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WOMEN AND MEN IN THE ACTUARIAL PROFESSION

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Women and Men in the Actuarial Profession

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Introduction

This paper touches briefly on the history of women's progress in the actuarial profession,
before comparing the situation of men and women actuaries in Australia in recent times.

Background

The actuarial profession

Actuaries apply mathematical, statistical, and economic analysis to the management of
long-term financial risks. They require good mathematical and all-round academic skills -
most actuarial students are in the top 5% of school-leavers. The profession is small, with
about 700 fully qualified members working in Australia. About two-thirds of actuaries
work in life insurance and superannuation. Most of the rest work in other areas of the
financial system. Over the last twenty years it has become more common for actuaries to
work as consultants.

The training process to become an actuary is long and difficult. Students need a Credit (or
B grade) average in an undergraduate actuarial degree, followed by several years of
professional examinations. Only about 40% of those who commence the course eventually
qualify.

Actuarial employment is generally well-paid and secure, although some redundancies have
occurred in recent years.

The entry of women into the profession

1. Australia

Women have been permitted to sit the profession's examinations in Australia since 1920,
but it was not until 1971 that the first woman actuary qualified in Australia. Before the
1970s most professions other than teaching and nursing were male-dominated. The
position was perhaps even more marked in the actuarial profession because it involved
mathematics, an area in which females were traditionally believed to be weaker than males.
Also, until the 1970s most actuarial students were recruited and trained by the big life insurance companies. These companies operated with an army of female clerks, but women generally occupied the most junior positions, were not expected to study for qualifications which all male employees were required to obtain, and could be forced to resign on getting married.

Unlike the case of the professional organisations in the UK and US, as described below, the Australian actuarial body was not embarrassed by applications from women in its early days, and the prospect of female actuaries was scarcely contemplated. An isolated exception was the Presidential Address to the Actuarial Society of NSW in 1910, which contained some rather perceptive views of the social changes the next 85 years would bring to the life insurance industry:

"I believe we are on the eve of many mechanical labour-saving devices ... I trust the result will not be to throw a large number of persons out of employment, but to transform the patient plodding penman ... and the typist, now often almost as mechanical as the machine to which she supplies motive power, into the brain that directs the powerful sensitive instruments with which the office of the future will be equipped.

"This suggests another problem for your consideration. The lady clerk has come to stay, and the lady actuary - long an accomplished fact in America - may soon be in evidence here, perhaps seeking admission to this society. Whether you welcome her, or refuse her admission, is of little consequence to her. If she can do your work better than you are doing it, she will lift you out of your office chairs as surely and as relentlessly as she has pushed the typist from his seat and is edging the male clerk from his stool."²

More characteristically, some fifty years later when the profession was faced with a critical shortage of new entrants, the Presidential Address of 1966 in discussing the potential "market" for recruits considered only the numbers of schoolboys.³ The possibility that girls might help to meet the shortage was unimagined.

The numbers of Australian female actuaries have increased, particularly over the last ten years. By mid 1995, there were 110 female Fellows of the Institute of Actuaries of Australia, about 13% of the total. The number of women qualifying as FIAAs peaked in 1992 at 19, or 35% of the total new FIAAs, before falling back to an average of 12 a year, or about 23% of total new FIAAs, in the period 1993-1995.

The percentage of the intake to the Macquarie University undergraduate actuarial degree which was female peaked at 35% in 1986, before falling back to an average of 20% in the 1990s.

The higher female intake to Macquarie University in the late 1980s contributed to the record numbers of females qualifying in 1992, but was not the sole cause, since the percentage of females among the non-Macquarie graduates who qualified in 1992 was 37%. Given that the time to qualification for the bulk of successful students is around 5 to 7 years this suggests that in the mid to late 1980s the profession was relatively more attractive than before or after to female entrants in general, and not just to those entering via Macquarie.
The profession itself has not made any concerted efforts to attract female entrants. This contrasts with the position in engineering, which is another traditionally male career requiring mathematical ability. The engineering professional organisations working with university departments have undertaken a number of steps to attract women, and there was a National Equity objective to increase the proportion of women in university engineering courses from 7% in 1990 to 15% in 1995. By 1992 about half of the university engineering departments reported that they had special "Women in Engineering" programs. The 15% target has been achieved in about half of the various branches of engineering.

Nonetheless, perhaps as a result rather than as a cause of its increasing female membership, The Institute of Actuaries of Australia has tried in recent years to modify its male image. For example, "Looking Forward", the glossy career brochure produced in about 1990, had two pictures of women out of a total of nine actuaries, at a time when the percentage of female actuaries was only about 5%. The latest version of the Code of Conduct issued in 1995 removes the references to "he" and "his" which had been retained in the 1993 revision. The Institute had its first female President in 1991. The Institute is still capable of the occasional lapse, such as the cover of the Retirement Income Policy document issued in 1994.

2. Comparison with the position in North America and the UK

The historian of the Society of Actuaries, the main North American professional body, records that its predecessor body admitted its first female member "with no evidence of hesitation or controversy" in 1894, although he speculates that she may have had to agree not to attend meetings to avoid disturbing "those male bastions, the Society dinners". Coincidentally, in the same year a different American woman was refused admission as a student member of the Institute of Actuaries, London. The Society does not record the sex of its members so it is not clear what proportion of the profession in America is female. A sample of US university programs report that about 30% to 50% of their intake of actuarial students are female, and the proportion of newly qualified actuaries who are female was generally estimated at "about a third". Programs to attract specific groups to the profession are aimed more at racial minorities than at women.

In the UK, the two professional bodies, the Institute and Faculty of Actuaries, did not admit women until 1920. The growth of female membership was slow. By 1955 women made up 1% of the Fellows of the Institute of Actuaries. The attitudes encountered by female actuaries in Britain at that time can be inferred from the Faculty's official history written in 1956: "So far only three women have become Fellows and I am afraid it must be admitted that we have yet to hear of a Scottish lady actuary who has laid claim to high office either in the Faculty or in practical actuarial affairs. Mr Gradgrind remarked "In this life we want nothing but facts, Sir; nothing but facts" and it may be that in actuarial life, at the least, the severely statistical and practical approach to our problems leaves little room for those flashes of intuition with which the fair sex are generally supposed to cope with life's little difficulties." Nonetheless by the 1970s there were some female partners in British actuarial consulting practice.

The Institute of Actuaries set up a working party in 1992 "to examine the role of women in the actuarial profession". The working party conducted a survey of all female members of the Institute resident in the UK. The majority of the respondents (78%) felt that being a
woman had had no effect on their careers, and 18% felt that it had hindered their careers. (It was not stated whether any of the remaining 4% felt that their sex had been beneficial to their careers.) The working party reported that "In response to the question of whether the Institute could do anything to encourage women in the profession (to which 159, ie 42% felt that it could) many stated that the old-fashioned image of the profession needed updating to appear more attractive to females..." 12

At July 1994, 9% of Fellows of the Institute of Actuaries (London) and 23% of its student members were women.

In 1983 the proportion of female Fellows in both the UK and the Australian Institutes was 3%. The rate of change of the sex ratio of the Australian profession has therefore been more rapid than in the UK over the last decade, partly because of a higher proportion of female new entrants in Australia and partly because the Australian membership as a whole has grown at a faster rate. Both are trending towards an ultimate proportion of about 20-25% females if current proportions for new entrants continue. 13

The Macquarie University actuarial degree

Until 1968, actuarial students did the whole of their actuarial training through the professional bodies (Australia relied on the London Institute and the Scottish Faculty of Actuaries) and were usually recruited straight from school. In 1968, the increasing demand for actuaries led to the establishment of an actuarial degree at Macquarie University, supported financially by the employers of actuaries. The three year degree enabled students to gain exemptions from the first part of the actuarial qualification, although full qualification as a Fellow of the Institute of Actuaries of Australia still required further study and examinations after university.

The employers also supported the degree program by providing generous scholarships.

The Macquarie University actuarial degree program has been very successful, and about half the new entrants to the profession in Australia start their training at Macquarie.

The existence of the Macquarie University actuarial degree removed one of the barriers facing women because it allowed them to enter actuarial studies and prove their ability to pass the examinations before seeking actuarial employment. In the 1970s female students were highly unlikely to receive scholarships in their first year of studies, but often received scholarships in their second or third year 14. After a year or two at university they had proved themselves good students, although this should not have been in doubt as student records show a number of female entrants who did not receive scholarships initially whose school results were better than those of some males who did receive scholarships. Perhaps more importantly the cost of the scholarship was less since it was paid for a shorter time, so that the employer was not making such a large investment in someone who, it was believed, would resign to have children 15.

In more recent years overt sex discrimination by scholarship-providers has largely disappeared. For both sexes scholarships have been scarce since about 1993.
The Survey

At the end of 1994, a questionnaire was sent to all women who completed the actuarial degree at Macquarie University and who were current members of the Institute of Actuaries of Australia. The same questionnaire was sent to a sample of men meeting the same criteria. The male sample was chosen so that each woman could be matched with a man who graduated at the same time as she did (give or take one year) and who had roughly the same quality of degree, measured by the number of exemptions gained from the professional examinations. Within these constraints the male sample was chosen randomly.

Some of the respondents are currently working overseas. I have not excluded these cases, as there is a fairly high level of international mobility in the actuarial profession, of which these respondents are representative.

The response rate was 84%. I have used a subset of the responses, as described later.

The questionnaire asked about the respondents' experiences of actuarial careers. Not all respondents would consider themselves to be "actuaries". Some qualified actuaries (FIAAs) move into management or other areas in the financial system in which their actuarial background is not of direct relevance. Most of these remain as members of Institute of Actuaries of Australia, unless they have moved permanently overseas, and hence fall within the survey group. Most actuarial graduates who do not qualify as FIAAs tend eventually to resign from the Institute, and hence do not appear in this survey. For those graduates who are still studying for their professional examinations, their experience of the qualification process tends to dominate their views of their careers.

A summary of the population from which the survey was drawn is shown below in Table 1. The survey questionnaire asked for year of completion of undergraduate degree. For the purposes of comparison in Table 1 I have allocated responses to an entry year on the assumption that every respondent completed the degree in three years.

<table>
<thead>
<tr>
<th>Year of entry to degree</th>
<th>Number who entered degree program</th>
<th>Number of these who are still members of the Institute of Actuaries of Australia</th>
<th>Number of &quot;paired&quot; responses used</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>males</td>
<td>females</td>
<td>FIAA males</td>
</tr>
<tr>
<td>1968-77</td>
<td>291</td>
<td>28</td>
<td>81</td>
</tr>
<tr>
<td>1978-82</td>
<td>144</td>
<td>24</td>
<td>46</td>
</tr>
<tr>
<td>1983-89</td>
<td>322</td>
<td>124</td>
<td>97</td>
</tr>
</tbody>
</table>

\* The questionnaire was wide-ranging and investigated a number of topics other than those covered here. These topics are the subject of another paper.
The Results

I have analysed the responses to the survey grouped by year of completing the undergraduate degree. I have subdivided the results into three groups: the "pioneers" who completed the degree in the 1970s; the "second phase" who completed their degree in the first half of the 1980s; and the "young actuaries" who entered the workforce after 1985. In the last group I have included only those who have qualified as Fellows of the Institute of Actuaries of Australia. In the first two groups almost all the respondents were FIAAs.

I have also divided all salary figures reported by a constant (the same constant throughout) in order to improve confidentiality for the respondents.

The pioneers - graduates of the 1970s

During the first ten years of the program, women were in a very small minority, making up less than 10% of the intake. Often there were only one or two women in a class of about thirty men. It is likely that most if not all of these women would have become aware by the time they enrolled that some employers would not consider female applicants for scholarships. They knew therefore that they were entering a man's world and could expect to face discrimination.

There were eight respondents among the twelve women surveyed from this period, including six FIAAs. They were paired with eight male respondents with similar dates of graduation and quality of degrees. The eight male respondents included seven FIAAs.

At the time of the survey the respondents were aged between 37 and 46.

Table 2 shows the distribution of scholarships for this group:

<table>
<thead>
<tr>
<th>Scholarship</th>
<th>males</th>
<th>females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scholarship in year 1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Scholarship later</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>No scholarship</td>
<td>1 (by own choice)</td>
<td>1</td>
</tr>
</tbody>
</table>

Only one woman reported receiving a scholarship in her first year. This respondent was the youngest in the group, and reported that she received the scholarship partly because the actuary who had to make the decision was a woman who wished to encourage other women actuaries.

The questionnaire asked respondents to rank how high they had reached in their careers on a scale from 1 (office junior) to 9 (managing director of huge multi-national). Several respondents pointed out that actuarial jobs do not always fit neatly into this hierarchical pattern. In addition, answers are obviously subjective. However I have used the numerical responses as given as I believe they provide a rough picture. A comparison with job titles
which were also given indicated a reasonable level of consistency between respondents, with a possible tendency among the women in this group to rank themselves relatively more generously than the male respondents.

The responses are summarised in Table 3.

<table>
<thead>
<tr>
<th>Career level</th>
<th>Males at this level</th>
<th>Females - highest level reached</th>
<th>Females currently at this level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career level 8</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Career level 7</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Career level 6</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career level 5</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Career level 4</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Career level 3</td>
<td>1</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Not in paid employment</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Not answered</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

* For every man, the current level was also the highest level.

The women are concentrated in the low to mid range while the men are concentrated in the mid to high career levels.

A similar picture emerges for incomes. Within every pair, the woman reported a lower current salary rate than her male counterpart. Considering only the men who were qualified (i.e., FIAAs) and omitting from the comparison one man who was a high-flyer on a considerably higher salary, the male salary packages ranged from 15 to 29 standardised units, with an average of 20.6. The three women who were employed full-time, all qualified, reported salary packages ranging from 9 to 19 units, with an average package of 13.5 units. The three women employed part-time had an average salary (converted to a full-time equivalent) of 10.5 units. One woman was not in paid employment from her own choice and another was involuntarily unemployed.

Only a part of the difference in career success can be attributed to the women's responsibility for childcare. Seven of the eight women have children. However, the mothers were employed for an average of 9 years before having children. At any time that a woman was employed and childless, she was employed at a lower perceived rank than her male counterpart, in every pair except one where the question was not answered.

As one would expect, the impact of becoming a parent is very different for the men and women. All the men have children, a total of 24 children among the eight men compared with 12 children among the eight women. To the question of whether having children had affected their careers, four of the male respondents said that it ruled out overseas appointments and/or had reduced their willingness to work long hours. One remarked that it provided great motivation to complete the actuarial qualification.
Despite the pessimistic expectations of the employers, only two of the seven female scholarship-holders left their sponsoring employers on having children. The others left for the same sorts of reasons as their male counterparts, either for better jobs or to travel. The big difference between male and female scholarship-holders is that three of the men remained with their sponsoring employers for at least 15 years, while none of the women stayed more than 7 years. This may have less to do with loyalty and more to do with employers providing an attractive career path for their male recruits, particularly as another study found that in the shorter term women were more likely to stay with their sponsoring employers.¹⁷

Seven of the eight women reported suffering discrimination at work, and having to perform better than men to achieve the same success. Most of the experiences mentioned were in the 1970s or early 1980s, and three of the women said explicitly that the problems had now gone - "Society has changed a lot". However two respondents suspected that unconscious discrimination remained in the form of different expectations of male and female actuaries. One remarked that being a female actuary could be an advantage at times because it gave greater visibility.

Six of the men answered that they had not experienced discrimination, even though the questionnaire asked whether they had experienced either positive or negative discrimination, for any reason. One man felt that he did not have full credibility at his senior level until he got some grey hairs, and another commented that he had probably benefited from positive discrimination as a "White Anglo-Saxon Male".

One of the marked differences between the men and women was in their reported level of ambition. The respondents were asked to rate how ambitious they were, on a scale from 1 (completely lacking ambition) to 7 (extremely ambitious), on leaving University and now. A number of respondents made comments about the interpretation of "ambition": "Very ambitious to have an interesting job and do it well, not interested in promotion for the sake of it". As with the answers for career levels, I have used the numerical ratings as given, despite such comments, as I feel the comparison over time is still valid, and the comparison of the numerical ratings, however subjective, is still interesting.

Among the men, three were more ambitious now, four were the same, and only one had become less ambitious. Among the women, one had become more ambitious and the other seven were less ambitious now. As a group, the women had been slightly more ambitious than the men on leaving University (average 5.3 compared with 5.0 for the men) but were now much less ambitious (average 3.1 compared with 5.3). Only two women gave reasons for becoming less ambitious, which were stress-related ill health and having children, respectively. The woman who had become more ambitious (who was also the only one earning a salary within the male range) said that her original level of ambition "was strongly influenced by the fact that I was/am female. This has less impact now."

Only two of the women were very positive about their choice of career, and five had mixed feelings ("the money is good, but..."). One woman was very negative: "I became completely disenchanted with the life insurance/superannuation industry", and despite being fully qualified she has left the profession to start her own business in a totally unrelated field. Among the men, five were very positive and three had mixed feelings. The
respondents were asked to rate how strongly they agreed with the statement "my career is very satisfying" on a scale from 1 (not at all) to 5 (very strongly agree). The average rating for the eight men was 4.5. The average for the seven women, excluding the woman who had left the profession, was 3.1.

It could be argued that the women have shown less commitment to their careers than their male counterparts. The two women with the longest careers while childless both had extended breaks from the actuarial career path. None of the three women who are working part-time has children below school age. One of the other women has left paid employment to raise her family and start a business. Perhaps these women could be regarded as having the luxury of choice that the men do not have.

It might also be suggested that women are just not suited to actuarial work or to the demands of the business world, and that the traditional view of the profession as a male one was correct. As will be shown below, this view is contradicted by the experience of the later cohorts of women, which suggests that it was not the nature of the work which was alienating.

My personal view (and I will admit to a bias as one of the respondents in this group) is that these "pioneer" women have tended to be worn down by the effort of fighting against male prejudice, and in most cases also following a second career as child-carer. With only one exception they have given up any hope or intention of reaching the career heights to which they once aspired, and which the men take for granted. The positive aspect is that, as actuaries, most of them have been able to find reasonably satisfying and (by normal standards) well-paid work either part-time or in non-mainstream areas.

The second phase: graduates of the early 1980s

During the next five years of the Macquarie University actuarial degree program the proportion of female entrants rose, averaging about 14% of the intake over the five years.

There were eleven responses from the thirteen women surveyed from this period, including ten FIAAs. They were paired with eleven male respondents, all of whom were FIAAs. At the time of the survey the respondents in this group were aged between 30 and 35.

The experience of this group presents a strong contrast to that of the pioneers of the first ten years.

Only one woman, the oldest in this group, reported being discriminated against in applying for scholarships. The women were almost as successful as the men in gaining scholarships, as shown in Table 4:

<table>
<thead>
<tr>
<th>Scholarship in year 1</th>
<th>males</th>
<th>females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scholarship later</td>
<td>1</td>
<td>5 (1 deferred at own choice)</td>
</tr>
<tr>
<td>No scholarship</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
None of the female scholarship-holders left her sponsoring employer on having children. The difference between male and female scholarship-holders which was apparent in the pioneer group is not evident in this group, with three women and four men still working for their sponsoring employers after ten years. This suggests that these female scholarship-holders were treated more on a par with the men in career path opportunities.

The women in this second phase also have a better situation with regard to career rankings than the pioneer group. The respondents' subjective career rankings are shown below in Table 5:

<table>
<thead>
<tr>
<th>Career level</th>
<th>Males at this level*</th>
<th>Females - highest level reached</th>
<th>Females currently at this level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career level 7</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Career level 6</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Career level 5</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Career level 4</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Not in paid employment</td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

* For every man, the current level was also the highest level.

The women report career levels that are very similar to those of the men. Looking at the pairs separately, each man and woman within a pair had reached very similar levels at each stage of their careers. Sometimes the man was slightly ahead and sometimes the woman was. This is quite different from the pioneer group where in every pair the woman ranked below her male counterpart. There was also less slipping back of reported career levels by women on having children.

Incomes were also very similar for men and women in this group. There were four pairs where both were FIAAs, working full-time, and reported their incomes. In each of these four pairs the woman reported a higher salary package than her male counterpart. One man did not report his income, but the remaining ten men reported salaries ranging from 9 to 26 units, with an average salary package of 14.9 units. Six of the women were employed full-time, with salaries ranging from 13 to 25, and an average package of 15.3 units. Three women were employed part-time with an average salary (converted to a full-time equivalent) of 13.6 units. Thus the women in full-time employment were earning as much as (or even slightly more than) the men, and the women in part-time employment had suffered only slight diminution of earning power.

This group are probably in their peak childbearing years. Six of the women have a total of 11 children, all under school age, and six of the men have a total of 10 children, all but one under school age. The reality of family responsibilities has had an impact on the women's career aspirations. Six of the women reported that they were less ambitious now than on
graduating from university, and in five of these cases the reason was directly stated to be a change of priorities on having children or considering doing so: "When young and single I thought the sky was the limit! Now that I am married and have 2 small children I know that my career cannot be the top priority in my life." "In the next few years I want to have children and I feel more 'balance' is required. I won't be able to work 10 hour days then."

However, the decrease in ambition was not so marked as for the pioneer group. For the six mothers, average ambition rating dropped from 5.5 to 4.2, and for the women without children the drop was from 5.4 to 5.0. The men's average ambition rating rose from 5.0 at leaving university to 5.4 currently, which was very similar to the results for the older group.

The women in this "second phase" show a change in their approach to the issue of family responsibilities. The three part-timers are working more hours in actuarial employment, an average of 28 hours a week compared to 19 hours per week for the three part-timers in the pioneer group. One of the two women in this group who were not in paid employment was taking a year's maternity leave for the birth of her second child and had worked 3 days a week since taking 6 months leave for the birth of her first child. The other woman not in paid employment listed personal circumstances that prevented her from taking part-time employment, and said she wanted to return to the workforce "ASAP".

Having children was seen as a pause in the career path rather than an end to advancement. "My aim over the next few years is to keep my career from going backwards, so that I can again progress in the future", wrote one part-timer. Another part-timer wrote in response to the question about discrimination: "Ongoing indirect discrimination has occurred since having children and changing to part-time work status, in relation to career progression primarily. However, my firm has been very accommodating to the extent possible given society/client attitudes etc. We are both, ie Australian management and me, trying to change corporate "rules" and attitudes to address this but it takes time!" Clearly society has changed even over the relatively short time since the pioneer group were having children. Child care is more available and attitudes to female professionals who work part-time have become more accepting, even though there is still some way to go.

The effect of fatherhood on careers was little changed between the men in the first group and the men in this second group. Of these six fathers, two reported no effect on their careers, one was now "more success conscious" and three reported a wish to avoid very long hours and/or travel. Only one of the fathers reported experiencing problems with his employer in reconciling the demands of family and work: "The desire to leave and arrive at work at a reasonable hour so that you can see your child while she is awake is strong. It's unfortunate that this is perceived as a lack of ambition."

The pioneer group of women had reported much less sex discrimination occurring since the early 1980s. This is reinforced by the fact that five of the eleven women in the second phase reported no discrimination. One was actually involved in exploring what action her employer can take to assist more women into management.

The problem of sex discrimination has not however disappeared. "Ongoing indirect discrimination exists, although becoming more subtle over time (but not necessarily less!)", wrote one respondent. Another woman reported being treated much less fairly than male peers in 1991 and again in 1993. "I complained, and senior manager (now retired)
said 'You're a woman - you don't take your career seriously'. Word for word." A third woman reported that in 1991 a management position she applied for was given to a less qualified male by a manager who "commonly discriminated against women".

Three women in this group reported being treated by their employers as non-serious about their careers because they were working part-time or taking maternity leave.

On the other hand, the benefits of higher visibility were mentioned again. One woman mentioned another possible benefit: "I receive compliments on having good inter-personal skills and being 'very human for an actuary' - I suspect this is partly some stereotyping - female = good at relationships'. Forever doomed to middle management?!!"

Despite the remaining discrimination and the difficulties of balancing family and career, the women in this second group seem happy with their situation and mostly positive about their choice of profession. This is borne out by their rating of their satisfaction with their career on a scale of 1 to 5. The average rating for the nine women in paid employment and the one on maternity leave was 4.2.

By contrast, the average rating for the eleven men in this group was 3.4. The lower rating for the men in comparison with the men in the pioneer group may reflect the less senior levels they have reached at this relatively early stage in their careers, or the fact that opportunities for rapid advancement in the actuarial profession have not been quite as good as they were for the earliest Macquarie graduates.

One of the men considered that age discrimination meant that at age 30 he was "now stalled in career progression." No other instances of discrimination were reported by the men in this group.

The young actuaries: entrants to the workforce after 1985

This group corresponds more or less to entry years to Macquarie between 1983 and 1989. At the beginning of this seven year period, the proportion of women among the entrants to the Macquarie University actuarial degree program jumped to 26%. The proportion then fluctuated around this level, reaching a peak of 35% in 1986 before falling back. Total numbers of entrants also rose, as the course became very popular, and in 1988 a quota was introduced to limit the intake to manageable levels.

In this age group, less than ten years out of university, there is a marked difference in career experiences depending upon whether or not an individual has qualified. I have therefore decided to analyse the responses from the FIAAs only. I formed twenty-five female-male pairs where both were FIAAs, as well as being of similar age, year of graduation and quality of university degree. I have also matched them as far as possible by year of qualifying, as this can have a major impact on seniority and salary at this career stage.

At the time of the survey the respondents in this group were aged between 23 and 30. All the respondents were working full-time. Three of the men had children, but none of the women did.
Once again the experience of the women in this group presents a strong contrast to that of the pioneers of the first ten years.

The availability of scholarships to women continued the improvement shown in the second phase. In fact the women were slightly more successful than the men in gaining scholarships, as shown in Table 6. However two women still reported encountering interviewers (including one female interviewer) for sponsoring employers who suggested that women scholarship-holders would resign to have children.

Table 6

Respondents in "young actuaries" group receiving employer-sponsored scholarships

<table>
<thead>
<tr>
<th>Scholarship in year 1</th>
<th>males</th>
<th>females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scholarship in year 1</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>Scholarship later</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>No scholarship</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>

Ten women and twelve men were still working for their sponsoring employer at the time of the survey.

The respondents' subjective career rankings are shown below in Table 7:

Table 7

Career levels attained by young actuaries

<table>
<thead>
<tr>
<th>males at this level*</th>
<th>females at this level*</th>
</tr>
</thead>
<tbody>
<tr>
<td>career level 7</td>
<td>1</td>
</tr>
<tr>
<td>career level 6</td>
<td>4</td>
</tr>
<tr>
<td>career level 5</td>
<td>11</td>
</tr>
<tr>
<td>career level 4</td>
<td>5</td>
</tr>
<tr>
<td>career level 3</td>
<td>3</td>
</tr>
<tr>
<td>career level 2</td>
<td>1</td>
</tr>
</tbody>
</table>

* For every respondent, the current level was also the highest level.

The young women reported career levels that were slightly below those of the men in this group. However, an inspection of the job titles quoted by the respondents suggests that the men in this group may be inclined to give higher ratings than the women to the same positions. (I did not find the same to be true of the pioneer group, where if anything the women seemed to rate their own positions relatively more highly.)

This supposition is supported by the salary levels, which were very similar for the two sexes. Twenty-four of the twenty-five men reported their salaries, ranging from 6 to 20
units, with an average salary package of 11.5 units. The women reported salaries ranging from 8 to 23 units, and an average salary package of 11.3 units. In eleven of the pairs the woman earned more than her male counterpart, and in ten of the pairs the man earned more, with the others being just about equal.

Thirteen of the women, or just over half of this group, answered "no" to the question of whether they had suffered discrimination during their careers on the grounds of their sex, including two who felt that they had benefited from being female. Two others felt that there were both positives and negatives. Four more felt that while discriminatory attitudes to women still existed, particularly among the clients of consulting actuaries rather than the employers themselves, discrimination was not a real problem. "Not really any that affected career - the usual sort of rubbish in a general sense"; "it tends to be mild and as an initial reaction. Once it has actually come to working with the people they seem to recognise that I can do the job. It is mainly a client situation - older male, senior exec of an insurance company. (The people at work show no signs of discrimination at all)." Two of the men also felt that women were at some disadvantage, with one saying "some clients are more comfortable with males (especially some female clients)."

The remaining six women had suffered specific instances of unfair treatment by their employers, including one case of sexual harassment. For example: "1991-1993: My boss during this time made it fairly clear that women should not hold responsible positions as they were too 'emotional' and unstable"; "1991-1993: being overlooked for a promotion to a significant extent"; "Sexual harassment by senior co-worker 1991 - Explicit sexual advances and threats to job security and career advancement". For one woman at least, the position did not seem to be much better than it had been for some of the women in the pioneer group: "I am losing interest in the big corporate world. It is too full of insincerity and the need to crawl to pathetic middle-aged men in order to get anywhere. Throughout school and uni I competed as a person (sex was irrelevant as I was a 'number' not a name). Now I'm judged by people's expectations of a female."

Not surprisingly, this woman rated herself as less ambitious now than when she left university, as did ten other women. Eight women had become more ambitious, with the rest reporting no change. Five men were less ambitious and ten men were more ambitious now than when they left university. On average, the women's ambition self-rating had decreased from 5.3 to 5.1 and the men's had increased from 4.9 to 5.1. The pattern of the two older groups, that women became less ambitious while men became more ambitious, was therefore repeated but to a much less marked extent.

None of the women in this third group has children. One commented that this was "due to the difficulty of finding time for both them and career. Could be an issue in the future." Three of the men had a total of 4 children. One said "Powerful motivation to get home in the evening. Late home you can still see your spouse, but the child is asleep." A second reported "a reduction in work time to spend time with children", although he was still working 60 hours a week.

As mentioned above, two of these young men considered that there was some discrimination against women, and therefore in favour of themselves. One reported being discriminated against on the grounds of age, with an older less qualified man being promoted ahead of him. None of the other men in this group reported any discrimination.
One at least seemed surprised by the question: "Whoa! Is this out of left field or what! The answer is no." Three of the women reported being discriminated against because of their young age, and one because of her race (Asian), on the other hand one woman felt that her Asian parentage had worked in her favour.

These young actuaries are still at the stage of assessing their careers and deciding if they have found the occupation that suits them. This applied in both sexes. For example one woman was about to start a full-time degree in Environmental Studies, and one man was thinking of spending a few years travelling and then looking for a new career, in photography. However, the levels of satisfaction with their careers was slightly lower for the women in this group, at 3.3 compared with 3.7 for the men.

Conclusion

The survey suggests that women actuaries in Australia have not yet achieved full equality with men, but the situation has improved greatly in the last two decades and the goal of equal employment opportunities does not seem unattainable.

The women in the "pioneer" group, who left university in the 1970s, did not prosper in their careers as their male contemporaries did.

The women who completed the actuarial degree from 1980 onwards and who are working full-time as actuaries have achieved more or less equal seniority and salaries with their male contemporaries. Female actuaries from this cohort who are working part-time have to struggle to be taken seriously by their employers and not to go backwards in their careers. However, attitudes appear to be changing for the better.

The incidence of discrimination against female actuaries has been reducing. However, the fact that six young women out of twenty-five reported recent acts of serious discrimination is still unacceptable.

Female actuaries, except in the pioneer group, seem to find their work just as satisfying as male actuaries do. Women tend to be more ambitious than men at the stage of leaving university, but become less ambitious over time. The diminution in women's ambitions seems to be partly due to re-assessing of career and family priorities, and partly due to the enervating effects of discrimination, particularly (but not solely) for the pioneer group.

Men report lower levels of ambition than women at the stage of leaving university. This may be a difference in perception: a man may consider it routine to rise to a level that a woman would have to be ambitious to aspire to. However, the fact that the majority of the men surveyed reported a rise in levels of ambition over time, as they became more aware of the challenges and rewards available, suggests that there is a genuine difference. The women seem more often to have actively chosen an actuarial career, and come with high expectations, whereas more of the men seem to have fallen into it without much thought. This supports my tentative conclusions in other research, based on the pattern of entry to the Macquarie University actuarial degree program, that young women may be more career-conscious than young men in making the decision to commence actuarial studies.\textsuperscript{18}
The career/child care arrangements of actuarial mothers have undergone a dramatic change over the last two decades, in line with trends in society at large. There seems to have been little change in the behaviour of actuarial fathers. About half the fathers in each group either would like to put limits on their paid work commitments or have done so, with no trend over time. Those fathers who curtail work hours apparently do so because of a wish to participate in family life - to get home before children's bedtime - rather than because of a responsibility for child-care.

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2 Elliott C A, Presidential Address to the Actuarial Society of NSW, 1910, Australasian Insurance and Banking Record

3 Cohn L, Presidential Address to the Institute of Actuaries of Australia and New Zealand, TIAANZ 1966


5 Cobbin D, Women's Participation in nontraditional fields of study at the undergraduate level of higher education 1989 - 1993, DEET September 1995. Proportions of females in particular branches of engineering range from 6% in Mechanical Engineering to 32% in Chemical Engineering.

6 Letter to the Editor by Colette Reid, Actuary Australia AA021 May 1994, criticised the cover for showing women in stereotypical roles.

7 Moorehead E J, Our yesterdays: the history of the actuarial profession in North America, Society of Actuaries 1989

8 Simmonds R C, History of the Institute of Actuaries, 1948

9 Email communications from Universities of Illinois (about 50% female), Iowa (about 30% female), Ohio (about 33% female), Colorado (about 50%).

10 Davidson A R, The History of the Faculty of Actuaries in Scotland 1856-1956, Faculty of Actuaries 1956

11 I recall that there were at least two fairly senior female partners of the consulting firm Bacon & Woodrow when I joined it in 1980.

12 Report to the General Purposes Committee on the Progress and Experience of Women in the Actuarial Profession, Institute of Actuaries internal report 1993

13 Figures derived from relevant yearbooks and membership lists

14 Bellis C, Where are the women? Actuary Australia AA019 December 1993

15 At least one company advertised actuarial scholarships in the Sydney Morning Herald for male applicants only in the early 1970s, although the reason for excluding females was never declared officially. Several female respondents in the survey described in this paper reported scholarship interviewers commenting that women were not suitable applicants because they would leave work to have children, and
that particular companies were known to refuse to consider women for scholarships. Inquiries into the female students' ideas on family planning were still occurring in 1986 according to D M Knox, *The Macquarie Programme: An evaluation after 20 years*, TIAA 1987.

16 All $ amounts have been divided by the same constant to protect confidentiality.

17 Knox's analysis of scholarship-holders found that women were more likely than men (56% compared with 44%) still to be with their sponsoring employer after 5 years, but did not comment on the experience at longer durations.

18 Bellis C, op cit.