PAST GROWTH AND ITS IMPLICATIONS FOR THE FUTURE DEVELOPMENT OF THE AUSTRALIAN NATIONAL UNIVERSITY

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Introduction

Australian universities face a common problem today, brought about by the end of growth and exacerbated, to a greater or lesser degree, by irregular patterns of growth in the past. Within the university system as a whole the end of expansion has meant a shrinkage in the number of new appointments, with openings now occurring only as positions become vacant through retirement or resignation. Decreased mobility within the system implies that departures will be dominated by retirements rather than resignations; but large intakes of young staff in the recent past means that a significant number of retirements will not occur in many universities for at least another decade. (For instance, not until 1994 will half the current professors in The Faculties of the Australian National University (ANU) have retired, and we must wait until the year 2003 for the retirement of half the more junior tenured staff.) It is natural to wonder whether, in the meantime, the contraction in appointment opportunities will have many undesirable consequences, not only for those aspiring to academic careers, but for the university system itself. As expressed by one recent commentator:[1]

> *The greying of Australian universities that seems certain to occur over the next 20 years may well affect the performance of academics in many of their traditional role functions. In considering this possibility, it can be asked whether Australian universities will in the future be confronted with a gerontological crisis.*

In 1982 the Deputy Vice-Chancellor of the Australian National University commissioned a demographic study of the tenured staff of the University to discover the implications of the past development of the University on its present age structure, and of various interventionist policies on its further development.[2] We summarize over the following pages the principal findings relating to The Faculties (formerly known as the School of General Studies) which comprise the undergraduate teaching half of the university. Insofar as other universities have shared the recent history of The Faculties, our findings have wider applications than those specifically addressed here.

The Development of The Faculties, ANU

In 1929 the Canberra University College was set up by arrangement with the University of Melbourne to provide undergraduate facilities in the national capital. In 1960 the College was amalgamated with the Australian National University which was established in 1946. The ANU thus became two universities in one, the other half being the Institute of Advanced Studies. Findings on the Institute are not, however, presented here, as they have limited application to other tertiary institutions.

Figure 1 shows the numbers of tenured and non-tenured staff in The Faculties in each year since amalgamation. The Faculties grew rapidly until the mid-1970s, with a subsequent levelling off in tenured numbers and a decrease in the number of non-tenured staff. Seen in conjunction with Table 1 it appears that appointments now equal departures, that more of the appointees now come from within the University (principally from non-tenured posts) and that fewer come from overseas or enter immediately after obtaining tertiary qualifications. In addition, a departure from The Faculties is now less likely to be caused by appointment to another post within the University, and more likely to be a retirement. The picture is one of reduced mobility within the University, in both proportionate and absolute terms.

FIGURE 1

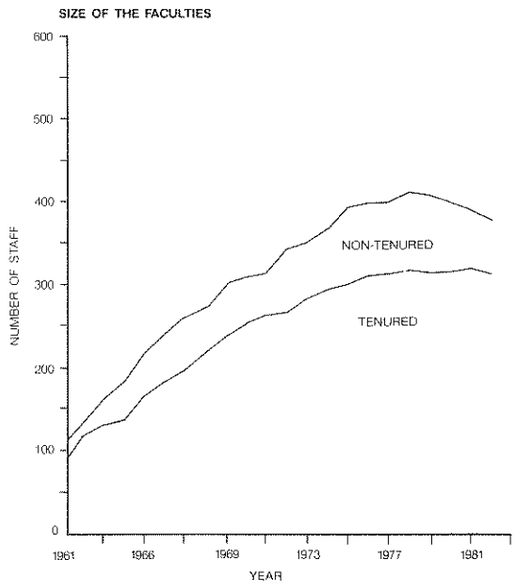


TABLE 1

STAFF MOVEMENTS IN THE FACULTIES

	PERIOD				
	1962-67	1967-72	1972-77	1977-82	1982-
Initial staff	118	193	267	315	312
Appointments	123	131	120	70	
From ANU	27%	30%	33%	47%	
(a) From elsewhere in Australia	28%	23%	17%	29%	
(b) From overseas	25%	35%	41%	19%	
(c) First appointment	11%	11%	9%	4%	
(d) Unknown	9%	1%	—	1%	
Departures	48	57	72	73	
(a) New ANU position	29%	26%	18%	11%	
(b) Outright resignation	65%	62%	69%	59%	
(c) Retirement	2%	7%	10%	27%	
(d) Completion of contract/death	4%	5%	3%	3%	
Average annual rate of growth	9.8%	6.5%	3.3%	-0.2%	

FIGURE 2

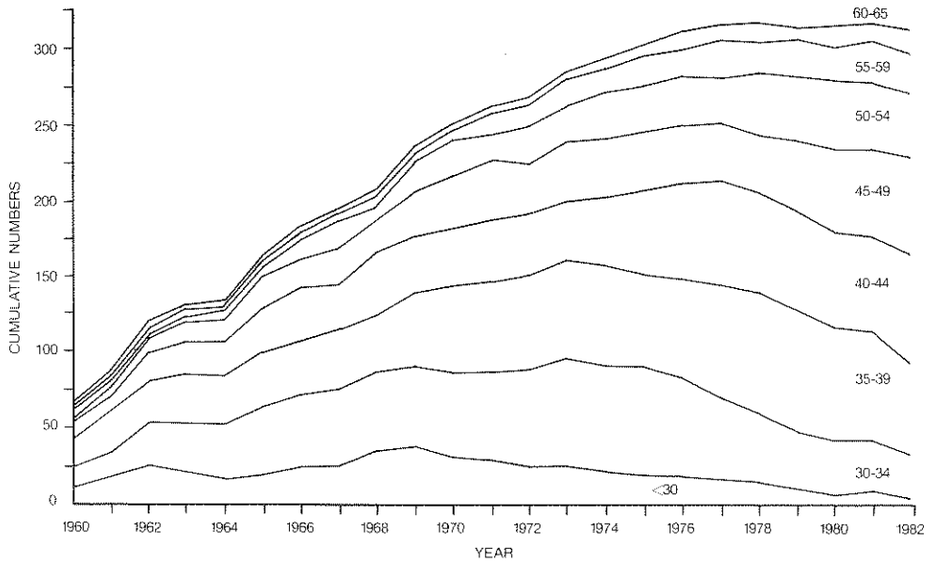


Figure 2 depicts annual age-structures of The Faculties since 1960, with the staff complement enumerated as of April each year, the date of the university census. The lowest curve represents the number of tenured staff younger than 30 years and the second the number younger than 35, the difference between the curves representing the number aged 30-34 years. The uppermost line, being the cumulation over all age groups, denotes the total size of The Faculties.

The most notable feature of Figure 2 is the decline in the number of young staff. Even though The Faculties continued to expand until the mid-1970s the number of staff younger than 30 reached its maximum in 1969 and the number under 40 in 1973. Staff younger than 35, who comprised at least one-third of tenured staff in the mid-1970s, are now little more than one-tenth, while the proportion of staff aged 45 and above has increased from one-tenth to one-quarter.

It is revealing to examine the representation of some recent birth cohorts in The Faculties over successive years up to the present. Given that each birth cohort was not only larger than its predecessor, but contained a higher proportion of people with tertiary qualifications, one might expect increasing representation of successive birth cohorts. This would be reflected in the graph by increasingly steep curves with higher plateaux as one looks from left to right.

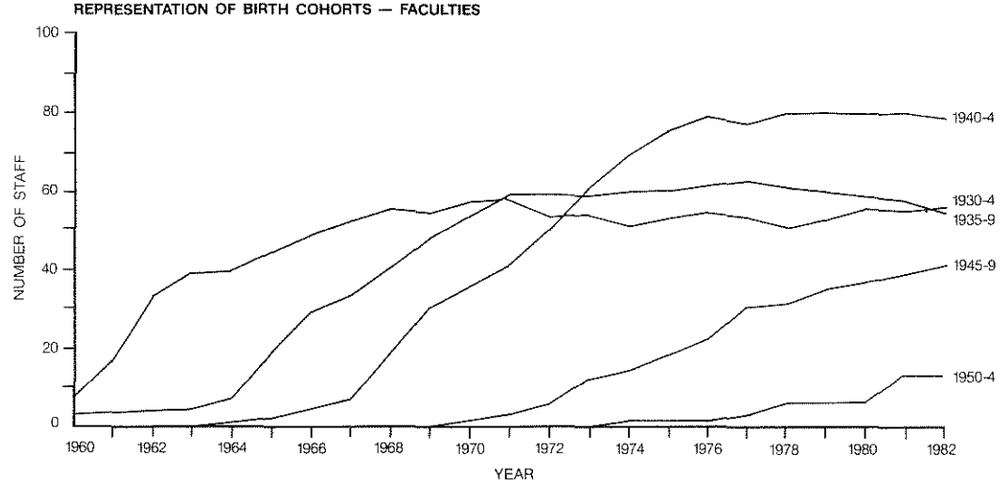
The actual situation is somewhat different. Members of the 1940-44 birth cohort were the principal beneficiaries of the rapid expansion in the late 1960s and early 1970s, entering The Faculties in greater numbers and at younger ages than the older cohorts. For example, in 1964 The Faculties contained fewer than ten people born during 1935-39, but five years later in 1969 boasted 30 people born during the period 1940-44. Younger cohorts have entered The Faculties at a much reduced rate, and it is hard to see how their ultimate representation can ever reach even that of people born in the 1930s. We now have the anomalous situation that members of the largest and best qualified birth cohorts are the least likely to have entered the system.

The ageing process has occurred both within grades, with an increase over the last decade of several years in the average ages of all staff and of about five years in the ages of lecturers, and within the distribution of staff below the rank of professor. Readers and Senior Lecturers have moved from 46 per cent in 1965 to a current proportion of 62 per cent, while Lecturers have fallen from 38 per cent to 25 per cent. Indeed, there are now fewer Lecturers than in any single year since 1970. In terms of both age and rank, then, The Faculties are becoming top-heavy, with increasingly older staff at each level, and a decreasing proportion of staff at the most junior level.

Between the periods 1972-77 and 1977-82 the average ages at appointment of Professors rose from 43 to 48 years, of Readers from 35 to 40 years, of Senior Lecturers from 34 to 37 years and of Lecturers from 32 to 34 years. Ages at promotion from Senior Lecturer to Reader varied only from 42 to 41 years, but the probability of promotion itself has been declining. For example, the proportion of Senior Lecturers promoted within eight years fell from 35 per cent amongst those who entered The Faculties during 1962-67 to 21 per cent of those who entered during 1967-72 to only 12 per cent of the 1972-82 intake. Similarly, the average age at promotion from Lecturer to Senior Lecturer rose from 36 years during 1972-77 to only 38 years during 1977-82, but the likelihood of being promoted at all has decreased. For example, the proportion promoted within eight years fell from 67 per cent of the 1962-67 intake to 45 per cent of the 1967-72 intake to 33 per cent of the 1972-82 intake.

FIGURE 3

REPRESENTATION OF BIRTH COHORTS — FACULTIES



In addition, the average age of people leaving The Faculties has been increasing, varying little from 40 years between 1962 and 1977, but rising to 46 years over the period 1977-82. This reflects the increasing preponderance of retirements rather than resignations, with staff being allowed to retire once they turn 60, but having to retire at the end of the year in which they turn 65. Indeed, half the retirements from The Faculties over the last twenty years took place before age 65. Thus, the ageing of tenured staff at each level has come about in a number of ways: first, through the appointment of older staff; secondly, through decreased likelihood of promotion; and thirdly, through departures coming to be dominated by retirements rather than resignations.

Some concern has already been expressed not only about the increasing inequity of the age-distribution of Australian university staff but also about an apparent inequity in the sex distribution. At least in The Faculties of the ANU qualified women are not disadvantaged relative to qualified men. There are indeed very many fewer women than men in tenured positions in The Faculties, but there are also far fewer women who undertake post-graduate training. Over the last quinquennium three-quarters of appointees to The Faculties held a doctorate, and the proportion of Australian doctorates recently awarded to women is matched in each period by the proportion of women appointed to tenured positions in The Faculties. For example, in the period 1967-72 eight per cent of all Australian doctorates, and ten per cent of tenured posts in The Faculties, went to women. Comparable proportions during the period 1977-82 were 15 and 13 per cent. In effect, the increased pool of female graduates has come about at a time when few newly qualified people, whether women or men, are being appointed to the University.

The Future

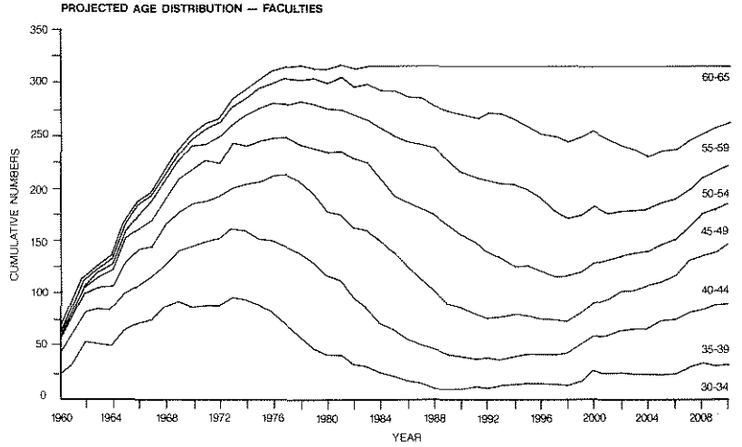
In order to demonstrate the implications of the present position we have projected The Faculties into the future under a number of assumptions. Monte Carlo simulation was better-suited to this purpose than a conventional demographic projection technique. The projections assume that The Faculties had reached a constant size by August 1982 and, apart from some minor variations, will neither grow nor shrink in later years. This implies that a new appointment can be made only when a position becomes vacant. Such vacancies are created in the models by resignations and retirement. Death and failure to be granted tenure after the probationary period are such rare events that they can be ignored. It is assumed that all staff currently on probationary contracts will be granted tenure.

The models take as their starting-point the population of The Faculties as of August 1982. Each member of staff is followed until he or she resigns, the probability and duration at which this occurs being determined by reference to recent rank- and duration-specific patterns, or retires at some point between ages 60 and 65. When a position falls vacant a replacement is simulated by reference to recent rank-specific distributions of age at appointment. As the base population is small we have expanded it by a factor of twenty and, in effect, replaced each staff member twenty times; the output was then reduced by a factor of twenty, the whole procedure serving to reduce stochastic variation.

Professors are replaced by Professors, one-quarter of Readers by Readers and the remainder by Lecturers, while Senior Lecturers and Lecturers are replaced by Lecturers. Lecturers and Senior Lecturers may move to the next highest rank accord-

FIGURE 4

PROJECTED AGE DISTRIBUTION — FACULTIES



ing to recent rank- and duration-specific patterns of promotion.

Figure 4 shows one development of the age structure of The Faculties to the year 2010, the portion up to 1982 representing past trends as in Figure 2, and from 1982 onward reflecting the results of a policy of no growth and universal retirement at the age of 65 years. The model incorporates current patterns of age-specific appointment, promotion and resignation with the sole exception that no new staff are appointed under the age of 30, a logical assumption given the observed decline in young appointees.

A continuation of the ageing process is clearly visible. People younger than 45 moved from two-thirds of tenured staff in the mid-1970s to half in 1982, but fall to a mere one-quarter in the mid-1990s. Recovery would not occur spontaneously until close to the end of the century, but even by the year 2010 there would still be fewer staff in this age range than there are at the present. The graph shows marked periodicity as the large group aged 40-55 in 1985 work their way through the system; only with their retirement after the year 2005 is there a reduction in the proportion of staff aged 60-65.

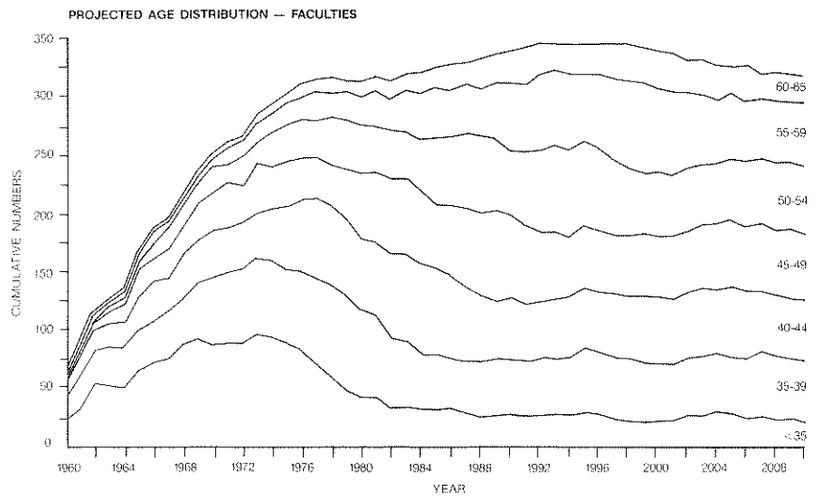
The crux of the problem lies in the recruitment in the 1970s of an inordinately large number of people born in the early 1940s who will not be due to retire until early in the next century. If their departure, and that of other staff, were hastened by universal retirement at age 60 the situation would be somewhat improved. Turnover would be accelerated and the ageing process halted around 1995, five years earlier than when all retirements took place at age 65. Moreover, ageing would never have been quite as extreme as when all staff retired at 65, with the proportion of staff younger than 45 never falling below one-third.

Voluntary universal early retirement, however, is neither a realistic nor even a desirable solution. Under present superannuation schemes retirement before the age of 65 carries a financial penalty. Nevertheless, half the retirements over the last twenty years from The Faculties have taken place before the age of 65, perhaps because the burden of teaching felt by elderly staff outweighs the financial considerations. A mix of retirement ages is thus not unrealistic.

In order to simulate such variation a third model incorporated a rank-specific pattern of retirement, with Professors and Readers retiring at age 65, but Lecturers and Senior Lecturers at age 60. Such a retirement pattern created a future age distribution intermediate between the previous two, and is thus insufficient on its own to stabilize the age structure.

The answer is to be found in additional intervention at the other end of the process, with a short-term policy of creating special posts tenable only by young appointees. A projection that embodied not only rank-related retirement but also the annual appointment of three new lecturers younger than 32 for the ten years from 1982 to 1991 produced real improvement in the age distribution. The number of staff in their thirties did not decrease significantly, as numbers were augmented in this decade by the short-term injection of new lecturers, and thereafter by replacements of retiring and resigning staff.

FIGURE 5



The fifth projection in this series is slightly more conservative than the previous one on which it is based. It assumes that the remedial growth between 1982 and 1991 is to be seen as temporary, and thus that The Faculties would, at some later time, have to shrink back to the present size. This was achieved in the model by allowing a constant size from 1992 to 1998, from which year half of all non-professorial positions vacated by retirement or resignation were left unfilled until 30 positions had been lost, and The Faculties were back to their 1982 size. The cumulative age distributions obtained from this model are shown in Figure 5. Interestingly, they are almost identical with the age distributions obtained when there was no compensatory decline in size. A fairly constant age structure is achieved almost immediately, and maintained for the projection period of 30 years. The essential means of rehabilitating the age structure of The Faculties is therefore a mix of retirement ages combined with the establishment of lectureships specifically open to young staff.

There are several reasons why, given a non-expanding system, it is not desirable merely to wait until a large cohort has worked its way through the age structure and finally left the system. First, it may take a considerable length of time for this to happen, and in the meantime the university would be unable to recruit many new staff members. People who would have been expected, in the normal course of things, to join the tenured staff will be prevented from doing so, and will either spend their time moving between junior non-tenured positions or will ultimately move out of the academic sector altogether. Secondly, the periodicity built into the system is likely to be perpetuated when members of the over-represented birth cohort finally retire, since their replacements could expect to be chosen from a relatively narrow age-range. It might be difficult to broaden the age-range of appointees because older candidates would come from the group hitherto under-represented in the university, who might be considered too old for the more junior tenured positions, but to have too little academic and administrative experience to be well-suited to a more senior position.

Intervention is necessary in order to re-distribute tenured posts amongst staff of different ages, and to prevent the ill-effects of the sort of periodicity so startlingly illustrated in Figure 4. Such intervention — which corresponds to the creation of 'new-blood' lecturerships such as those which are currently being advertised in the United Kingdom — is not particularly drastic but, if it is not made soon, the deleterious effects on the Australian university system will be with us for years to come.

Notes

1. Ray Over, 'Age Distribution of Australian Academics', *Vestes* 24; (2), 1981, pp.15-17.

2. Gigi Santow and Michael Bracher, *A Demographic Profile of the Australian National University*, Canberra, The Australian National University, 1983.