate than the overall number of enrolments over the nine years to 2002. From 1994 to 2002, qualification completions grew by 44 percent, while enrolments grew by 30 percent.

Figure 22: Comparison of qualification completions with full year enrolments, 1994–2002

The OECD defines tertiary education to include diploma level studies and above (referred to as OECD Type A and B). Therefore, this is a narrower definition of tertiary education than used in New Zealand, where all post-school education is included. See Ministry of Education, Participation in Tertiary Education 2003, page 43 for more details.

5 The OECD defines tertiary education to include diploma level studies and above (referred to as OECD Type A and B). Therefore, this is a narrower definition of tertiary education than used in New Zealand, where all post-school education is included. See Ministry of Education, Participation in Tertiary Education 2003, page 43 for more details.
Strong increase in number of qualifications completed below degree level

When looking at the number of completions by level of study, it becomes obvious that the growth in completion numbers has been driven by increased completions of below degree-level qualifications. This matched increased enrolments at this level. From 2000 to 2002, completions of below degree level qualifications increased by 38 percent, while degree completions increased by only four percent and postgraduate completions declined by two percent.

![Figure 23: Qualification completions by level of study, 2000–2002](image)

Research within the tertiary education sector

In addition to providing education, the tertiary education sector has an important role in creating new knowledge through research. In New Zealand, the tertiary education sector is a major part of the overall research sector.

Tertiary education is New Zealand’s largest producer of published research

The majority of research within the tertiary education sector is in universities. Universities made up the largest group of producers of published research in 2002, with 47 percent of indexed scientific papers produced by university researchers. By including all research outputs, not just indexed scientific papers, the proportion produced by the universities increases.

Two-thirds of research from the tertiary education sector is pure basic and strategic

Compared with the business and government sectors, the type of research conducted within the university sector was more directed towards pure basic and strategic research. More than two-thirds (68 percent) of university research expenditure was spent in the pure basic and strategic areas, compared with 53 percent for government and 21 percent for business.

Overall research output of the tertiary education sector is growing

The annual reports of TEIs provide information on the research activities undertaken and the research outputs produced in 2002. Information from these reports indicates a 13 percent increase in research output from 14,747 in 1997 to a total of 16,686 university publications and research outputs in 2002. However, there was a drop off in outputs from 2001 to 2002.

![Figure 25: University research outputs, 1997–2002](image)

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There are considerable definitional difficulties in determining the types of research being undertaken because funding providers and researchers often use different definitions of, and sometimes terms for, basic, applied and experimental development. To compound the issue, sometimes it is only when the research has been underway for a period that it becomes clear what type of research it is.
Research from the New Zealand tertiary education sector has similar impact to research from other countries

The most common means of analysing the impacts of research is through measuring citation rates. Research publications produced by researchers in universities in 1997 had been cited, on average, 6.1 times by 2001. This rate is similar to international averages, given the journals in which the research papers were published.

Income to the tertiary education sector from research contracts is growing

Research in the tertiary education sector is funded through a combination of internal allocation of TEO funds, a specific funding allocation for research within student funding from Vote: Education (to be incrementally replaced by the PBRF) and external contract funding.

A substantial proportion of funding for research in the tertiary education sector comes from contracts for research. In 2002, this source of funding totalled $234 million, which is just over twice the research funding provided through Vote: Education in the same year ($115 million). The total income from research contracts has increased steadily over the six years to 2002.

Research contract income also makes up a significant proportion of universities’ total income. As a proportion of the total income of universities, contract research income has increased from 11.1 percent in 1997 to 13.1 percent in 2002.

Affordability of tertiary education

Government spending on tertiary education has increased as a proportion of GDP

Government spending on tertiary education (excluding spending on student support) represented 1.3 percent of the country’s GDP in the 1999/2000 financial year. This is estimated to have increased to 1.6 percent of GDP in 2002/03. When the capital spending on student loans is added in, government spending on tertiary education reaches 2.0 percent of GDP in 2002/03 compared with 1.7 percent in 1999/2000.

In 2002/03, the government’s total budget for tertiary education was $3,562 million. This represented an 8.1 percent increase on the 2001/02 actual spending of $3,296 million. The major items in the government’s tertiary education spending were:

- $1,718 million for tuition subsidies to fund student places at TEIs
- $952 million for student loans
- $405 million for student allowances
- $190 million for specific purposes, including funding of industry training and programmes such as Youth Training, Modern Apprenticeships, Gateway, and Skill Enhancement.

Increased costs to students have stabilised

From 1997 to 2000, average student fees in TEIs rose steadily. Average student fees stabilised in 2001 and declined slightly in 2002. Students attending universities pay the highest fees on average, followed closely by students at polytechnics. The lowest average fees were for students at wānanga. This is largely an effect of Te Wānanga o Aotearoa providing a selection of zero fee courses which have had very large take-up.

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7 Citation rates count the number of times a research paper is referenced in subsequent research papers.
Affordability to students can also be looked at in terms of the amount that students need to borrow under the Student Loan Scheme to cover the costs of their tertiary education. Average borrowings almost doubled from 1992 to 2000, partially reflecting the increase in student fees. The dip in 1999 was due to policies restricting amounts of borrowing, which were revoked the following year. From 2000 on, average borrowing has not increased as fast, reflecting more stable fees.

The government provides a range of support targeted to students who are not in a position to meet the costs of tertiary education. The main form of support is student allowances, which were provided to 68,486 students in 2002. The average annual student allowance, including accommodation benefit, was $5,830 in 2002. Allowances are targeted to students from low income families. The Ministry of Social Development provided Training Incentive Allowances (TIA) to 22,587 beneficiaries in 2001 to assist with the costs of tertiary study. The average TIA was $1,700. There is also a range of scholarships available from government, TEOs and other organisations with an interest in tertiary education.

Tertiary education organisations

Tertiary education sector is made up of a mix of providers

In 2002, there were 35 public TEIs in operation (universities, polytechnics, colleges of education and wānanga). These providers attract the majority of formal tertiary students and EFTS funding. There were also 46 ITOs.

The largest number of providers were in the private sector, of which just over half received government funding. There was around 10 percent growth in the number of PTEs between 2001 and 2002.
Seventy percent of students attend universities or polytechnics

Universities continued to attract the largest numbers of formal students, followed closely by polytechnics. However, the most rapid growth has been in wānanga and PTEs. Growth in domestic enrolments in private training establishments slowed in 2001 with a series of limits on PTE funding imposed by the government.

Majority of funding goes to universities and polytechnics

In 2002, the government paid $1.617 million to TEOs in the form of tuition subsidies, which represents a 14.8 percent increase from 2001. The largest proportionate growth in funding for tuition subsidies from 2001 to 2002 was in wānanga which had a rise of 196.3 percent ($84.7 million), reflecting the increased enrolments over this period.

Fewer public providers in financial deficit

The short-term financial position of TEIs strengthened from the 2000 to 2002 years. In 2000, 13 of the 36 TEIs had operating deficits and only 11 met or exceeded the recommended threshold of a three percent operating surplus. By 2002 this had improved to only six of the 35 TEIs having operating deficits and 19 meeting or exceeding the recommended operating surplus.

Moderate annual turnover in private providers

In 2003, there were a total of 905 PTEs registered with the NZQA, including those that do not receive any public funding. In the year to 30 June 2003, 89 new PTEs were registered and 78 were de-registered. This represents a turnover of around nine percent. New registrations were down compared with the year to 30 June 2002, when there were 93 registrations, and de-registrations were up from 64 in the previous year.

In 2003, 43 percent of PTEs (that had been registered for more than six months) were on NZQA audit cycles of two years or more. This indicates that they have robust and stable processes and have had no concerns raised in their recent audits. Fifty-five percent were on a one-year audit cycle, indicating they are either relatively new providers or have had some audit concerns raised in the recent past. Three percent were on less than one-year cycles, which means they are currently addressing quality concerns.