

A
Demographic Profile
of the
Australian National
University

Gigi Santow
Michael Bracher



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Foreword

The authors of this study are professional demographers, members, at the time of the work, of the Department of Demography in the Research School of Social Sciences, ANU.

The study was a commissioned one. The guidelines suggested for the work were couched only in the most general terms. These can be epitomized by two questions: (1) What will be the age structure of tenured academic staff in the ANU, through to the year 2010, if both total staff numbers (from 1982), and present patterns of retirement and recruitment are unchanged? (2) What would be the effect of certain suggested interventionist policies, involving early retirement or supernumerary recruitment, or both?

Behind these questions lay the fair guess that, in the absence of explicit correctives, the rapid growth of the 1960s and early 1970s would produce in later decades a depletion in the ranks of younger academic staff, from whom senior appointments would be made to replace retiring staff: and that a further cycle of age imbalance would then be initiated.

If the ANU were alone in its experience, this study would be of purely local interest, but the problem is thought to affect all, or nearly all, Australian universities, and is in fact of concern throughout the industrialized world: in Japan, for example, it has been said (1980) that the average age of university staff increases by nine months each year.

This study, believed to be the first to be based on a total sample of real data, is thus likely to be relevant to the Australian university system as a whole, and probably more widely. Its prompt publication has been undertaken as a matter of public interest.

For readers not associated with the ANU, the data and projection for The Faculties will be most relevant, since the Institute of Advanced Studies is not typical of universities generally. I suggest that figures 5.3 and 5.4 make a striking pair, the first showing an oscillatory behaviour in age distribution, and around 1995 a pinch in the key age-range 35-45, if the university lets matters evolve unaltered, and the latter the levelled age distribution which would result from a policy of partial early retirement coupled with a modest ten year program of supernumerary recruitment of young staff.

The University is indebted to Professor J.C. Caldwell, head of the Department of Demography, through whom this commission was arranged, and to the authors who not only completed their task on time but who were also obliged to cope with many deficiencies of the university's personnel records. They have bequeathed computer programs which are available on request, should other organizations wish to conduct similar studies.

Ian Ross

1. Introduction

1.1 The Australian National University

The Australian National University was established as a centre of research and post-graduate training in 1946. Earlier, in 1929, the Canberra University College had been set up by arrangement with the University of Melbourne, to provide under-graduate and some post-graduate facilities in Canberra. In September 1960 the Canberra University College was amalgamated with the Australian National University, which is thus two universities in one: the Institute of Advanced Studies representing the original university; and The Faculties (formerly known as the School of General Studies) being derived from the old Canberra University College. The Institute now comprises seven research schools and some multi-disciplinary units, while the teaching half of the University consists of five faculties. There are also a number of small centres outside the Institute and The Faculties.

The growth of the University over the last two decades is depicted in Figure 1.1. The area below the lower curve represents tenured staff, namely, staff at the level of fellow or lecturer and above while that between the curves represents non-tenured staff, namely, senior research fellows, research fellows, post-doctoral fellows and visiting fellows in the Institute, and lecturers on fixed-term contracts, tutors and demonstrators in The Faculties. The size of the University is reckoned as of the 30th of April each year.¹

The University has grown three-fold since amalgamation, and in 1982 numbered slightly more than 900 academic staff. The expansion in non-tenured staff was more rapid than in tenured staff, but growth was concentrated in the period up to the mid-1970s. Since that time the numbers of tenured and non-tenured staff have varied little from year to year.

Figure 1.2 presents comparable information for the Institute alone, and Figure 1.3 for The Faculties. Between 1961 and 1975 the tenured Institute population grew at an average annual rate of six per cent, while the non-tenured population grew at a rate of twelve per cent. Subsequently, the late 1970s saw a temporary decrease in the non-tenured population and a recovery in the 1980s. Since the mid-1970s non-tenured staff have comprised about half the academic population.

Like the Institute, The Faculties experienced rapid growth until the mid 1970s, and a subsequent levelling off in tenured numbers and a decrease in non-tenured staff. At least for tenured staff expansion was actually faster than in the Institute between 1961 and 1975, with annual growth rates of nine per cent for tenured staff and ten per cent for non-tenured staff.

Since 1976 the number of tenured staff in the Institute has numbered between 254 (1979) and 273 (1982), while that of The Faculties has been slightly greater at between 310 (1976) and 316 (1978). That the Institute has so many more staff than The Faculties is due to its large non-tenured population, which is now approximately as great as its tenured population. (In contrast, tenured staff in The Faculties comprised 83 per cent of the total academic population in 1982², and have comprised on average 79 per cent over the last decade.) A large proportion of non-tenured staff has been considered desirable in the Institute as a means of maintaining 'a sufficient level of staff turnover . . . to ensure the regular stimulus of new minds'³. Since 1973 the ratio of tenured to non-tenured staff in the Institute has been close to 50:50, although there has been considerable deviation from this ratio in individual Schools: over the last decade tenured staff have comprised between 19 and 24 per cent of staff of the Research School of Chemistry, and, at the other extreme, between 55 and 67 per cent of the Research School of Social Sciences.⁴

FIGURE 1.1

SIZE OF THE AUSTRALIAN NATIONAL UNIVERSITY

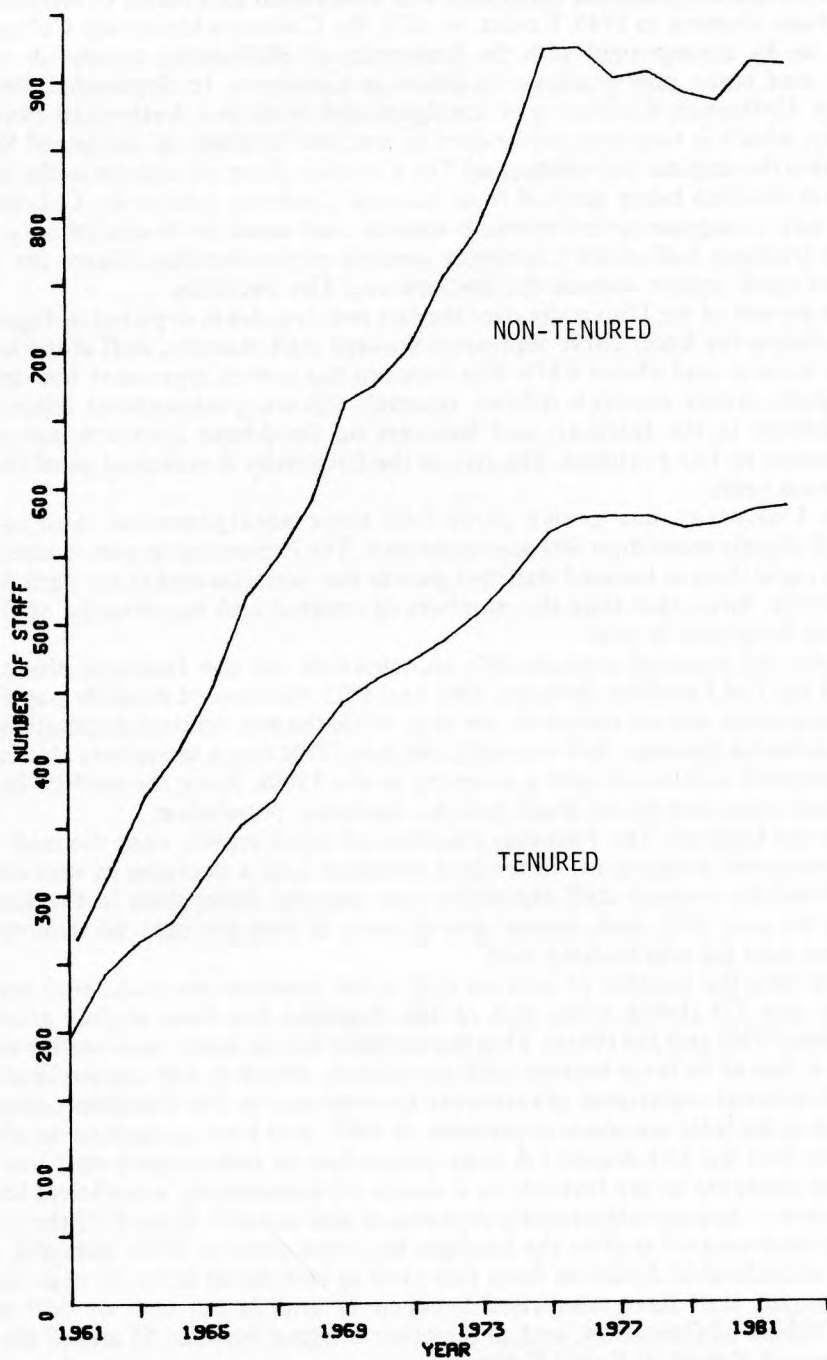


FIGURE 1.2

SIZE OF THE INSTITUTE OF ADVANCED STUDIES

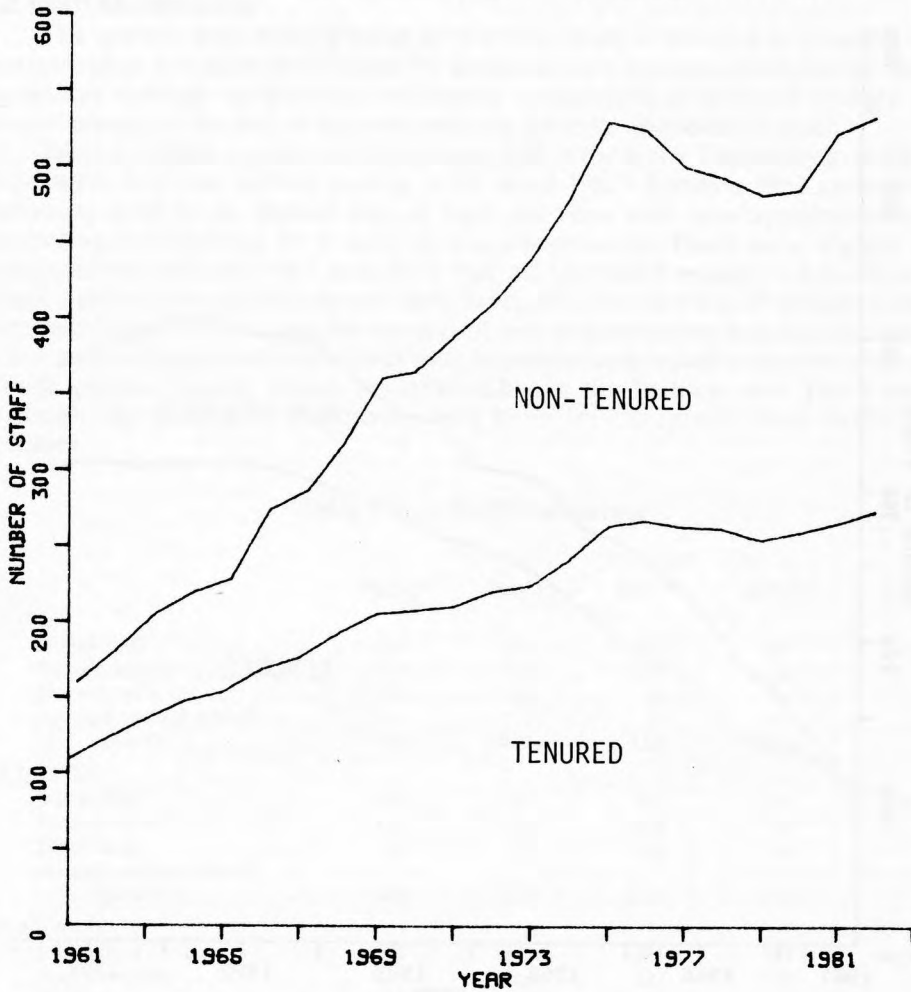
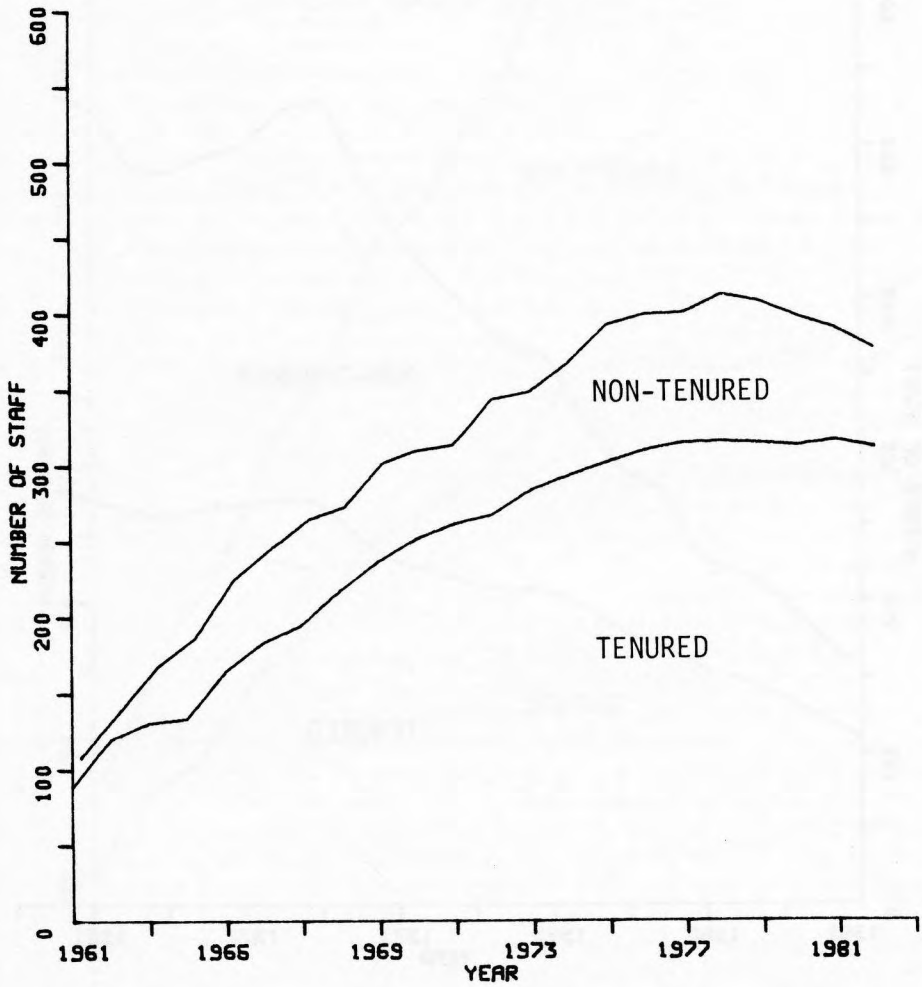


FIGURE 1.3

SIZE OF THE FACULTIES



In 1976 the Board of the Institute of Advanced Studies directed that Schools with a ratio exceeding 50:50 should seek to bring the ratio down to 50:50, and that Schools whose ratio was already below 50:50 should not increase their present ratio without the Board's approval.⁵ The Board has recently acknowledged that it may be desirable to allow Schools a temporary increase in their tenure:non-tenure ratios.⁶

The terms of reference of this report do not encompass non-tenured staff, and detailed data were compiled only on tenured staff of the last twenty years.⁷ Nevertheless, it will occasionally be necessary to refer also to non-tenured staff and the relevant data will be drawn from published tables.

1.2 Staff Movements

The growth and development of the University's tenured population since amalgamation has been determined by its initial size, by new appointments and by departures through resignation, retirement, completion of contract (failure to be granted tenure at the end of the probationary period), dismissal or death.

Table 1.1 shows movements of tenured staff in the entire University over the four consecutive five-year periods ending at 30 April 1982.⁸ Between 1962 and 1967 the University grew at an annual rate of nine per cent, with new appointments outnumbering terminations by a ratio of about two-to-one. There were slightly more appointments between 1967 and 1972, but an increased number of terminations meant a growth rate of only six per cent. Since 1972 the number of terminations has remained fairly constant, but the number of new appointments has continued to fall, so that appointments and departures were approximately equal in number during the 1977-82 period. Similar trends are observable in the Institute and The Faculties, although the Institute's expansion has been less dramatic than that of The Faculties.

Table 1.1 — Staff Movements

	PERIOD				
	1962-67	1967-72	1972-77	1977-82	1982-
IAS					
Initial Staff	121	176	220	263	273
Appointments	119	126	109	64	
Departures	64	82	66	54	
Average annual rate of growth	7.5%	4.5%	3.6%	0.7%	
FACULTIES					
Initial Staff	118	193	267	315	312
Appointments	123	131	120	70	
Departures	48	57	72	73	
Average annual rate of growth	9.8%	6.5%	3.3%	-0.2%	
TOTAL ANU					
Initial Staff	239	371	493	597	600
Appointments	244	262	245	139	
Departures	112	140	141	137	
Average annual rate of growth	8.8%	5.7%	3.8%	0.1%	

At the moment the University is simply replacing itself, rather than growing (or shrinking). In almost all cases, then, a new appointment can be made only when a position is freed by a departure from the University. In such a situation the number and type of departure from the University become critical.

The departures of Table 1.1 are differentiated according to type in Table 1.2. The major reasons for leaving the University are resignation and retirement: only nine people over the period either failed to be granted tenure at the end of the probationary period or saw their position disappear; outright dismissal did not occur although several medical retirements before the age of 65 might be seen as involuntary. Death, though more frequent than failure to gain tenure, occurred only rarely.⁹

Table 1.2 — Types of Departures

	PERIOD			
	1962-67	1967-72	1972-77	1977-82
IAS				
New ANU Position	45	32	39	29
Outright Resignation	44	49	30	28
Retired	5	11	26	39
Completed Contract	1	5	—	—
Died	5	3	5	4
	100 (64)	100 (82)	100 (66)	100 (54)
FACULTIES				
New ANU Position	29	26	18	11
Outright Resignation	65	62	69	59
Retired	2	7	10	27
Completed Contract	2	—	3	—
Died	2	5	—	3
	100 (48)	100 (57)	100 (72)	100 (73)

Mobility within the University has declined both proportionally and absolutely, with fewer staff leaving one tenured position to take up another in the University. Outright resignations have also become considerably less common in the Institute, with major declines occurring between 1967-72 and 1972-77; and also less common in The Faculties, the decline occurring between 1972-77 and 1977-82. In compensation, retirements have become increasingly common, and in the Institute are now the singly most common type of departure. The number of retirements has increased also in The Faculties, although departures are still dominated by outright resignation from the University. Over the four five-year periods, average ages at resignation have varied between 43 and 45 years in the Institute and between 38 and 39 years in The Faculties. The declining importance of resignations, and the increasing importance of retirements (taking place as late as age 65) imply, therefore, an increasingly inert system in the immediate future, with fewer annual departures than previously.

Table 1.3 shows the number of expected retirements over various periods in the future assuming no outright resignations from the University, that the 62 people currently on probationary contracts will be granted tenure, and that all staff retire in the year they turn 65. This table, then, gives the slowest possible turnover of tenured staff. Fewer than half of the current tenured staff will have retired by the millennium. The greatest number of retirements in the Institute will occur in the 1990s, during which period half the present professors and two-fifths of the more junior staff, will turn 65. The peak retirement period for professors in The Faculties will also be the 1990s, when more than half the present professors will turn 65; but for junior ranks will not be reached until the period 2005-2009.

Under the assumptions already listed, it appears that, unless there is growth in the University, there will be unprecedentedly few new appointments in the immediate future. Over the eight years remaining in this decade there would be 43 appointments in the Institute and a mere 25 in The Faculties. Comparison with the numbers of

appointments in earlier times, as shown in Table 1.1, gives stress to this observation.

This is, of course, the most static picture possible. Nevertheless, it serves to introduce the problem to be examined in this report, namely, the effects of the current size and age structure of the University on its future development. We trace the development of the University over the last two decades to show its present composition as a result of earlier patterns of recruitment, resignation and retirement. We then go on to project the tenured staff into the future under a range of hiring and retirement policies, and assumptions about resignation.

Table 1.3 — Expected Retirements of Current Staff

	IAS		FACULTIES		TOTAL	
	PROF	TOTAL	PROF	TOTAL	PROF	TOTAL
1982-84	4	9	4	5	8	16
1985-89	13	34	6	20	20	55
1990-94	20	60	12	44	32	105
1995-99	12	62	10	54	24	118
2000-04	9	54	4	54	14	114
2005-09	6	37	2	76	8	115
2010-14	1	18	1	41	2	60
2015-19	—	3	—	14	—	17
TOTAL*	65	277	39	308	108	600
MEDIAN YEAR OF RETIREMENT	1993	1997	1994	2003	1994	2000

* equivalent to number of staff as of 31 August 1982.

2. Growth and Ageing of Tenured Staff

Our starting place is the present age distribution of tenured staff of the Australian National University, which is shown in Table 2.1. Overall, one-fifth of the tenured staff are younger than age 40, two-fifths are in their forties, and the remaining two-fifths aged 50 years and older. Staff in the Institute are on average somewhat older than those in The Faculties, with nearly one-half aged 50 and older as against one-quarter in The Faculties.

Table 2.1 — Percentage Age Distribution of Tenured Staff, 30 April 1982

Age	IAS	FACULTIES	TOTAL
25-29	—	1	1
30-34	4	9	6
35-39	8	20	14
40-44	20	23	22
45-49	20	21	21
50-54	20	13	16
55-59	19	8	13
60-65	9	5	7
(N)	100 (273)	100 (312)	100 (600)

The age-specific growth of the ANU over the last two decades is depicted for the whole University in Figure 2.1, and separately for the Institute and The Faculties in Figure 2.2 and Figure 2.3 respectively. These figures present cumulative numbers by age at the 30th of April of each year since 1960. The lowest curve therefore represents the number of staff younger than 30 years, and the second the number younger than 35, the area between these curves representing the number aged 30-34 years. The uppermost line, being the cumulation over all age groups, is the total size of the University.

Between 1960 and 1982 the number of tenured staff increased fourfold from an initial size of about 150. Nevertheless, this growth took place before 1975 from which point the size, if not the age composition, of the University has been virtually constant. Growth was fairly uniform over all age groups until 1970, but in ensuing years growth has been restricted to staff aged 40 and older. Since 1975 the University has not expanded, and the number of staff younger than age 40 has actually declined while the number aged 40 and above has increased. By 1982 the number of tenured staff younger than 35 had fallen to the level of 1960, although in 1960 the University was one-quarter its present size.

Similar trends, if not levels, were present in the Institute and the Faculties, the rate of expansion being more modest in the former, and there always being very few staff under the age of 35. In contrast, the decrease in the number of young staff in the Faculties since the 1970s is all the more marked for the early and more rapid expansion in their numbers.

Figures 2.4 and 2.5 show the percentage composition by age of tenured staff in each year since 1960. The proportion of staff younger than age 40 has declined in the Institute during the last two decades from over two-fifths to under one-fifth, while that of 40-44 year-olds has remained fairly constant at one-fifth, and older age-groups have progressively increased. During the same period the Faculties have seen a decline in staff younger than 35 years from two-fifths to one-tenth, and a corresponding expansion in the 40+ age-group.

FIGURE 2.1

GROWTH OF TENURED STAFF - TOTAL

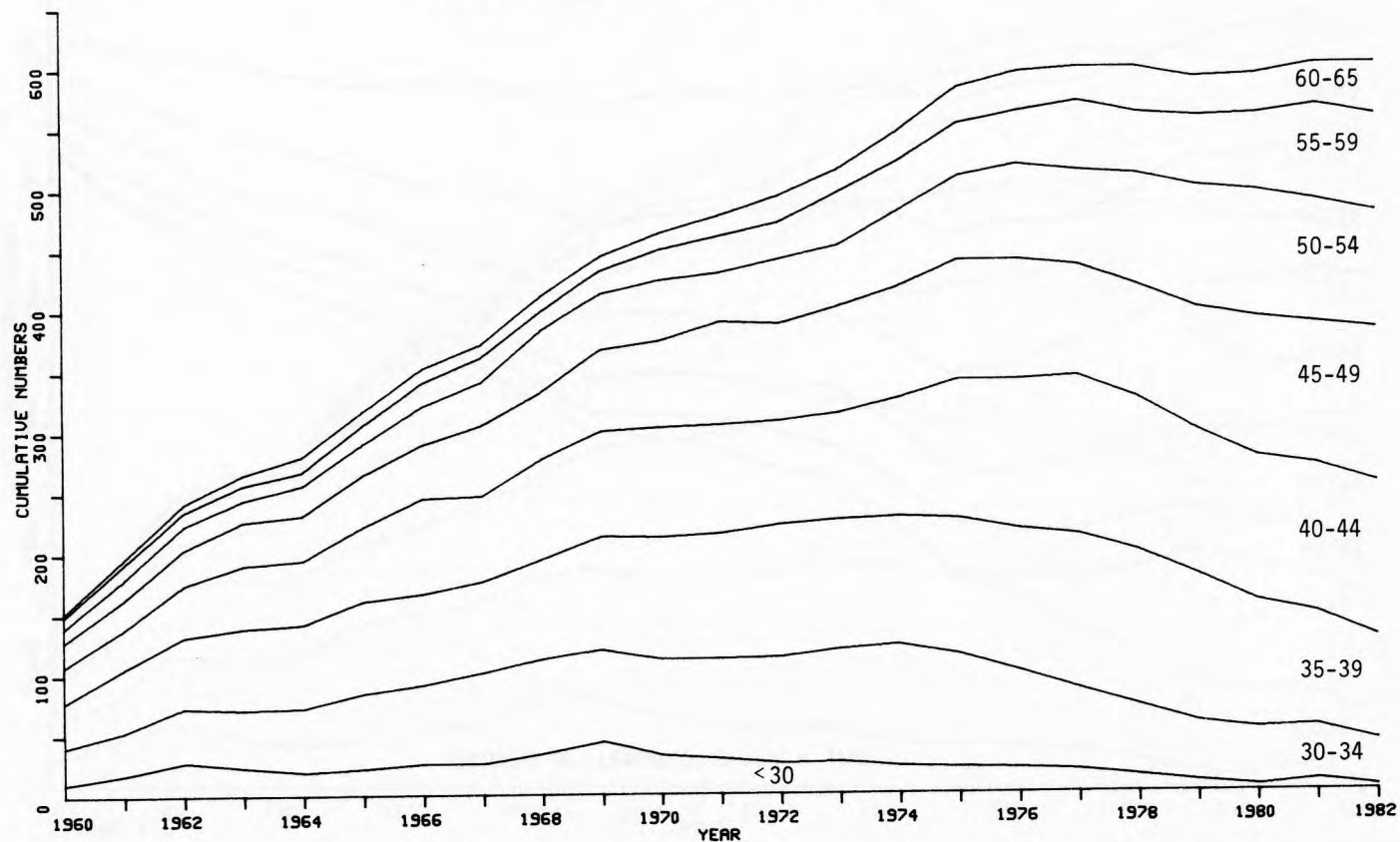


FIGURE 2.2

GROWTH OF TENURED STAFF - IAS

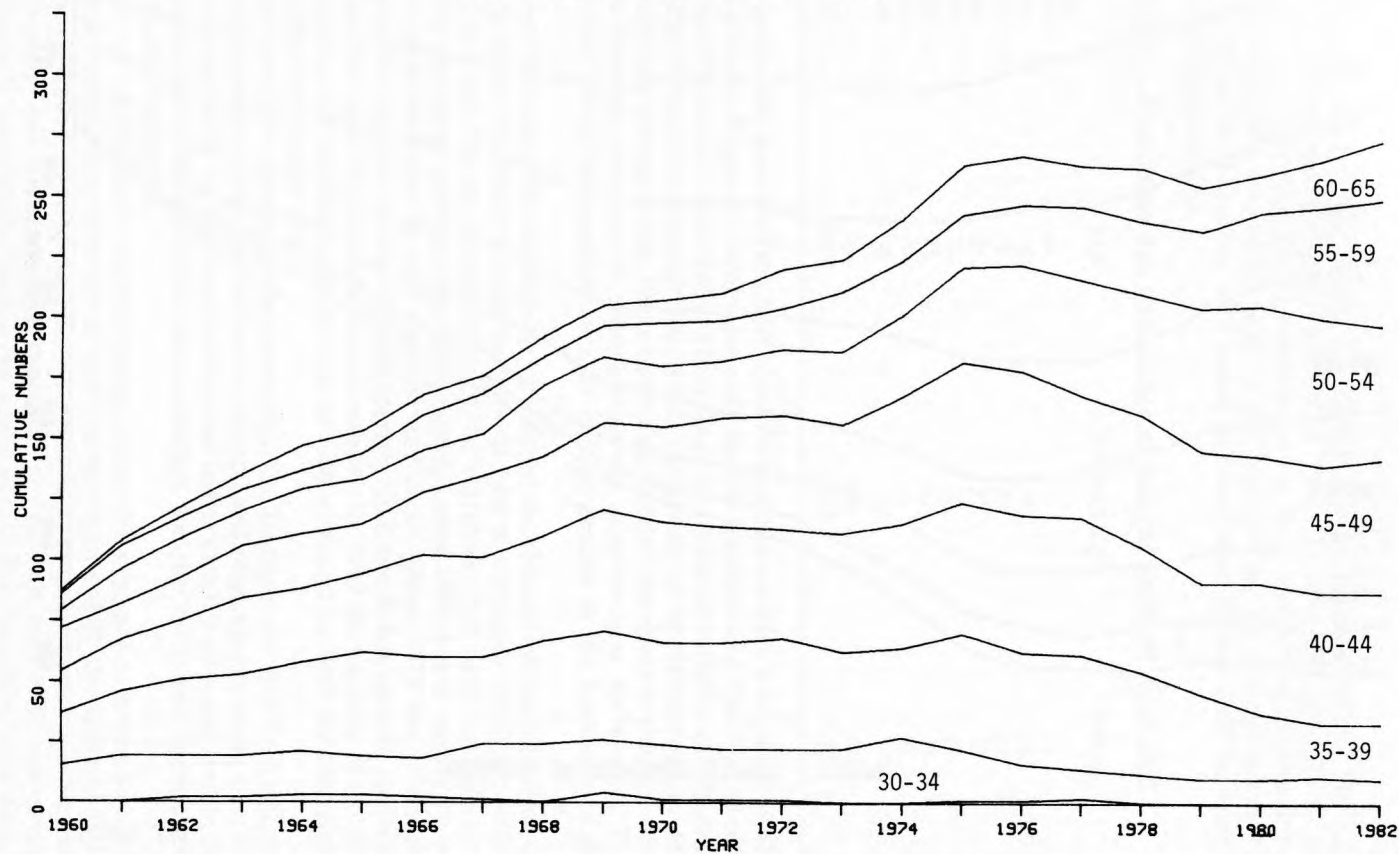


FIGURE 2.3

GROWTH OF TENURED STAFF - FACULTIES

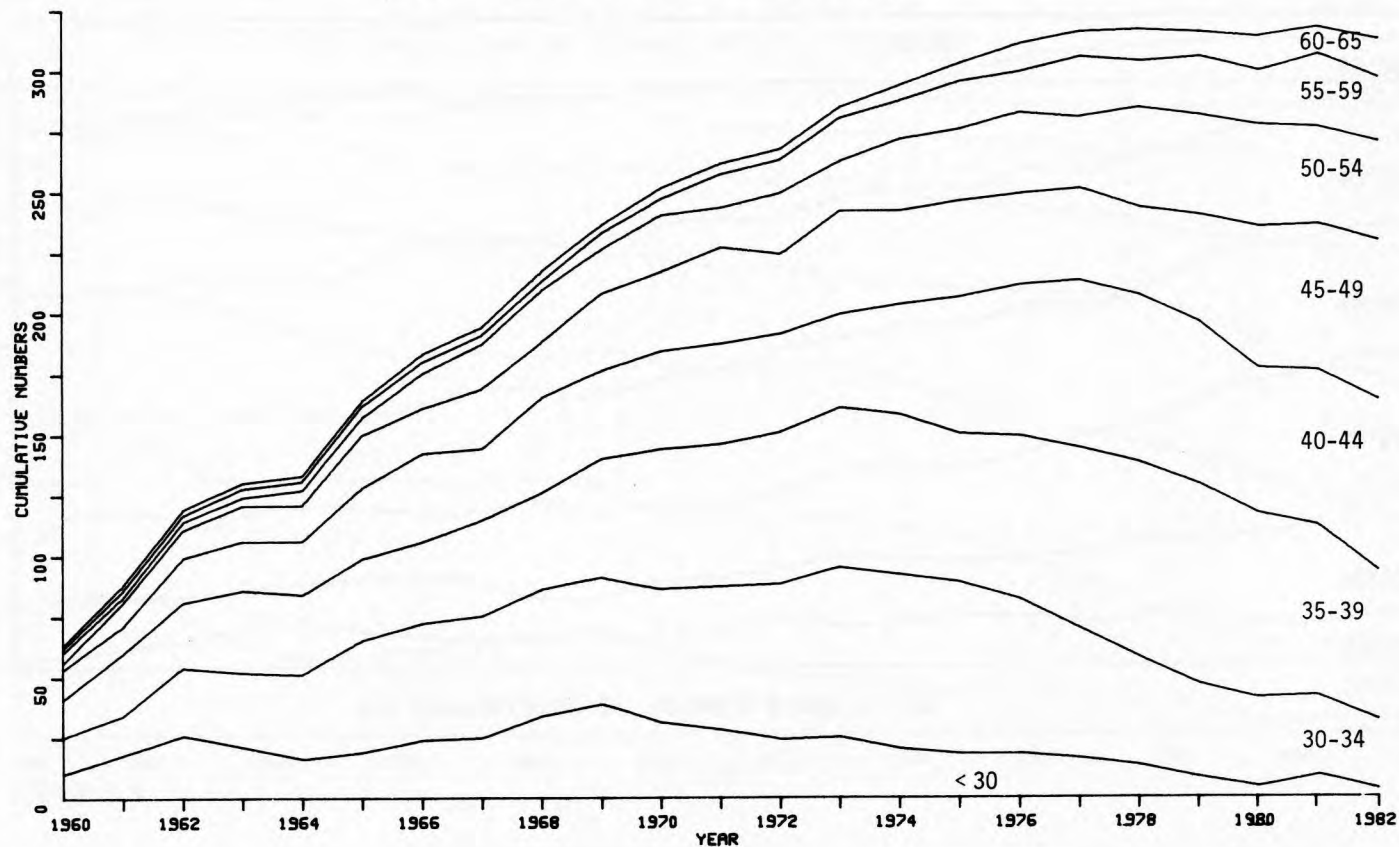


FIGURE 2.4

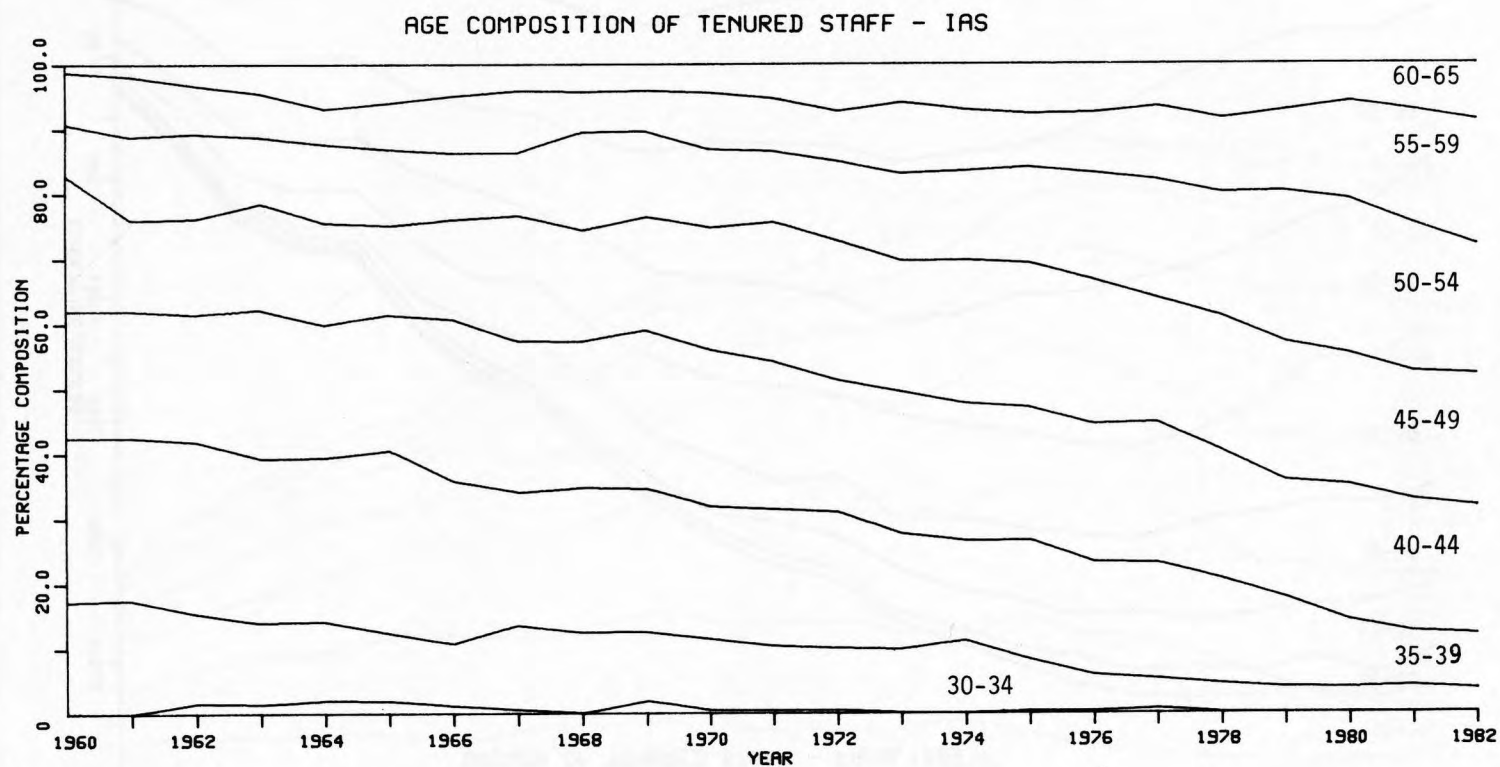
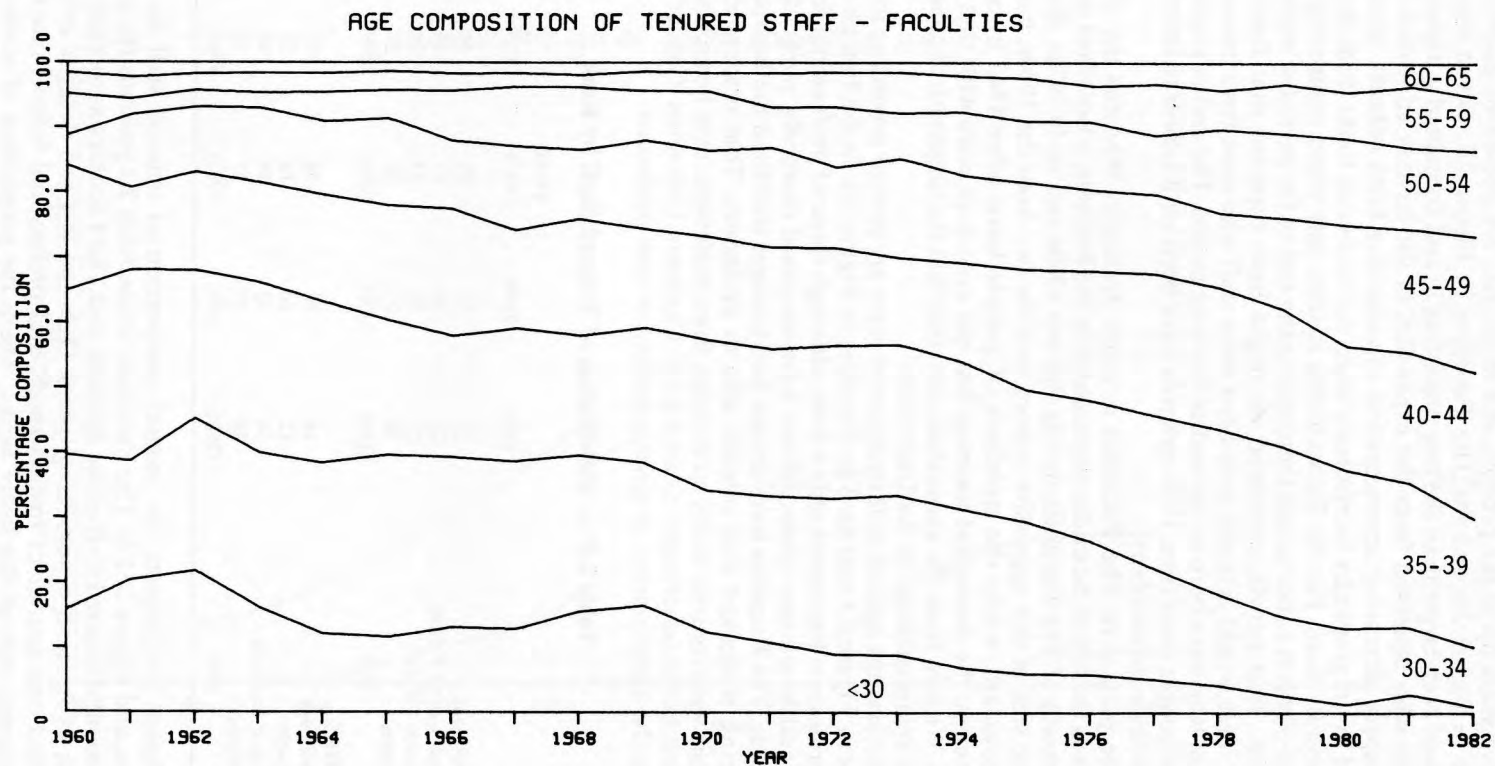


FIGURE 2.5



It is revealing to examine the representation of birth cohorts in the University in successive years up to the present, and these data are presented graphically for the Institute in Figure 2.6 and for The Faculties in Figure 2.7. Given that each birth cohort was both larger than the one preceding it, and contained a higher proportion of people who benefited from the expansion of the tertiary education system, one might expect increasing representation of successive birth cohorts, which would be reflected in the graphs by increasingly steep curves as one looks from the older to the more recently born. For the Institute this is seen only when comparing the 1930-34 and 1935-39 birth cohorts, and then only to the end of the period of expansion in the mid-1970s. Had growth continued we might have expected that from about 1977 onward there would actually have been more staff who were born between 1935 and 1939 than who were born in the earlier five-year period. The end of expansion meant also that people born from 1939 onwards have been both slower to enter the University, and fewer in numbers.

The picture in The Faculties is more dramatic. Whereas the 1940-44 birth cohort was the first to be under-represented in the Institute, it benefited most from the rapid growth of The Faculties during the late 1960s and early 1970s. Since the mid-1970s the size of this aggressive cohort, and the two from the 1930s, have remained fairly constant, while the numbers of people born after 1945 have increased. Nevertheless, the numerical increase has not even kept pace with that of the older cohorts. We now have the anomalous situation that the largest birth cohorts have the smallest representation in the University.

The average ages of staff in different years are plotted according to rank for the Institute in Figure 2.8 and for The Faculties in Figure 2.9. In the Institute the average age of professors has varied only a little, although those of professorial fellows, senior fellows and, to a lesser extent, fellows have increased markedly, particularly over the last decade. The Faculties have always had younger staff than the Institute, but there, too, ageing is marked and extends also to professors. That readers and associate professors were initially older, on average, than professors, may be attributable on the one hand to the inheritance of staff from Canberra University College and, on the other, to the appointment, at amalgamation, of new professors.

Table 2.2 — Distribution of Tenured Staff by Rank

		YEAR				
		1965	1970	1975	1980	1982
IAS						
Professor		25	24	25	24	23
Professorial Fellow		20	20	17	18	19
Senior Fellow		25	31	33	38	38
Fellow		30	25	25	20	19
(N)		(153)	(207)	(263)	(259)	(273)
FACULTIES						
Professor		16	15	16	13	13
Reader		12	14	18	21	19
Senior Lecturer		34	32	39	41	43
Lecturer		38	39	27	25	25
(N)		(164)	(251)	(302)	(313)	(312)

Figure 2.10 depicts the annual composition of tenured staff by rank in the Institute, and Figure 2.11 in The Faculties, while Table 2.2 presents the proportionate distribution of tenured staff of the Institute and The Faculties according to rank as of the 30th of April in a number of years. Over the last two decades professors have comprised one quarter of Institute staff, and professorial fellows one-fifth. Change has occurred only at the lower ranks, where the proportion of senior fellows has

FIGURE 2.6

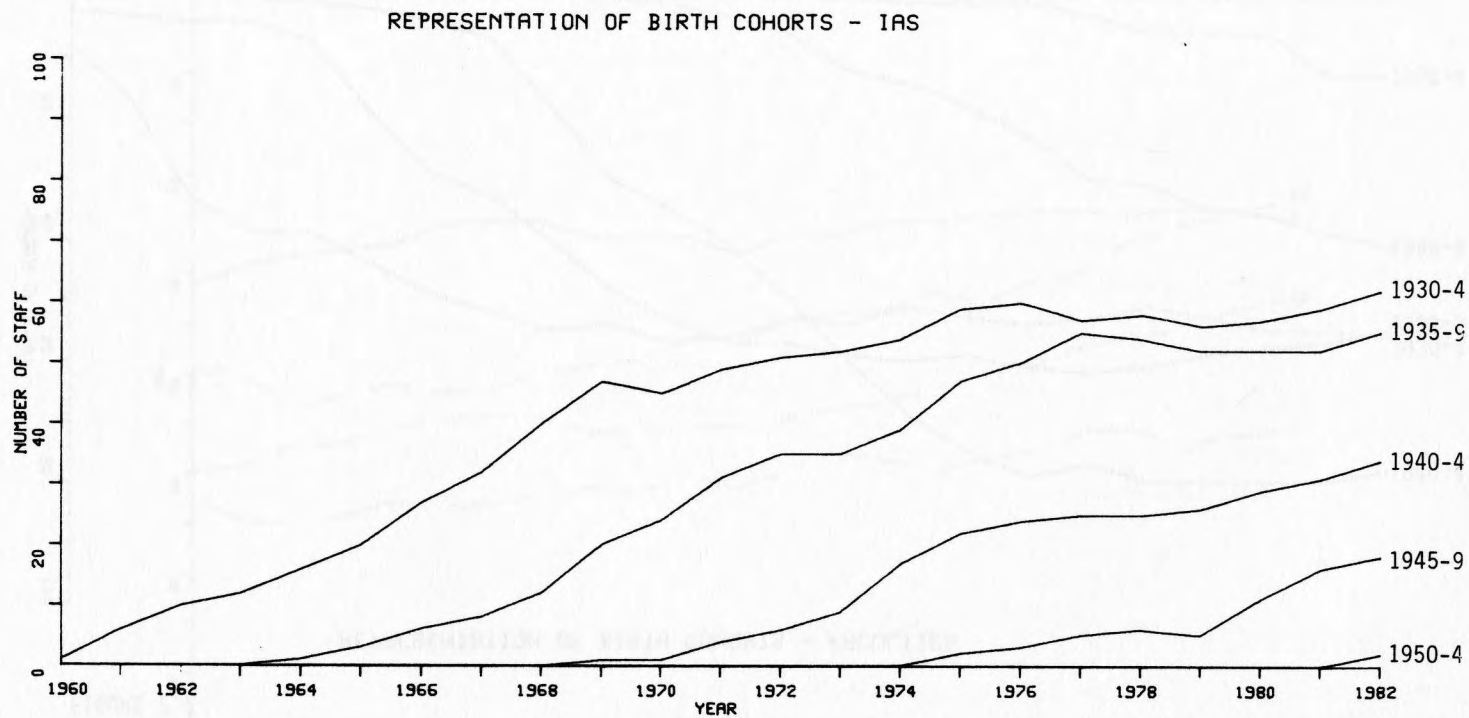


FIGURE 2.7

REPRESENTATION OF BIRTH COHORTS - FACULTIES

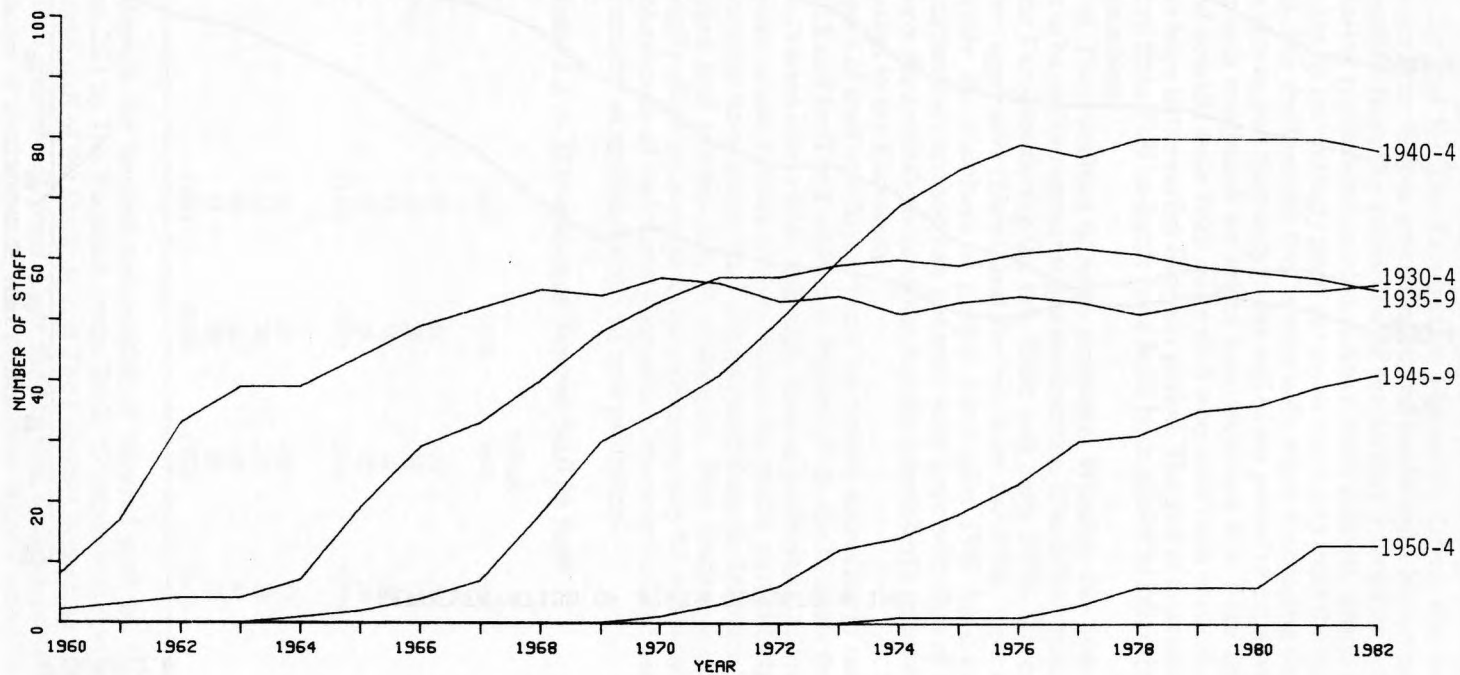


FIGURE 2.8

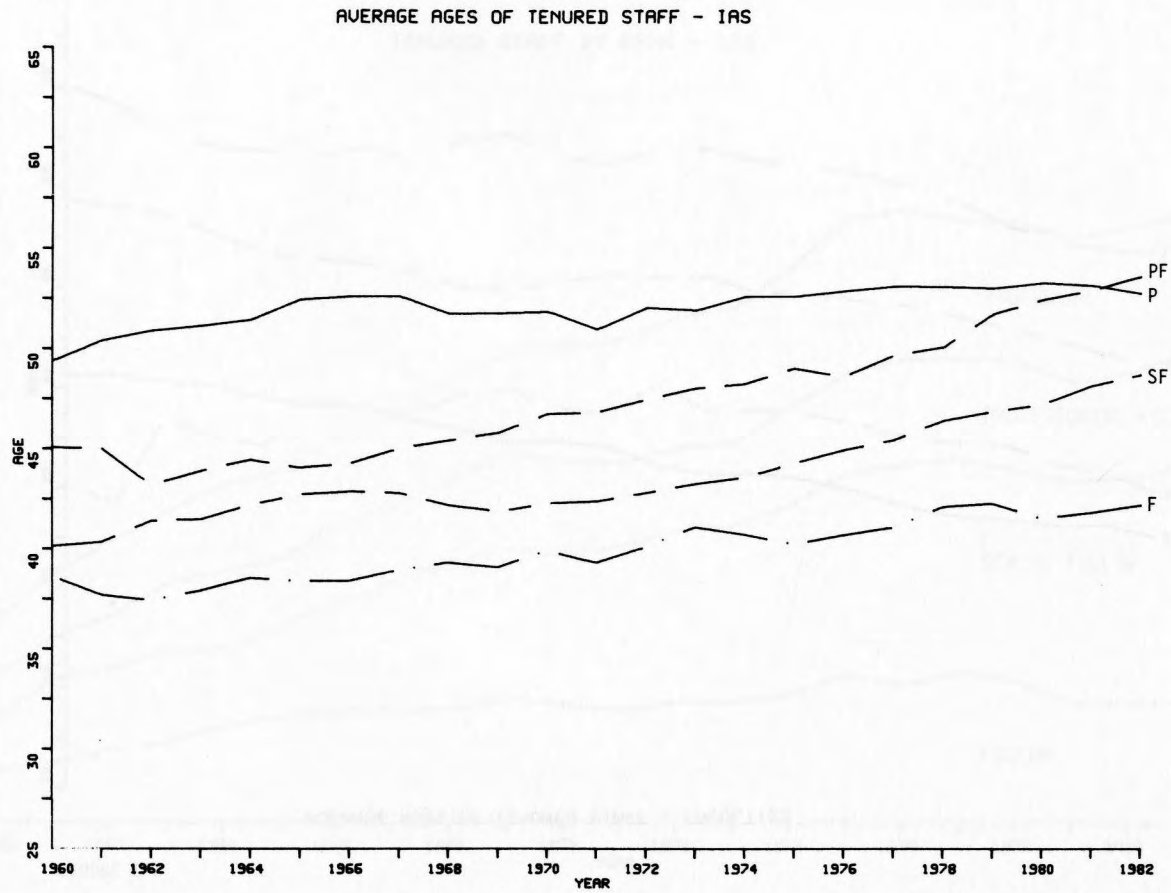


FIGURE 2.9

AVERAGE AGES OF TENURED STAFF - FACULTIES

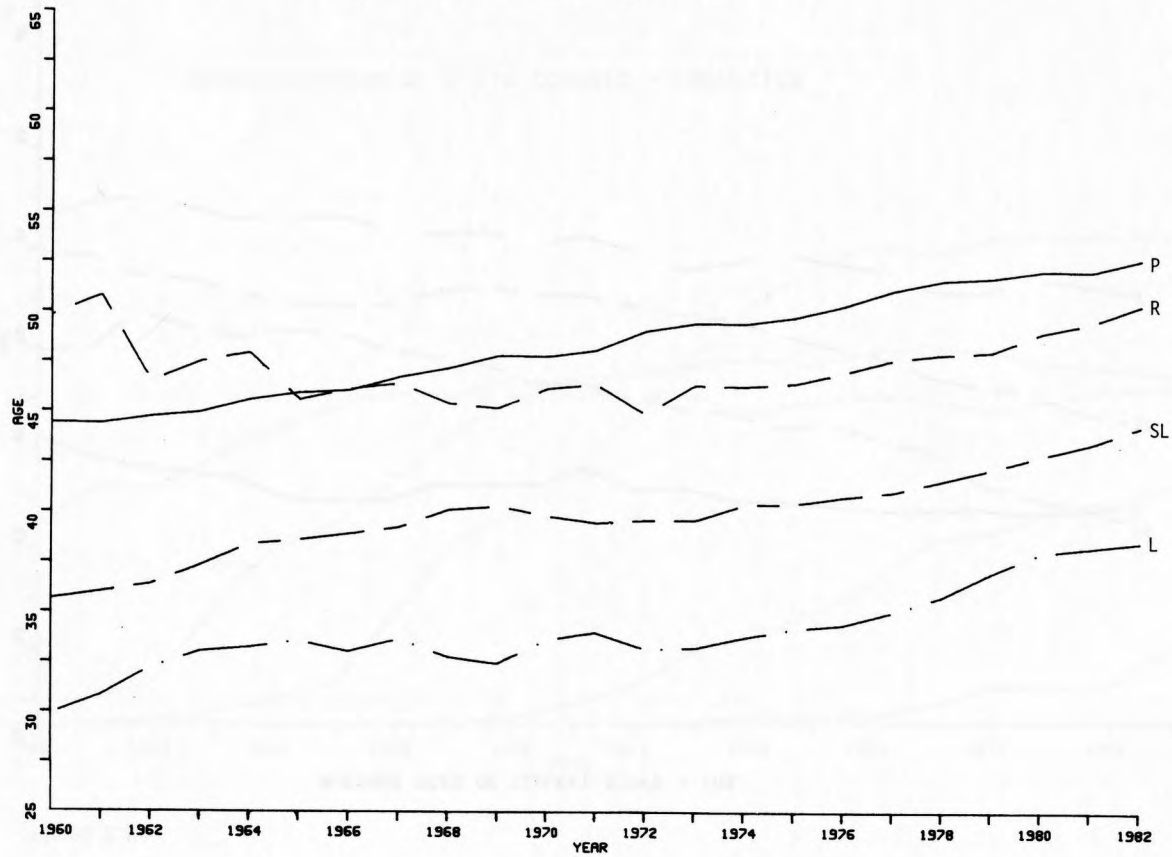


FIGURE 2.10

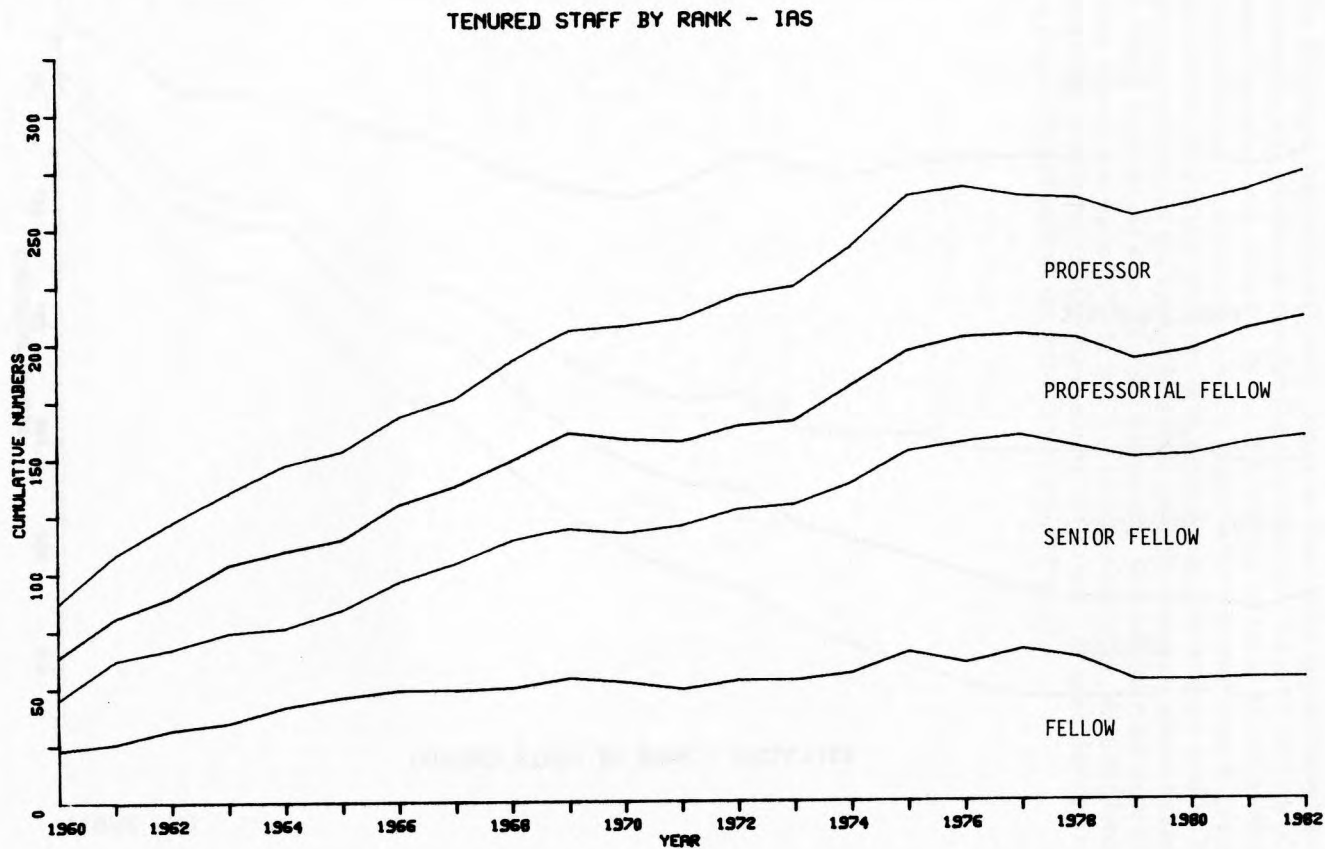
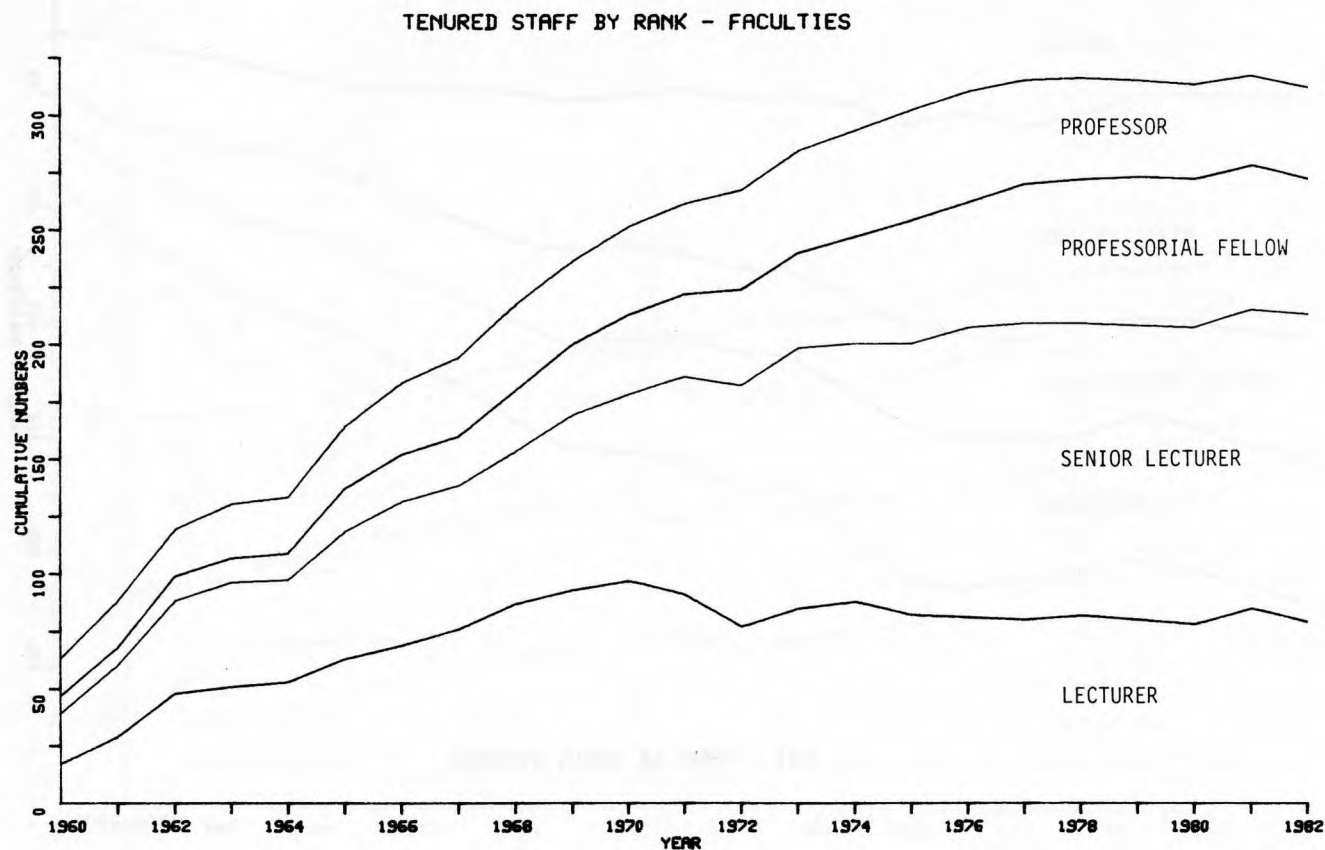


FIGURE 2.11



increased from one quarter to nearly two-fifths and the proportion of fellows has suffered a corresponding decline. After a slight increase in the mid-1970s the number of fellows has settled back to a level which has not varied much since the late 1960s.

In the Faculties, tenured staff tend always to have been concentrated at the more junior ranks, with professors comprising only between 13 and 16 per cent of the total. Change has occurred, however, in the distribution of ranks below professor. Readers (and associate professors) and senior lecturers have moved from 46 per cent in 1965, to a current proportion of 62 per cent. Once again, this increase is offset by a decline in the proportion of the most junior staff, namely, lecturers, whose representation has fallen from nearly two-fifths to one-quarter. Indeed, there are now fewer lecturers than in any year since 1970. In terms of both age and rank, then, the University is becoming top-heavy, with increasingly older staff at each level, and a decreasing proportion of staff at the most junior tenured levels.

3. Appointment and Promotion

3.1 Recruitment

Table 3.1 presents the proportionate distributions by rank of new tenured staff in the Institute and The Faculties in the four five-year periods to the end of April 1982. Once having entered the University, staff can attain certain ranks by promotion; in the Institute a fellow may be promoted to senior fellow and, in The Faculties, a lecturer may be promoted to senior lecturer who may in turn be promoted to the rank of reader. The table thus includes positions filled by promotion as well as appointment to an advertised position.

Table 3.1 — Distribution by Rank of Appointments and Promotions

	1962-67	1967-72	1972-77	1977-82
IAS				
Professor	14	18	19	24
Professorial Fellow	18	14	14	17
Senior Fellow				
Appointment	18	17	15	10
Promotion	16	17	18	28
Fellow	34	34	34	21
	100 (141)	100 (152)	100 (132)	100 (89)
Number of appointments	119	126	109	64
FACULTIES				
Professor	11	7	8	8
Reader				
Appointment	4	4	2	3
Promotion	11	11	15	15
Senior Lecturer				
Appointment	16	13	14	9
Promotion	18	29	23	25
Lecturer	40	36	38	40
	100 (173)	100 (217)	100 (192)	100 (118)
Number of appointments	123	131	120	70

Until five years ago there was little change in the distribution of new positions filled in the Institute. Fellowships and senior fellowships each accounted for about one-third and the remaining third was split between the levels of professor and professorial fellow. Approximately half of the new senior fellows had filled newly advertised positions, and half had been promoted from the rank of fellow.

The most recent five-year period has seen a sharp decline in the total number of appointments, but no change in the number of appointments at the rank of professor, or the number of promotions to senior fellow. This has meant a proportionate increase in new professors and (promoted) senior fellows, and a corresponding decrease, both numerically and proportionally, in new fellows, who recently comprised only one-fifth of new Institute staff.

In The Faculties there has been little change in the overall rank distribution of new staff, this distribution being maintained to the present even with the recent sharp decline in the number of new appointees. Lecturers have made up two-fifths of appointments and senior lecturers one third, with the remainder going to readers and professors in the ratio of two to one. Change has occurred, however, in the source of senior lecturers. During the period 1962-67 about half the new senior lectureships

were filled by open advertisement and half by promotion, but the rank tends now to be more a promotional one, with only one quarter of recently created senior lecturers being appointed through advertisement. In contrast, the position of reader has been largely a promotional rank for the last twenty years.

It is of interest to examine the timing of promotion in relation to appointment in the University. Table 3.2 was constructed to this end, and shows the percentage of staff who had been promoted according to the calendar period and the duration of time since achieving a particular level.¹⁰

Table 3.2 — Percentages of Staff Promoted by Completed Years Since Appointment and Period of Appointment

IAS	FELLOW					
	1962-67	1967-72	1972-82			
Duration (Years)						
0	0	0	0			
1	0	0	0			
2	13	4	0			
3	28	11	8			
4	50	24	8			
5	61	38	19			
6	70	47	31			
7	73	61	34			
8	73	61	46			
9	73	68				
10	73	71				
15	85					
FACULTIES	LECTURER			SENIOR LECTURER		
	1962-67	1967-72	1972-82	1962-67	1967-72	1972-82
Duration (Years)						
0	0	0	0	0	0	0
1	0	0	1	0	2	0
2	9	4	8	2	2	0
3	18	11	14	4	5	5
4	27	21	19	10	12	5
5	45	28	27	17	15	8
6	56	35	33	27	15	8
7	67	45	33	35	21	12
8	77	61	41	38	30	19
9	80	70		47	35	25
10	85	72		47	38	
15	94			57		

Promotion from fellow to senior fellow used to be quite rapid, but this is no longer the case. For example, fully half the fellows appointed during the 1962-67 period had been promoted within five years' service, as compared with fewer than one-quarter of those appointed during 1967-72 and one-tenth of those appointed over the last decade. After ten years nearly three-quarters of the 1962-67 and 1967-72 appointees had been promoted, indicating similar ultimate promotion levels but different timing for the two groups, with promotions of the first group concentrated in the first five years of service but promotions of the second group tending to take longer.

Too few 1972-82 appointees have been in the Institute sufficiently long to say what proportion will have been promoted by ten years duration. Nevertheless, comparison across shorter durations with earlier appointees suggests that the most recent appointees will not catch up to the promotion levels of earlier appointees, and that fewer will ultimately be promoted. For example, after eight years fewer than half had

been promoted, while three-fifths of the 1967-72 appointees and three-quarters of the 1962-67 appointees had been promoted within the same duration.

Ultimately, lecturers have slightly higher promotion rates than fellows, although promotion comes later in their careers. After ten years 85 per cent of 1962-67 appointees had been promoted, and nearly three-quarters of 1967-72 appointees. Most promotions occurred after five years in the University. Year for year, lecturers appointed during the 1967-72 period were less likely to have been promoted than were earlier entrants, but for the first six years their promotion patterns were similar to those of the most recent appointees. After six years one-third of people appointed after April 1972 had been promoted, but it is not yet clear whether the promotion levels of these recent appointees will keep pace with those of the 1967-72 appointees.

Senior lecturers have the lowest promotion rates: only three-fifths of those who first became senior lecturers during the 1962-67 period attained a readership within 15 years. By five years duration, 17 per cent of the 1962-67 appointees and 15 per cent of the 1967-72 group, but only 8 per cent of the 1972-82 group, had been promoted. By eight years the proportions had risen to 38, 30 and 19 per cent respectively, which are in each case approximately half the percentages of lecturers promoted within the same duration.

Table 3.3 — Percentages of Staff Reappointed by Completed Years Since First Appointment and Period of Appointment

IAS	PROFESSORIAL FELLOW			SENIOR FELLOW		
	1962-67	1967-72	1972-82	1962-67	1967-72	1972-82
Duration (Years)						
0	0	0	0	0	0	0
1	4	0	0	2	2	0
2	4	0	3	4	6	0
3	8	0	7	9	8	0
4	12	0	7	2	11	4
5	25	0	13	14	13	8
6	25	6	13	23	18	10
7	25	12	26	34	18	13
8	31	12	26	40	20	13
9	31	12		43	20	19
10	31	18		46	23	
15	37			56		
FACULTIES						
Duration (Years)	READER					
	1962-67	1967-72	1972-82			
0	0	0	0			
1	4	0	0			
2	12	0	0			
3	17	3	3			
4	17	7	3			
5	17	7	3			
6	23	7	7			
7	29	11	19			
8	29	16				
9	35	16				
10	35	16				
15	35					

Once in the University staff members may not only apply for promotion, but are free to compete with people from outside the University for advertised positions.

Table 3.3 shows the proportions of staff appointed in various periods who had won another tenured appointment according to elapsed time since appointment. Professors are not included in the table as very few, and none appointed since 1972, have resigned to take up another tenured position within the University. In addition, fellows, lecturers and senior lecturers are not included as movement from these ranks is dominated by promotion rather than re-appointment.

After five years one quarter of the professorial fellows appointed between 1962 and 1967 had found a new position in the University. If they had not done so by five years, however, they were unlikely to find a new position thereafter. It was rarer for professorial fellows appointed after 1967 to take up a new position. In contrast, senior fellows appointed between 1962 and 1967 were less likely to find a new position within five years of first holding their appointments but more likely to do so at longer durations. Thus, while only 14 per cent had been re-appointed after five years, nearly half had taken up a new position by the time ten years had elapsed. Senior fellows appointed since 1967 were less likely to move to another tenured position, and only one-fifth had done so within ten years.

Readers are more fixed in their positions than senior fellows; there are, of course, fewer openings at a more senior level than for the more junior rank. The pattern of re-appointment of readers is indeed not dissimilar to that of professorial fellows.

Table 3.4 — Percentage Age Distribution of Appointees

		PERIOD			
		1962-67	1967-72	1972-77	1977-82
IAS					
25-29		9	7	4	2
30-34		20	28	27	22
35-39		34	26	25	19
40-44		17	21	15	22
45-49		15	10	15	20
50-54		1	6	7	13
55-59		3	—	5	3
60-64		1	2	2	—
AVERAGE AGE		38.9	38.6	40.6*	41.8
(N)		(119)	(126)	(109)	(64)
FACULTIES					
25-29		33	47	33	17
30-34		24	24	33	36
35-39		15	12	19	23
40-44		15	8	9	6
45-49		8	2	3	11
50-54		4	4	2	6
55-59		1	2	1	—
60-64		—	—	—	1
AVERAGE AGE		35.2	33.0	33.7	36.5*
(N)		(123)	(131)	(120)	(70)

* Significantly older than mean age of entrants during previous quinquennium:
IAS $p = .025$, FACULTIES $p = .01$.

3.2 Age at Appointment

Table 3.4 presents percentage age distributions of appointees to the Institute and The Faculties over the four quinquennia ending at the 30th of April 1982. Appointees

to tenured positions have always been older in the Institute than The Faculties, but similar trends in the ages of appointees are discernible in both halves of the University. Institute staff appointed between 1967 and 1972 were very slightly younger than those appointed between 1962 and 1967, while new staff in The Faculties were noticeably younger, with 71 per cent younger than 35 years in the second period as against 57 per cent in the first. Since the early 1970s, however, age at appointment began to increase; and there is a marked difference between the 1972-77 and 1977-82 entry cohorts, particularly in The Faculties. Perhaps one of the more striking indicators is the proportion of appointments of staff aged 45 and above: in the Institute this stood at 20 per cent and 18 per cent in the first two periods and then rose to 29 per cent and, most recently 36 per cent; while in The Faculties, comparable proportions were 13, 8, 6 and 18 per cent. Looking at average ages of appointment it appears that the primary change occurred in the Institute between the periods 1967-72 and 1972-77, with significantly older appointees in the latter period; and more recently in The Faculties between 1972-77 and 1977-82.

Table 3.5 — Average Ages at Appointment or Promotion

	PERIOD			
	1962-67	1967-72	1972-77	1977-82
IAS				
Professor	46.2	45.0	48.5	44.3
Professorial Fellow	41.3	42.3	43.9	46.0
Senior Fellow				
Appointment	38.3	37.9	41.6	43.8
Promotion	38.1	35.6	38.5	41.8
Total	38.2	36.8	40.0	42.2
Fellow	34.8	34.0	34.3	34.8
FACULTIES				
Professor	42.1	44.0	42.9	48.2
Reader				
Appointment	46.2	36.9	34.9	40.1
Promotion	39.4	40.9	42.4	40.7
Total	41.2	39.8	41.4	40.6
Senior Lecturer				
Appointment	37.4	35.4	34.1	36.5
Promotion	35.5	36.2	35.8	37.6
Total	36.4	35.9	35.1	37.3
Lecturer	31.2	29.5	31.5	34.0

Table 3.5 presents average ages at appointment and, where applicable, at promotion to various ranks. While there has been little change in the average age at which fellows are appointed to the Institute, ages at appointment of professorial fellows and senior fellows have been increasing and those of professors have recently declined. The increase in the average age at appointment between 1967-72 and 1972-77, shown in Table 3.4, was caused by an increase in the ages at appointment of all ranks except fellow; while the increase between 1972-77 and 1977-82 would have been even greater but for the number (see Table 3.1) and relative youth of new professors.

The rank of senior fellow can be attained not only by appointment but also, and more commonly, by promotion. For the last fifteen years the average age at promotion to senior fellow has been two or three years younger than the average age at appointment to this rank.

A somewhat different picture appears in The Faculties. At all ranks the average age at appointment in 1977-82 exceeded that at 1972-77, and the increase is parti-

cularly notable at the rank of professor. As the allocation of appointments to different ranks has been more constant in The Faculties than the Institute, the recent increase in the age at appointment of each rank is clearly mirrored in an overall increase in the average age at appointment.

Over the four five-year periods under examination it was rather more common to be promoted than appointed to the level of senior lecturer. For the last fifteen years staff promoted to this rank have tended to be about one year older than new appointees.

3.3 Sources of Recruitment

Figure 3.1 depicts the annual number of appointments to the Institute between the 1st of May of the year marked on the axis and the 30th of April in the following year, cumulated according to source. Annual variations are marked, with peak appointment years closely followed by troughs. Table 3.6 presents a finer decomposition according to previous place of employment of staff appointed to the Institute over five-year periods.

Table 3.6 — Previous Place of Employment of Appointees

IAS	PERIOD							
	1962-67		1967-72		1972-77		1977-82	
ANU: Tenured	27		21		21		30	
Non-Tenured	28	55	32	53	42	63	33	63
ELSEWHERE IN AUSTRALIA:								
University	12		13		11		22	
Government	4		6		—		—	
Other	2	18	1	20	—	11	2	23
OVERSEAS:								
British University	8		11		11		5	
British Government	4		3		—		3	
American University	3		2		6		3	
Other University	6		5		4		2	
Other	2	22	4	25	5	25	—	12
FIRST APPOINTMENT		2		—		—		—
UNKNOWN		3		2		1		2
(N)		100		100		100		100
		(119)		(126)		(109)		(64)

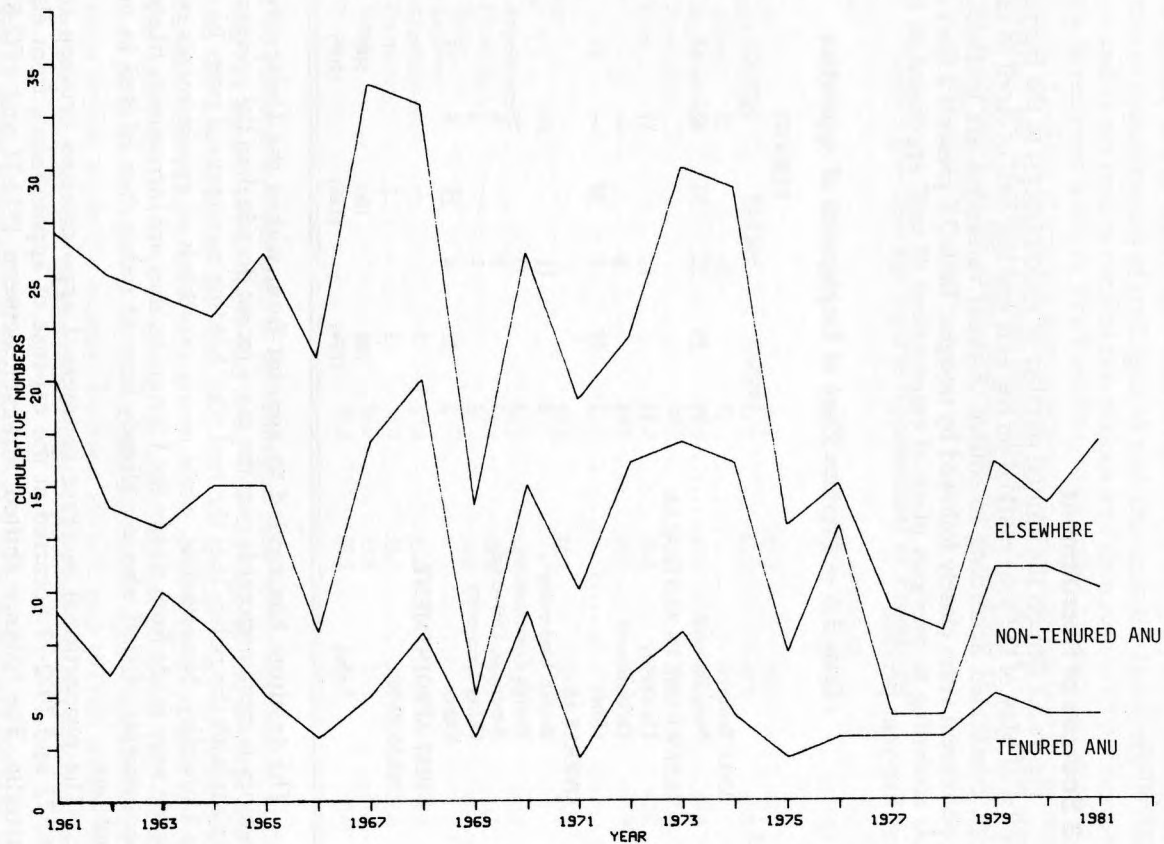
The Institute has tended to appoint from within the University, and this tendency is more noticeable over the more recent decade than the previous one. This accords with the policy that the best staff holding non-tenured posts be retained in the University. Nevertheless, while nearly two-thirds of appointments over the last decade were made from within the University, they are increasingly likely to be new appointments of staff who are already tenured rather than of staff in non-tenured positions.

The proportional increase in internal appointments between the periods 1967-72 and 1972-77 occurred at the expense of appointments from elsewhere in Australia. The balance shifted, however, between 1972-77 and 1977-82, with an increase in such appointments and a decrease in appointments from overseas. Almost no appointees have come to the Institute immediately after obtaining their highest degree.

Figure 3.2 and Table 3.7 present comparable information for The Faculties. It is clear from the figure, that in the past The Faculties tended to recruit new staff from outside the University and that the reduction in the number of annual appointments has been made at the expense of outsiders. The proportion of internal appointments

FIGURE 3.1

APPOINTMENTS ACCORDING TO SOURCE - IAS



has been increasing over the last two decades and, as in the Institute, the proportion of appointments from elsewhere in Australia increased markedly between 1972-77 and 1977-82. Perhaps the most striking feature of the table is the halving of the proportion of overseas appointments between the two most recent five-year periods, once again a feature also of appointments to the Institute. Unlike the Institute, however, a considerable proportion of Faculty appointments used to be first appointments, but this is becoming rarer as the number of advertised posts decreases and competition becomes more intense.

Table 3.7 — Previous Place of Employment of Appointees

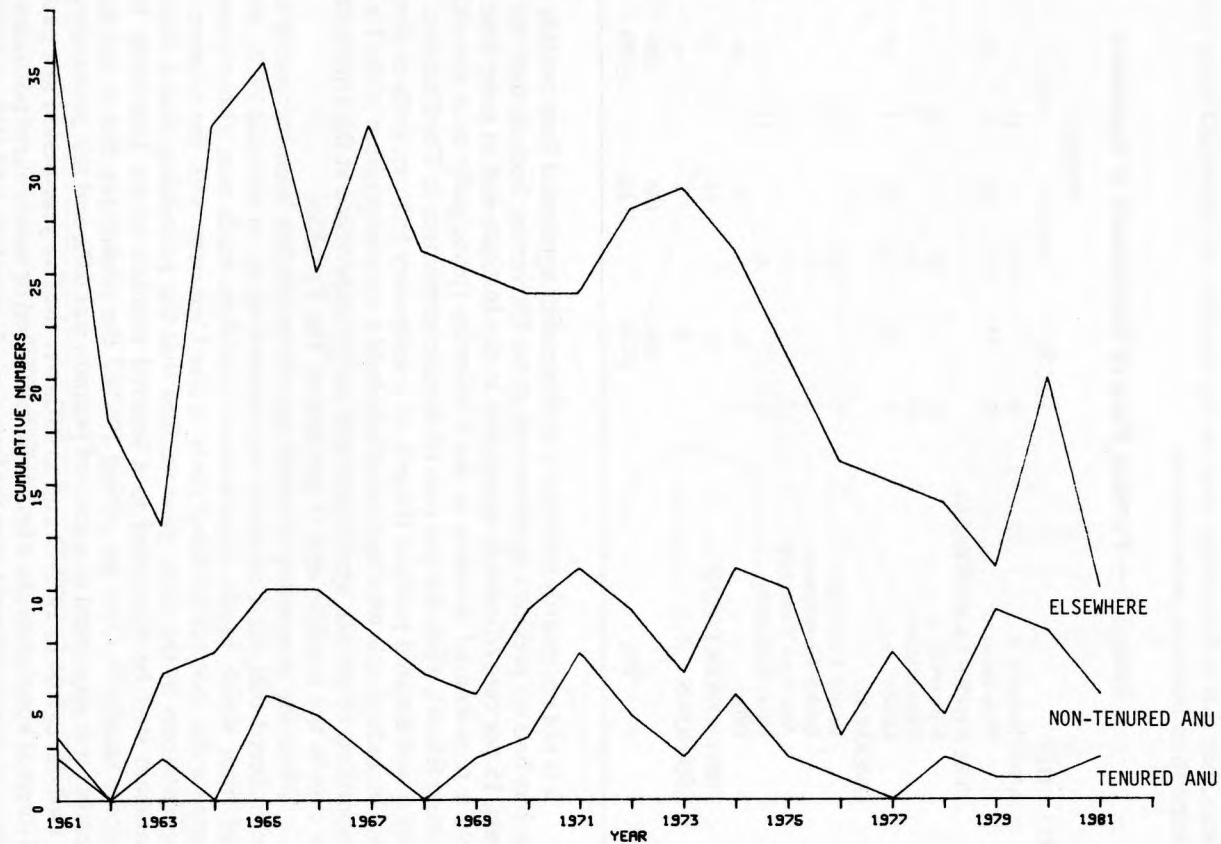
FACULTIES	PERIOD							
	1962-67		1967-72		1972-77		1977-82	
ANU: Tenured	9		11		12		9	
Non-Tenured	18	27	19	30	21	33	38	47
ELSEWHERE IN AUSTRALIA:								
University	15		18		14		16	
Government	12		4		2		9	
Other	1	28	2	23	1	17	4	29
OVERSEAS:								
British University	5		11		13		6	
British Government	2		1		1		3	
American University	7		13		11		4	
Other University	11		6		13		1	
Other	2	25	5	35	4	41	4	19
FIRST APPOINTMENT	11		11		9		4	
UNKNOWN	9		1		—		1	
(N)	100		100		100		100	
	(123)		(131)		(120)		(70)	

It is not necessarily true that a staff member appointed from outside the University has had no previous appointment at the University. Indeed, over the last twenty years, 15 per cent of outside appointees to the Institute had at some time in the past held a non-tenured position in the University (principally as a research fellow or visiting fellow), while ten per cent of outside appointees to The Faculties had earlier held a non-tenured position (largely as a temporary lecturer, tutor or demonstrator). If we include people who had previously held a tenured position in the University, the proportions of outside appointees with earlier experience at the University rise to 20 per cent in the Institute and 11 per cent in The Faculties.

While the proportion of inside appointments has been increasing it should be remembered that the University was expanding up to the mid-1970s, and thus the pool from which inside appointments could be made was also expanding. If we compare the number of filled posts in the University with the number of internal appointments in the same year we find that the probability that a member of the academic staff be appointed to a tenured position in the University has actually become smaller.¹¹ Over the period 1962-67 the probability that a non-tenured staff member was appointed to a tenured position was 0.09, and this probability fell to 0.06 in 1967-72, to 0.04 in 1972-77 and to 0.03 over the five-year period just passed. Taking all internal appointments, whether from tenured or non-tenured positions, the probabilities of re-appointment over the four periods were 0.05, 0.03, 0.03 and 0.02. From the point of view of appointments, then, it is increasingly common for staff to be drawn from within the University; but from the point of view of the staff pool it is becoming progressively less likely that a non-tenured member of staff be retained in a tenured position, or that a tenured member of staff be appointed to a new tenured position.

FIGURE 3.2

APPOINTMENTS ACCORDING TO SOURCE - FACULTIES



3.4 Other Characteristics of Appointees

Over the last two decades new staff have been likely to have been not only older but more highly qualified. The first line of Table 3.8 presents the percentages of new staff who held a doctorate at the time of first appointment to the Institute or the Faculties.¹² Since the period 1967-72 about nine-tenths of staff entering the Institute have held a doctorate. Over the four appointment periods the proportion of new Faculty staff already possessing a doctorate rose from one-half to three-quarters, a greater increase than in the Institute and one which brought the qualifications of new Faculty staff in 1977-82 up to the level of new Institute staff over the period 1962-67.

Another difference between the two halves of the University lies in the proportion of staff who earned their highest degree after taking up a tenured appointment. Very few Institute staff fell into this group, and the proportions holding a doctorate at appointment are thus quite similar to the proportions who ultimately earned a doctorate. In The Faculties, however, as many as one quarter of staff who entered during the 1962-67 period had not yet earned their highest degree, in almost every case this being a PhD from the Australian National University.¹³ Since then it has become increasingly less common for such appointments to be made. Taking into account degrees earned after appointment we see that staff who entered The Faculties in 1962-67 were ultimately as well-qualified as ones who entered in 1977-82, but they had, of course, an extra fifteen to twenty years in which to earn their degrees.

Table 3.8 — Academic Qualifications of Appointees

	IAS PERIOD OF APPOINTMENT				FACULTIES PERIOD OF APPOINTMENT			
	1962-67	1967-72	1972-77	1977-82	1962-67	1967-72	1972-77	1977-82
Percentage with Doctorate at Appointment	77	89	95	92	52	58	61	74
Highest Degree Ever Earned								
Doctorate	81	91	97	92	74	70	67	76
Masters	9	6	3	4	18	15	23	17
Other	10	3	—	4	8	15	10	7
Appointment before Obtaining Highest Degree	4	2	1	2	24	14	6	2
Time between Earning Highest Degree and Appointment								
0-4 years	33	37	29	10	42	60	56	47
5-9 years	30	32	33	37	17	12	22	38
10-14 years	18	18	14	21	7	9	7	6
15-19 years	7	7	8	15	7	3	6	3
20+ years	8	4	15	15	3	2	3	4
Highest Degree from:								
ANU	18	19	22	19	28	27	13	24
Elsewhere in Australia	21	22	15	21	16	24	21	15
UK	42	44	33	42	27	30	29	21
USA	12	9	20	14	15	12	26	26
Other	7	6	10	4	14	7	11	14
(N)	(97)	(103)	(86)	(48)	(116)	(120)	(109)	(66)

In addition there is now a greater lag between earning a highest degree and being appointed to a tenured position for the first time. Over two-thirds of people appointed to the Institute between 1962 and 1972 had obtained their highest degree fewer than ten years beforehand, the majority fewer than five years, but this figure dropped to one-half among entrants of 1977-82. Over the last three quinquennia the proportion who obtained their highest degree more than 15 years before appointment rose from ten per cent to 30 per cent.

A similar lag is now discernible also in The Faculties. Not only is it very rare now for an appointment to be made before the highest degree has been obtained¹⁴, but it is also harder to obtain a tenured post very soon after graduating. For example, the proportion of entrants who had held their highest degree for at least five years increased from nearly two-fifths over the appointment period 1972-77 to one half over the period 1977-82.

Over the last two decades about two-fifths each of new Institute staff have held highest degrees from Australian or British universities, Australian degrees being fairly evenly split between the ANU and other universities. The representation of American degrees increased over the period 1972-77 to the detriment of British degrees.

As in the Institute, about two-fifths of the highest degrees ultimately earned by Faculty staff were obtained in Australia. The Faculties, however, exhibit a different balance between the sources of non-Australian degrees: holders of British degrees were less common than in the Institute and have fallen to one-fifth of recent appointments, while holders of American degrees have grown to one-quarter of entrants. In addition, a significant number of appointees hold degrees from institutions outside Australia, Britain and America, notably Europe and, to a lesser extent, New Zealand and Canada.

While the proportion of appointees ultimately holding an ANU doctorate has not varied much over the years, the total number of appointments has been declining since the 1967-72 period while the number of doctorates conferred by the University has increased. Only 72 doctorates had been conferred by the University by the end of 1960, but a further 564 were conferred to the middle of 1970, and 1,082 more over the next decade.¹⁵ A rough indication of the propensity for ANU doctoral graduates to be appointed to tenured positions can be reached by relating the number of such appointments to the number of PhDs conferred by the end of the appointment period.¹⁶ This gives ratios of 13 per cent for the 1962-67 period, six per cent for 1967-72 and two per cent for 1972-77.

There have also been changes in the composition by birthplace of appointees to tenured positions, as presented in Table 3.9. In the Institute close to one-half were Australian-born up to 1977, since when there has been a slight increase. British-born have remained steady at one-fifth and New Zealanders at one-tenth. There has been an increase in the representation of Americans¹⁷, and a decrease in new staff from countries other than the ones listed, principally South Asia and South Africa.

Only minor variations from this picture appear in The Faculties. The representation of the British-born has declined recently, while that of New Zealanders declined somewhat earlier. Even given the expansion of the pool of qualified Australians it appears that the end of growth has contracted the sources of recruitment, to the advantage of Australians and the detriment of people born outside the countries listed on the table.

Few women enter the University in tenured positions. Over the four recruitment periods only four per cent of new Institute staff, and ten per cent of Faculty staff, were females. The higher representation of women in The Faculties may reflect the acceptance of teaching as a suitable profession for women. There has been a slight increase in the representation of women in The Faculties, but not in the Institute.

Table 3.9 — Birthplace of Staff Entering in Various Periods

	PERIOD			
	1962-67	1967-72	1972-77	1977-82
IAS				
Australia	45	49	43	55
Britain	21	24	20	19
N.Z.	10	8	6	9
U.S.A.	3	2	10	6
Canada	—	1	1	—
Europe	13	6	9	8
Other	8	10	10	3
	100 (119)	100 (126)	100 (109)	100 (64)
FACULTIES				
Australia	45	56	44	57
Britain	24	22	23	16
N.Z.	8	3	2	4
U.S.A.	2	5	8	9
Canada	—	2	1	—
Europe	9	8	8	9
Other	12	4	14	5
	100 (123)	100 (131)	100 (120)	100 (70)

These findings are not totally unexpected, given the pool from which appointments are made. Taking as an indicator the proportion of doctorates conferred on women over approximately the same periods we find that the proportion of Faculty appointees who were women has kept pace with the proportion of doctorates which were awarded to women. By comparison there were few women appointed to the Institute over the last twenty years.

Table 3.10 — Appointments of Women

	PERIOD			
	1962-67	1967-72	1972-77	1977-82
Percentage of Tenured Appointments to Women in the:				
IAS	4 (5)	4 (5)	4 (4)	2 (1)
FACULTIES	8 (10)	10 (13)	10 (12)	13 (9)
Proportion of Doctorates to Women from				
ANU	9 (18)	11† (33)	11 (65)	18† (88)
All Australian Universities	8 (99)	8 (238)	11 (436)	15†† (392)

Sources: Annual Reports of the Australian National University and *University Statistics*, Australian Bureau of Statistics, Canberra; various years.

† based on data for 4 years

†† based on data for 3 years

A recent article based on the 1977 calendars of all Australian universities reports a preference for overseas degrees and overseas staff, and an underemployment of women¹⁸. Since no doctorates were awarded in Australia until after the Second World War, however, it has naturally taken some time to establish a pool of Australians with Australian doctorates. Considering the size of the pool of qualified people outside the country, Australians, or holders of Australian qualifications, do not appear to be as disadvantaged as the article suggests. In addition, Australia is a country of immigration, and many overseas-born staff have made a permanent home in this country.

4. Retirement and Resignation

We have already taken a brief look at departures from the University in the introduction to this report (see Table 1.2). To recapitulate, the proportion of departures due to resignation (whether to take up a new tenured position or to leave the University entirely) has recently declined, while the proportion due to retirements first reached one-quarter in the Institute over the period 1972-77 and in The Faculties over the period 1977-82. Over the last five years there were on average ten departures annually from the Institute, three to take up a new position, three to leave the University and four to retire. Over the last five years in The Faculties the annual average of fourteen departures was composed of one or two to take up a new position, eight or nine to leave the University, and four to retire.

Figures 4.1 and 4.2 plot the percentage of tenured staff in the Institute and The Faculties at the 30th of April each year who resigned outright or retired over the succeeding twelve-month period. The top line of the graphs therefore gives the proportion lost through both causes, ignoring resignation to take up a new tenured position. The annual proportion resigning from the Institute reached a peak of six per cent in the late 1960s and a minor peak of three per cent in the mid-1970s. It now stands at only half of one per cent. The annual proportion retiring now stands at one per cent, having been between one and three per cent since the mid 1970s; and the impact of these retirements can be seen in the concomitant increase in the weight of new appointments to replace retiring professors (see Table 3.1).

On the other hand, the annual proportion resigning outright from The Faculties has not fallen below two per cent since 1964, and in four years since then exceeded four per cent. The proportion retiring reached one per cent for the first time in 1978, and now stands at 1.5 per cent. With resignations at 2.5 per cent, overall turnover is greater in The Faculties than the Institute, and principally because of losses through resignation.

Table 4.1 presents the proportions of staff entering in various periods who resigned outright after completing a certain number of years in the University. Professors appointed in the earlier period were slow to resign from the Institute, with only one-tenth resigning after nine years, although one-fifth of more recent appointees had resigned by this duration. Professorial fellows were somewhat more likely to resign, with one-fifth of the earlier appointees resigning within ten years, but recent appointees may not reach this level. Resignations among senior fellows and fellows appointed in the earlier period were considerably more common, with 17 and 15 per cent respectively having left by the end of four years, and 24 and 30 per cent by the end of nine years. More recent appointees, however, appear to have been loth to move; none resigned within five years, and only 12 per cent of senior fellows and 9 per cent of fellows left within nine years of being appointed. If a resignation indicates that a better position has been found outside the Institute then it is clear that opportunities for such advancement are becoming rarer.

Professors appointed to The Faculties in the earlier period resigned at a greater rate than their counterparts in the Institute, and over one-quarter were gone by the end of nine years. More recent appointees, however, have tended to stay.

Readers have been the fastest to resign from The Faculties, with one-fifth gone by the end of four years and two-fifths by the end of nine years. This trend has continued with recent appointees who were, in fact, initially more prone to resign than the earlier appointees, probably finding chairs in other universities. Senior lecturers appointed in the earlier period display a similar resignation pattern to new

FIGURE 4.1

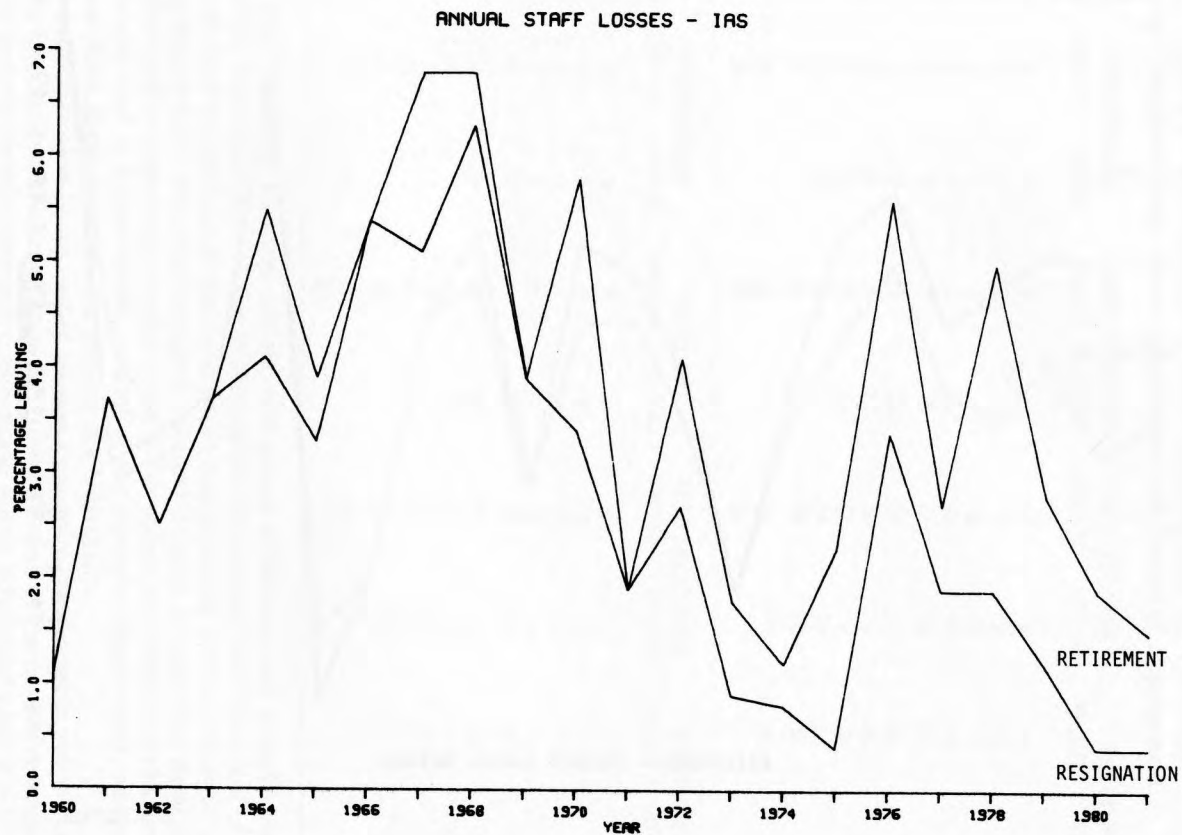
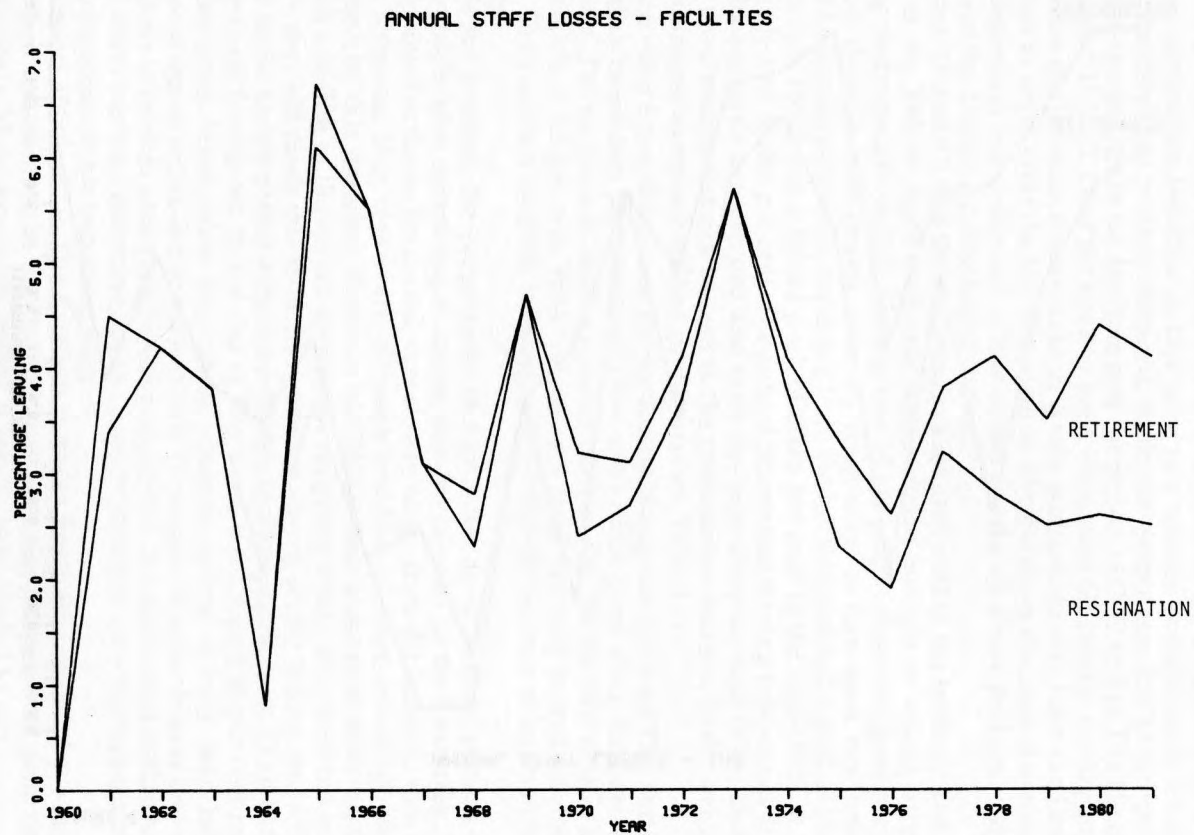


FIGURE 4.2



senior fellows of the same period: one-quarter had resigned by the end of nine years. More recent appointees, however, were more likely to resign within the first five years of appointment than were senior fellows. By nine years, however, the proportion who had resigned, at 17 per cent, resembled the level for senior fellows and indicated a smaller propensity to resign than that of earlier senior lecturers.

Table 4.1 — Percentages of Staff Resigning from the University by Completed Years Since Appointment and Period of Appointment

IAS Duration (Years)	PROFESSOR		PROF. FELLOW		SEN. FELLOW		FELLOW	
	1962-72	1972-82	1962-72	1972-82	1962-72	1972-82	1962-72	1972-82
0	0	0	0	0	0	0	0	0
1	2	0	0	0	5	0	3	0
2	4	3	2	0	6	0	7	0
3	6	3	2	8	14	0	14	0
4	6	6	9	8	17	0	15	0
5	9	9	19	13	22	2	26	5
6	11	19	19	13	22	8	26	5
7	11	19	21	13	23	8	26	9
8	11	19	21		24	12	30	9
9	11		21		24	18	30	
10	14		24		26		30	
15	20		28		26			
FACUL- TIES Duration (Years)	PROFESSOR		READER		SEN. LECTURER		LECTURER	
	1962-72	1972-82	1962-72	1972-82	1962-72	1972-82	1962-72	1972-82
0	0	0	0	0	0	0	0	0
1	0	0	4	8	2	2	0	3
2	0	0	7	14	6	4	2	4
3	3	0	16	21	8	5	6	12
4	11	0	8	23	13	10	11	17
5	11	0	28	26	18	12	16	20
6	14	7	32	29	21	17	17	29
7	7	7	34	29	23	17	19	31
8	27		36		24	17	19	31
9	27		39		25	17	21	31
10	31		41		26		21	
15	31		41		29			

In The Faculties, lecturers are the one group which appears to have become more mobile. After four years 11 per cent of earlier appointees but 17 per cent of more recent ones had resigned, and the differential continues up to nine years at which point the proportions who had resigned reached 21 and 31 per cent respectively. Clearly there still are openings at other universities which are attractive to lecturers, if not to Faculty staff at higher levels, or staff of the Institute. Rather than waiting for promotion, then, these lecturers are leaving the University.

We have also seen in an earlier section that quite considerable proportions of staff in the University have been promoted from one rank to the next or re-appointed to another tenured position through competition for an advertised post. It is instructive, therefore, to look at continuous careers within the University, that is, to ignore movements within the University after the initial appointment (promotion or re-appointment), and tabulate only departures from the University (resignation or retirement). Such tabulations must therefore ignore rank. Table 4.2 indicates the attrition of staff according to period of initial appointment by displaying the percentage of each entry cohort still in the University after a fixed number of years.

**Table 4.2 — Percentages of Tenured Staff Still at ANU
According to Period of Initial Appointment and Duration Since Initial Appointment**

Duration (Years)	IAS				FACULTIES			
	1962-67	Period of Appointment		1977-82	1962-67	Period of Appointment		1977-82
		1967-72	1972-77			1967-72	1972-77	
0	100	100	100	100	100	100	100	100
1	98	96	100	100	100	100	97	100
2	96	92	99	97	100	97	95	98
3	91	90	99	97	93	93	90	93
4	87	87	98	97	90	86	86	78
5	78	80	91		86	80	84	
6	71	78	85		81	78	76	
7	66	77	83		79	73	72	
8	65	75	83		76	69	70	
9	63	75	83		75	68	68	
10	60	72	83		71	63		
11	58	70			70	62		
12	55	69			68	59		
13	55	64			67	59		
14	53	60			66	59		
15	53	60			62	59		
16	52				61			
17	52				59			
18	50				57			
19	50				54			

Staff are not leaving the Institute as readily as they once did. 87 per cent of staff who were initially appointed between 1962 and 1972, but 97 per cent of staff appointed between 1972 and 1982, were still in the University after four years. After nine years there were still 63 per cent of appointees of 1962-67, but 75 per cent of appointees of 1967-72 and 83 per cent of appointees of 1972-77. The trend persists at the longest duration at which a comparison can be made, with 53 per cent remaining of the 1962-67 appointees at the end of 15 years, and 60 per cent of the 1967-72 appointees.

The Faculties exhibit a different picture, in terms of both overall attrition and changes between appointment periods. Staff first appointed over 1962-67 were less likely to leave than were their counter-parts in the Institute and, indeed, display a similar attrition pattern to Institute appointees of 1967-72 where 90 per cent remained after four years, 75 per cent after nine and 66 per cent after 14 years. Staff appointed during 1967-72 were somewhat more likely to leave the University, but after 15 years were represented in the University in much the same proportion as the earlier entrants (three-fifths). The attrition pattern of appointees of 1972-77 being similar to that of appointees of 1967-72, there is little to distinguish the patterns of appointees to The Faculties up to April 1977. The proportions of the most recent appointees still in the University up to three years resemble those of earlier entrants. It is too soon to say how much weight should be given to The Faculties staff who left after three years, who bring down the proportion still here after four years to 78 per cent.¹⁹

As would be expected from earlier discussions, staff are less likely to leave the Institute than The Faculties, notwithstanding older average ages at appointment in the Institute and hence shorter times to retirement. The differences reflect not only higher resignation rates from The Faculties but also lower rates of re-appointment. In other words, once having gained a tenured position, a member of the Institute is less likely to find a more attractive position elsewhere, and hence to resign, than is someone in The Faculties; but, in contrast, more likely to find a superior position within the Institute itself.

Table 4.3 — Percentage Age Distribution of People Leaving

IAS	PERIOD			
	1962-67	1967-72	1972-77	1977-82
25-29	—	—	—	—
30-34	6	10	8	2
35-39	38	21	14	7
40-44	27	29	14	24
45-49	8	13	20	17
50-54	8	13	11	12
55-59	6	4	9	11
60-65	8	10	26	37
AVERAGE AGE	43.8	45.2	50.2*	52.5
(N)	(64)	(82)	(66)	(54)
FACULTIES				
25-29	8	12	13	4
30-34	27	19	26	18
35-39	27	25	18	21
40-44	19	11	14	14
45-49	13	9	10	8
50-54	—	12	7	3
55-59	2	7	3	10
60-65	4	5	10	23
AVERAGE AGE	39.2	41.4	40.6	46.1*
(N)	(48)	(57)	(72)	(73)

* Significantly older than mean age at departure during previous quinquennium:
IAS $p = .01$, FAC $p = .01$.

Table 4.3 presents the percentage age distributions of all people leaving tenured posts in the Institute and The Faculties over various periods. The increasingly important role of retirements is mirrored in the progressively higher ages at which staff left the University. Between 1967-72 and 1972-77 the modal age of departure from the Institute shifted from 40-44 to 60-65 years and the mean age increased from 45 to 50 years. A similar development occurred in The Faculties between 1972-77 and 1978-82, when the modal exit age jumped from 30-34 to 60-65 years, and the mean age increased from 41 to 46 years. In both the Institute and The Faculties the increases in the age at departure were concomitant with increases in the age at appointment.

As long ago as 1964 the opportunity to retire after the age of 60, rather than waiting until the end of the year in which one turned 65, was extended to apply not only to professors but also to non-professorial academic staff. In 1976 a policy was adopted of reminding staff after their sixtieth birthday of the option of early retirement. Table 4.4 demonstrates that relatively few people have taken up this opportunity, although rather more have done so in The Faculties than in the Institute. Nevertheless, some of the early retirements shown in the table were medical retirements.

Table 4.4 — Age at Retirement from ANU

IAS	PERIOD			
	1962-67	1967-72	1972-77	1977-82
-49	1	—	—	—
50-54	—	1	—	—
55-59	—	1	—	2
60	—	—	—	2
61	—	—	1	2
62	—	—	—	—
63	—	1	—	1
64	1	1	—	—
65	1	5	16	14
(N)	(3)	(9)	(17)	(21)
FACULTIES				
-49	—	—	—	1
50-54	—	1	—	—
55-59	—	—	—	3
60	—	—	4	1
61	—	1	—	3
62	—	—	—	—
63	—	—	—	1
64	—	—	—	1
65	1	2	3	10
(N)	(1)	(4)	(7)	(20)

5. The Future

5.1 Introduction

The University is no longer growing and, with the end of growth, the annual number of tenured appointments is being determined essentially by the number of resignations and retirements. Resignations are on the whole less common than formerly, and departures from the University are coming to be dominated by retirements. Ages at appointment are increasing and, at the same time, staff already in the University are ageing.

That such trends have serious implications for the future have been recognised for some time. To quote one recent commentator²⁰:

'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.'

To address this question we have projected the University into the future under a number of assumptions²¹. The projections assume that the University had reached a constant size by August 1982 and, apart from minor variations in some projections, will neither grow nor shrink in subsequent years. This implies that a new appointment can be made only when a position falls vacant. Such vacancies are created in the models by resignation 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 present models take as their starting-point the current population of the University. Each member of staff is followed until he 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 in this way a replacement is simulated by reference to recent rank-specific distributions of ages 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, while other ranks are replaced, with some exceptions, by fellows in the Institute and lecturers in the Faculties. Fellows, lecturers and senior lecturers may move to the next highest rank according to recent rank- and duration-specific patterns of promotion.

5.2 The Institute of Advanced Studies

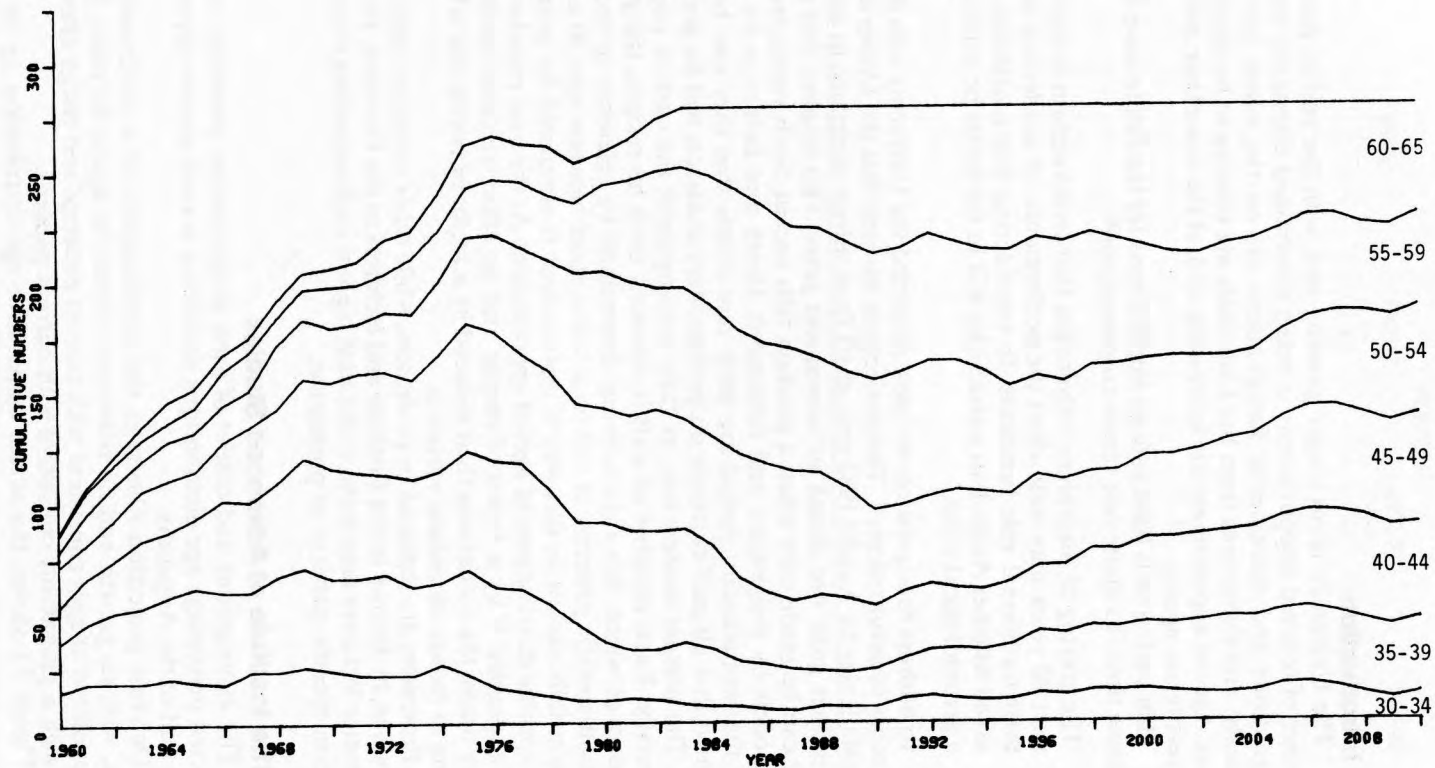
The assumptions and output of each projection are presented in Appendix B. Projected percentage age distributions according to each variant appear in Table B1 at the end of the Appendix.

Our first projection illustrates the consequences of a continuation of present trends, with no growth and no retirement before the age of 65 years. Incoming staff are appointed at ages consistent with current patterns, and resign after certain durations with a probability consistent with current patterns.

Figure 5.1 shows the actual cumulative age distribution up to 1982 and the projected continuation to the year 2010. There is obvious periodicity from the mid-1970s onward, as the large group of staff then aged 40-54 work their way through to

FIGURE 5.1

PROJECTED AGE DISTRIBUTION - IAS



retirement. Until they retire, of course, a considerable number of new staff cannot enter the system, and thus recovery is not apparent until about 1995. Before recovery, the proportion of staff over the age of 55 reaches nearly one half, and the proportion under 45 falls to one-sixth; indeed, the number of staff under the age of 45 falls to a level lower than that of 1960 when the Institute was one-third its later size.

Spontaneous recovery does occur after 1995, however, and the proportion of staff under the age of 45 climbs back slowly to the level of 1982. In the meantime, however, there has been somewhat of a lost generation, with people born between 1950 and 1954 being prevented from entering the Institute in quite the numbers of earlier or later cohorts.

Yet another effect of ageing is that in the 1990s, when the Institute is at its oldest, senior fellows are on average as old as professors and professorial fellows.

Were all staff to retire at the end of the year in which they turn 60, an option now available, then the pinch in the 1990s would not occur. A constant age structure would be achieved almost immediately, and no birth cohort would be notably disadvantaged.

While voluntary universal early retirement both halts the ageing process and produces an unvarying age distribution, it is not a completely reasonable assumption. Over the last five years only one-third of retirements from the Institute took place before the age of 65. Under present superannuation schemes, early retirement carries a financial penalty²². Even were there no financial disincentive, many staff would be unwilling to leave the Institute before the maximum retirement age of 65²³, and it is not clear that their early retirement would in every case be advantageous to the University, as many would still be productive in their sixties.

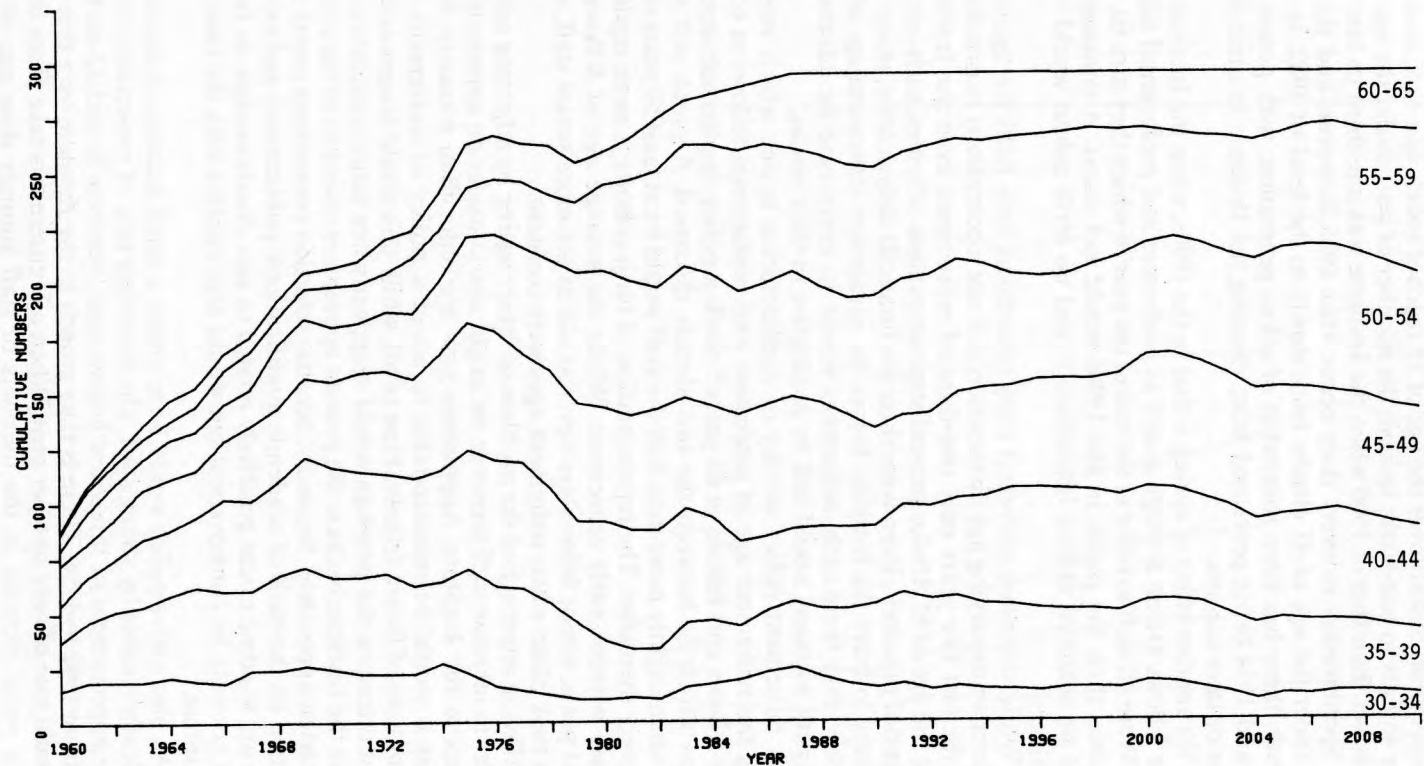
A retirement policy worthy of consideration is one which varies with rank, setting the retirement age of professors and professorial fellows at 65 years, but of senior fellows and fellows at 60 years²⁴. Such a policy implies subsequent age distributions which lie between the two already discussed. A pinch still occurs around 1990, when slightly more than half the staff would be at least 50 years old, but there is a recovery thereafter. The representation of birth cohorts is more equitable than was the case without early retirement. While the average age of fellows increases by several years, senior fellows are never as old as the more senior staff, a development which took place when retirement ages were constant.

Having approached the problem of future ageing by adjusting retirement policy in order to increase staff turnover, we might also consider an approach based on new entrants to the Institute. Appointees now are older than formerly, but for several reasons it would be unreasonable to adopt a policy of universally lower ages at appointment of future fellows. First of all, while this would temporarily alleviate the current dilemma, the problem would reappear when future generations were unable to enter the Institute because the present appointees would be in the system for longer than earlier appointees. Secondly, because selection committees assess candidates for a position on the basis of academic qualifications, publications and experience, all of which are to some extent positively related to age, discrimination in favour of youth would not only be controversial but would also conflict with the basic standards of the Institute.

An alternative policy would be to create a small number of special fellowships, specifically tenable by young staff. The following pair of projections therefore allows for the appointment of three new fellows aged between 30 and 32 each year for five years from 1982 to 1986. There is thus growth in the Institute over that period, but at an annual rate of only one per cent. When all retirements take place at the age of 65 there is some increase in the numbers of staff younger than age 40 years in this decade. Without the injection of new fellows, the youngest age groups would comprise only ten per cent of the total. The most favourable situation develops, however,

FIGURE 5.2

PROJECTED AGE DISTRIBUTION - IAS



when both ends of the problem are attacked simultaneously, and rank-specific retirement is adopted at the same time as the new special fellowships are created.

Figure 5.2 illustrates this projection as a continuation of earlier trends. The downturn in the number of staff under the age of 40 which began at the end of expansion in the mid-1970s is halted and reversed in 1982. The 1950-54 birth cohort now has a slight edge over younger cohorts, but equitability is otherwise maintained.

5.3 The Faculties

The detailed assumptions and output of each projection are presented at the end of this report, in Appendix C.

Figure 5.3 shows the development of the age structure of The Faculties projected forward to the year 2010 under the assumption of no growth and universal retirement at the age of 65 years. As with the projections of the Institute, the projection model incorporates current patterns of appointment, promotion and resignation with the sole exception that no new staff appointments are made under the age of 30, a logical assumption given the observed decline in young appointments. Just as growth in The Faculties was swifter than in the Institute, and the 1940-44 birth cohort particularly favoured, ageing in the 1990s is more extreme in The Faculties than in the Institute and the effects on the age distribution far more dramatic. People under the age of 45 move from two-thirds of tenured staff in the mid-1970s to a mere one-quarter in the mid-1990s, recovering to nearly one-half by 2010, the end of the projection period. Overall recovery does not even begin until the end of the century.

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 do not retire until early in the next century. If their departure, and that of other staff, were hastened by universal retirement at age 60 the picture is somewhat improved, but still far from ideal. This serves to underscore the problems now faced by The Faculties since universal retirement at the age of 60 was enough to stabilize the Institute's age structure.

In addition, it is more reasonable to assume rank-specific retirement, as in the third projection of the Institute, with professors and readers retiring at 65 and senior lecturers and lecturers retiring at the age of 60. Indeed, half the recent retirements from The Faculties took place before the age of 65²⁵. With universal retirement at age 60 unable to stabilize the situation, there is still clear periodicity under the assumption of rank-related retirement.

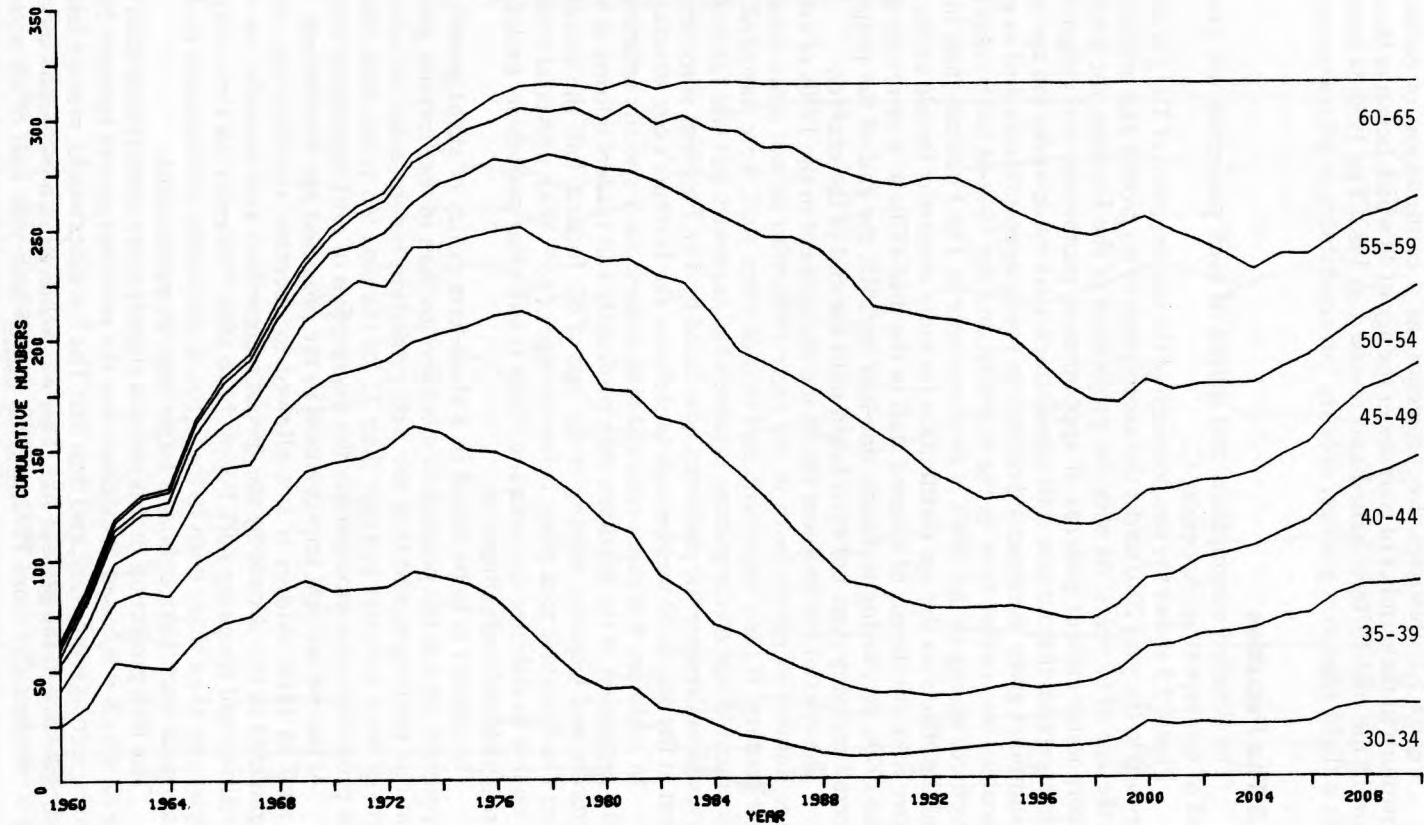
The answer is to be found in a short-term policy of slight growth, with young appointees. Just as the position is more serious than in the Institute, growth needs to continue for longer, and thus the next projection incorporates the annual appointment of three lecturers younger than 32 for the next ten years, from 1982 until 1991. The projection also incorporates the assumption of rank-dependent retirement.

At last we see real improvement in the projected age distribution. The number of staff in their thirties is not allowed to decrease significantly, with numbers augmented in this decade by the special lectureships and thereafter by replacements of retiring and resigning staff. People born after 1960 enter the University at a slightly greater rate than those born in the 1950s, a reasonable development in demographic terms since each birth cohort is larger than its predecessor.

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 a projection 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. Interestingly, the projected

FIGURE 5.3

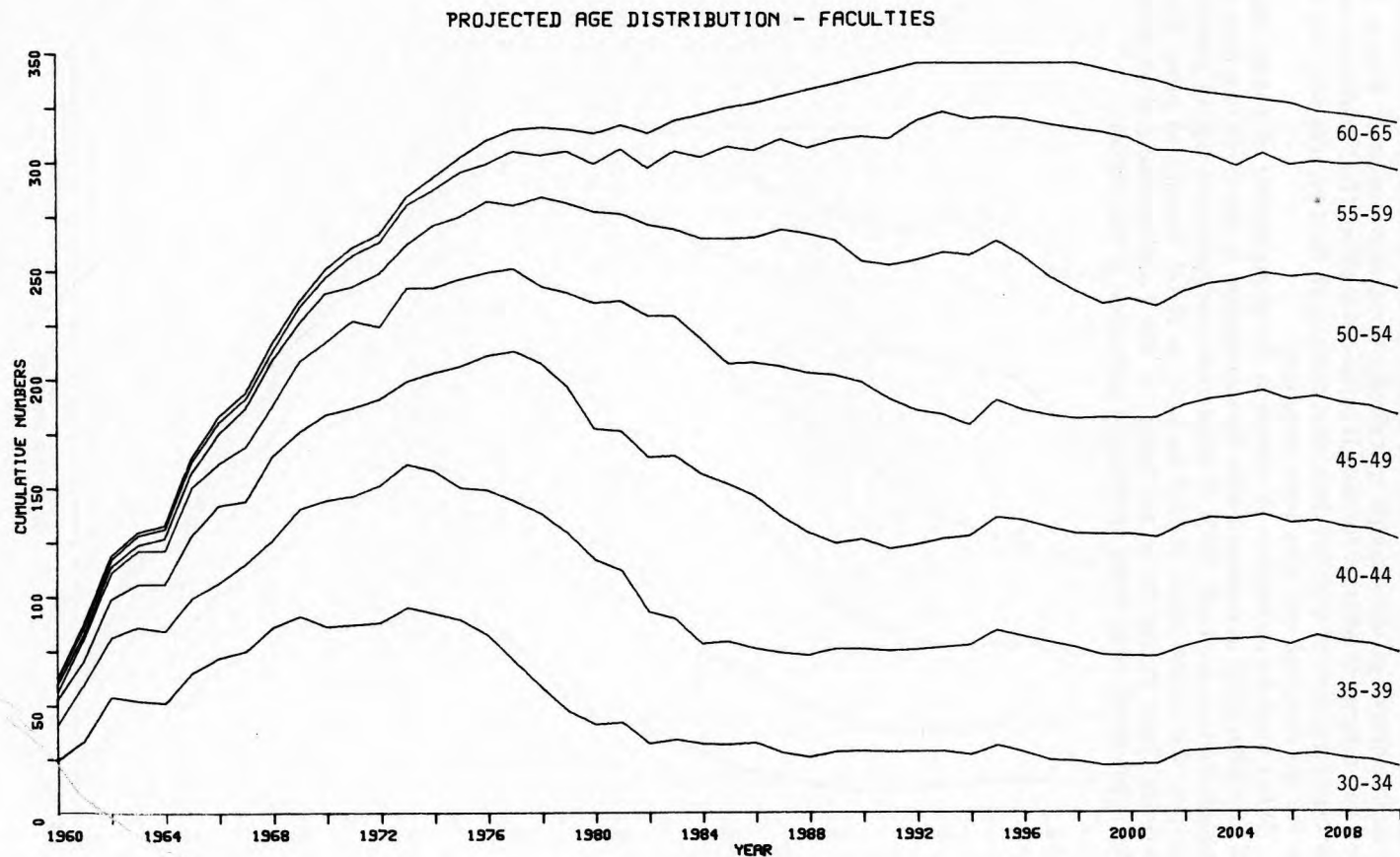
PROJECTED AGE DISTRIBUTION - FACULTIES



proportionate age distributions, shown in Figure 5.4, are almost identical with those where there is no compensatory decline in size. 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. Future developments will determine whether funding is sufficient to allow The Faculties to remain at their expanded size, or whether they must contract to their present size; but in either case the age structure will have been stabilized.

What must be avoided in the future is the appointment of a large number of staff of similar ages, as occurred with the recruitment in the 1970s of a large number of people born in the early 1940s. If there were ever again a period of growth in The Faculties, this observation should be held in mind. Insofar as other Australian universities have shared the recent history of The Faculties, these observations have wider applications than those specifically addressed in this report.

FIGURE 5.4



Footnotes

¹ Information on tenured staff were obtained from the data set compiled for this study.

The number of non-tenured staff were obtained from figures published in Annual Reports of the University for the years 1961 to 1970, Statistical Handbooks for 1971 to 1980, and unpublished provisional tables supplied by the Statistical Officer of the University. Figures used in Figure 1.1 for the total University were obtained by summing over the Institute and Faculties, and thus do not include the Centres.

² The proportion of tenured staff in each of 19 Australian universities in 1979 (excluding the IAS) ranged from 69 per cent to 94 per cent, with tenure ratios in 13 universities lying between 70 and 84 per cent; see Table 3.3, *Report on Tenure of Academics*, Senate Standing Committee on Education and the Arts, AGPS, Canberra, 1982.

³ Discussion paper on tenure and non-tenure in the Institute, Board of the Institute of Advanced Studies, Committee on General Policy, 10.11.1980.

⁴ Data compiled by the Statistical Officer.

⁵ Minutes of the Meeting of the Board of the Institute of Advanced Studies, 22.9.1976.

⁶ Minutes of the Meeting of the Board of the Institute of Advanced Studies, 15.7.1982.

⁷ See Appendix A for an account of the information used and the sources from which it was gathered.

⁸ Here, as elsewhere, figures for the whole University slightly exceed the sum of those for the Institute and Faculties, as they include Centres.

⁹ Recent Australian life tables indicate that only 84 per cent of 35-year-old men can expect to live to the age of 60, and 75 per cent to the age of 65 (see J.R. Ford, *Australian Life Tables 1975-1977*, Office of the Australian Government Actuary, Canberra). That mortality in the University is lower than this may be ascribed both to the screening out of the obviously ill by means of the initial medical examination, and also to subsequent early retirement on medical grounds if illness manifests itself.

¹⁰ These proportions represent the survival function of a life table where death (exit from the system) is equated with actually promotion. The essential point is that calculations at each duration are based only on people still exposed to the risk of promotion. Thus, an observation is censored at exit from the system for any reason other than promotion (for example, resignation or retirement). See A.H. Pollard, Farhat Yusuf and G.N. Pollard, *Demographic Techniques*, Pergamon Press, Sydney, 1981.

¹¹ The probability is calculated crudely as the ratio of the number of inside appointments over a particular period to the sum of the annual staff complement in each year over the period.

¹² A doctorate includes a DPhil, PhD and DSc, while Oxford and Cambridge MAs are considered as first degrees and therefore appear in the category 'other'. Also included in this group are medical and legal qualifications. A person who earns his highest degree in the same year as he was first appointed is considered to have held this degree at appointment. Honorary degrees are not tabulated. The number of first appointments differs in each period from the total number of appointments shown in earlier tabulations, as these latter include second and further appointments (as distinct from promotions).

¹³ Some would have been appointed to the Faculties while completing a degree in the Institute; others would have started work on another degree after appointment, realising it would assist promotion.

¹⁴ These would be principally first appointments; see Table 3.1.

¹⁵ Figures obtained from Annual Reports to 1970 and Statistical Handbooks thereafter.

¹⁶ It must be stressed that the ratios produced are very crude: they ignore the fact that a considerable number of early Faculty appointees earned their degrees after entering the University and that the probability of appointment depends not only on qualifications but also on the time since graduating. For a position in the Institute alone the ratios are 4.3, 2.4 and 1.4 per cent.

¹⁷ Conversely, Australia may have exported between 300 and 400 academics to the USA and Canada in the late 1960s: for a discussion of this, as well as of the importation of North American academics, see A.J. Cropley and P. Hemingway, '“Emigration” among Australian Academics', *Vestes* 16(1), 1973, pp 34-40.

¹⁸ Fay Gale, 'Academic Staffing: the Search for Excellence', *Vestes* 23(1), 1980, pp 3-8. See also papers by Davies and George, *Vestes* 25(2), 1982.

¹⁹ This downturn is related to the increased resignation rate of recently-appointed lecturers, as shown in Table 4.1.

²⁰ Ray Over, 'Age Distribution of Australian Academics', *Vestes* 24(2), 1981, pp. 15-17.

²¹ The projections discussed in this report are micro-simulation (Monte Carlo) models, and differ from earlier simple deterministic models which set out to demonstrate the broad effect of different turnover rates on the age distribution of Australian universities. Those models incorporate assumptions of no resignation, or constant annual resignation rates, both of which we have seen to be unrealistic. They are to be found in Annex E, pp. 133-147 of the *Report on Tenure of Academics*, *op. cit.* in footnote 2.

²² See pp. 90-92 and Annex F of the *Report on the Tenure of Academics*, *op. cit.* in footnote 2.

²³ That some staff wish to continue working even beyond the age of 65 is evidenced by the existence in the Institute of a small number of retired senior staff on visiting fellowships which are renewed annually.

²⁴ See p. 14 of Richard Campbell, 'Flexibility in a Steady State University', *Vestes* 20(3), 1977, pp. 9-17.

²⁵ Teaching duties in The Faculties perhaps make early retirement more attractive to sexagenarian staff than is the case in the Institute.

Appendix A. The Data

Background information on each individual includes date and country of birth, sex, highest earned degree and place and year of conferral, and the highest non-tenured position held at the ANU before taking up the first tenured position. Information on each tenured position includes previous place of employment, location of ANU position (department and school/faculty at ANU), levels and dates of appointment and promotion, and the date and reason for termination.

A record of each staff member's appointments have been kept on large file cards since 1975. A staff member who entered the University before that time would have had a card made up retrospectively when his file arrived at the Academic Appointments section for updating related to promotion, subsequent appointment and so on. When complete these contain all the required information. Missing information was sought from convocation records, from the files of *curricula vitae* which are kept on current staff, and from individual files supplied by the Records section, or archives. Further appointments were identified from appointment records from the pre-1975 period.

An initial data set was constructed by coding all the academic appointment cards containing at least one tenured appointment. These data were then used to produce staff lists at various dates in the 1960s and 1970s. These lists were checked for completeness against the annual staff lists published in the University calendar. Data on missing staff identified in this way were obtained from their files. As a last resort, missing data on current staff were obtained by telephoning them, and on non-current staff by enquiring in their old departments.

While the final data set of just under one thousand people contains the records of staff who came into the University as long ago as the late 1940s and the 1950s and who are still current or have only recently retired, it cannot be guaranteed before about 1960: as staff lists were not produced for the 1950s some people who left the University during that period are missing. Tabulations have therefore been produced only from 1960 onward, but we thus have a picture of the University since the time of the amalgamation of the Institute of Advanced Studies with Canberra University College.

To keep this data base up-to-date, it would be necessary to complete a new code-sheet for each person appointed to a tenured or tenurable position in the University since August 1982, or to add to that person's code-sheet if he was a current or past member of the tenured staff. In addition, details of the promotion, further appointment, or departure from the University of a current staff member would be added to the existing code-sheet. These procedures would be carried out continuously, and the new and amended forms thus generated filed together. They would be punched onto tape at intervals as required, the earlier versions of the unamended records would be deleted from the most recent computer file, and the two files merged.

A sample code-sheet and code-book are appended here.

Demographic Profile of the Australian National University

File No. Date of Coding:

Comments:

.....

.....

.....

1. Record No.	
--------------------	---

- | | | | | |
|--------------------------------------|-----------|--|----------|-------|
| 21. Reason for termination | | | | 61 |
| 22. Date of termination: Month | | | | 62-63 |
| Year | | | | 64-65 |
| | 19 | | | |
| 23. Record No. | | | | 1-4 |
| 24. Card No. | | | | 5 |
| | | | 2 | |

Second Tenured Appointment at ANU

- | | | | | |
|--|-----------|--|--|-------|
| 25. Immediately previous appointment: Type | | | | 6 |
| Place | | | | 7-8 |
| 26. Level of appointment at ANU | | | | 9 |
| 27. School and Department | | | | 10-13 |
| 28. Date commenced duty: Month | | | | 14-15 |
| Year | | | | 16-17 |
| | 19 | | | |
| 29. First promotion: Level | | | | 18 |
| Year | | | | 19-20 |
| | 19 | | | |
| 30. Second promotion: Level | | | | 21 |
| Year | | | | 22-23 |
| | 19 | | | |
| 31. Reason for termination | | | | 24 |
| 32. Date of termination: Month | | | | 25-26 |
| Year | | | | 27-28 |
| | 19 | | | |

Third Tenured Appointment at ANU

- | | | | | |
|--|-----------|--|--|-------|
| 33. Immediately previous appointment: Type | | | | 29 |
| Place | | | | 30-31 |
| 34. Level of appointment at ANU | | | | 32 |
| 35. School and Department | | | | 33-36 |
| 36. Date commenced duty: Month | | | | 37-38 |
| Year | | | | 39-40 |
| | 19 | | | |
| 37. First promotion: Level | | | | 41 |
| Year | | | | 42-43 |
| | 19 | | | |
| 38. Second promotion: Level | | | | 44 |
| Year | | | | 45-46 |
| | 19 | | | |
| 39. Reason for termination | | | | 47 |
| 40. Date of termination: Month | | | | 48-49 |
| Year | | | | 50-51 |
| | 19 | | | |

1.	Record No.	Assigned sequentially during coding	
2.	Card No.	1 or 2 (<i>see forms</i>) further cards have the format of card 2	
3.	Surname	Left justify, truncate if more than 16 characters	
4.	Initials	Left justify	
5.	Date of birth:	Month	January 01,, December 12
		Year	Last 2 digits only
6,7	Country of birth and Citizenship:	Australia	01
		U.K.	03
		N.Z.	04
		U.S.A.	05
		Canada	06
		Europe: Western	07
		Central and Eastern	08
		Southern	09
		Asia: Middle East	10
		South	11
		South-east	12
		East	13
		Africa: Northern	14
		Southern	15
		Central and South America	16
		Oceania	17
		P.N.G.	18
		Unknown	99
8.	Marital Status:	Never Married	1
		Married	2
		Widowed	3
		Divorced	4
		Separated	5
		Don't Know	9
9.	Sex:	Male	1
		Female	2
10.	Highest earned degree:	Doctorate	1
		Master's	2
		Bachelor's	3
		Medical qualifications	4
		Non-degree diploma	5
		DSc (if PhD and DSc code PhD)	6
			7
			8
		None	9

11.	Place degree conferred:	See codes for 6 and 7 for countries	
		ANU	01
		Elsewhere in Australia	02
		No degree	98
13.	Former non-tenured ANU appointment:	Senior research fellow	1
		Research fellow	2
		Post-doctoral fellow	3
		Visiting fellow	4
		Temporary lecturer/Assistant lecturer	5
		Tutor/Demonstrator	6
		Research assistant/officer	7
		None	9
		(If more than one, code the most recent)	

Tenured appointments at ANU (Q. 15-22, 25-32 ...)

15.	Immediately previous appointment:	University	1
		Private foundation	2
		U.N. Organization	3
		Other — Government	4
		— Non-government	5
		No previous appointment	8
		Unknown	9
		Place: See 11.	
		No previous appointment	97
16.	Level of appointment at ANU:	Professor	1
		Professorial Fellow/Reader/Associate Professor ...	2
		Senior Fellow/Senior Lecturer	3
		Fellow/Lecturer	4
		VC, HORS and other senior executive officers	5
		Other	6
17.	School and Department:	See charging codes.	
21.	Reason for termination:	Resigned — left ANU	1
		Resigned — new appointment at ANU	2
		Retired	3
		Dismissed	4
		Died	5
		Completed Contract	6
		Still at ANU at this level	9

Appendix B.

Projections of the Institute of Advanced Studies

Projection B1

ASSUMPTIONS

1. No growth;
2. Current duration- and rank-specific patterns of promotion and resignation;
3. All staff retire in the year they turn 65;
4. Professors replaced by professors;
5. Three-quarters of professorial fellows replaced by professorial fellows and the remainder by fellows;
6. Senior fellows and fellows replaced by fellows;
7. Age at appointment according to current rank-specific patterns.

FINDINGS

Figure B1.A can be seen as a natural extension of Figure 2.2. If current appointment and resignation trends continue, and all staff retire at age 65, then the Institute can expect further ageing before any amelioration. Even so, the proportion of staff aged 60 or above in the year 2010, would be, at 18 per cent, twice the present level. The 1990s would uncover the oldest Institute population, with two-thirds aged 50 or above, but from the turn of the century a recovery shows subsequent increases in the representation of staff under the age of 50, and decreases in the representation of staff aged 55 and over. At present one-third of Institute staff are under the age of 45; this level will not be reached again until the year 2005.

Major points to be noted with respect to ages of different ranks (Figure B1.B) are a stabilization of the average age of fellows at just under 45 years, a further increase for the next fifteen years in the average age of senior fellows and an overall similarity in the ages of staff above the rank of fellow. From 1990 onward Figure B1.C shows an increase in the number of fellows and a corresponding decrease in senior fellows and, to a lesser extent, professorial fellows, so from the point of view of rank structure, if not of age structure, the Institute begins to be less top-heavy from that time.

Figure B1.D (a continuation of Figure 2.6) underlines the under-representation of staff born between 1950 and 1954, i.e. people currently in their late twenties and early thirties.

Projection B2

ASSUMPTIONS

As for Projection B1 except

3. All staff retire in the year they turn 60.

FINDINGS

Figure B2.A shows almost no staff aged 60 and above from 1983 onward, as all current staff of this age would retire at the end of 1982. (That there are any staff at all in this age group occurs because a staff member who turned 60 before the 30th of April in one year would appear in that age group in the figure as he was not due to retire until the 31st of December in that year.) Uniform early retirement at age 60 produces an almost constant age distribution. Positions freed by these retirements are reflected in long-term increases in the proportions of staff in the age groups younger than 40 years.

FIGURE B1.A

PROJECTED AGE DISTRIBUTION - IAS

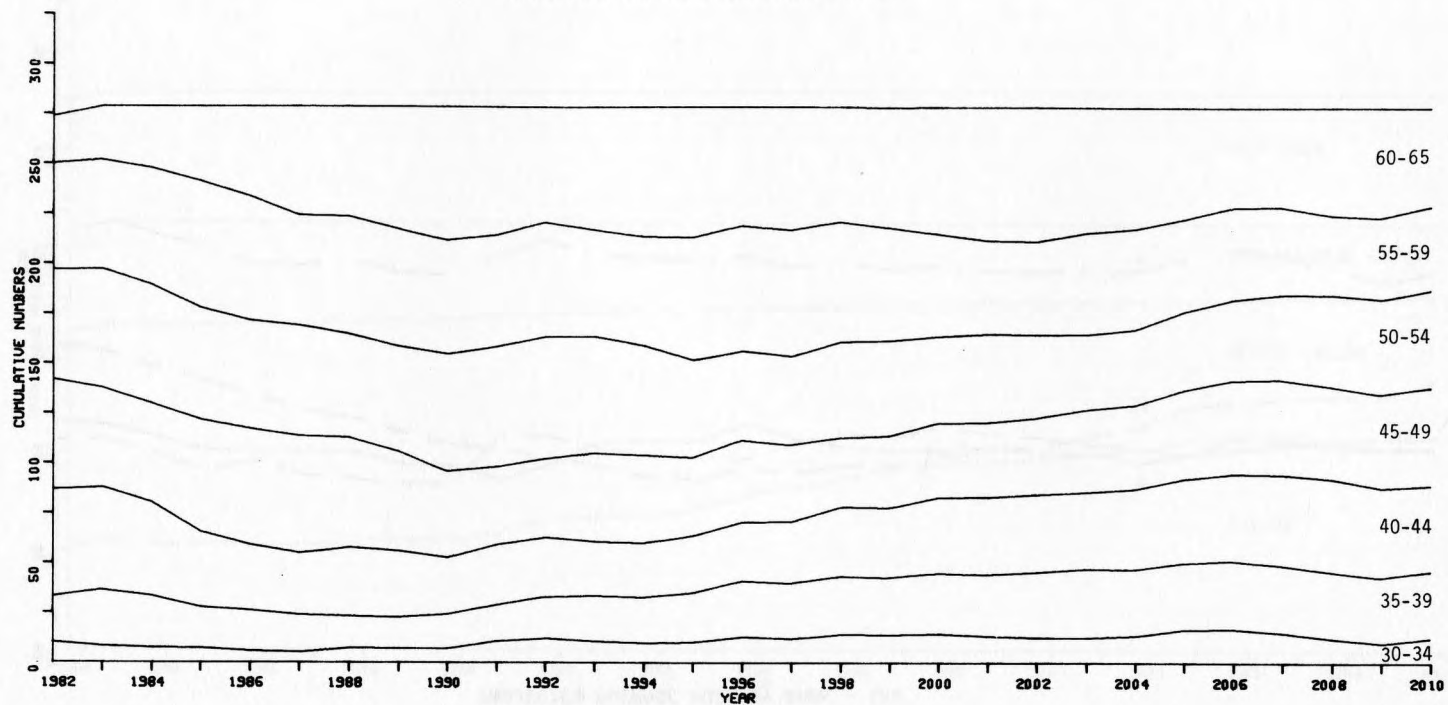


FIGURE B1.B

PROJECTED AVERAGE AGES BY RANK - IAS

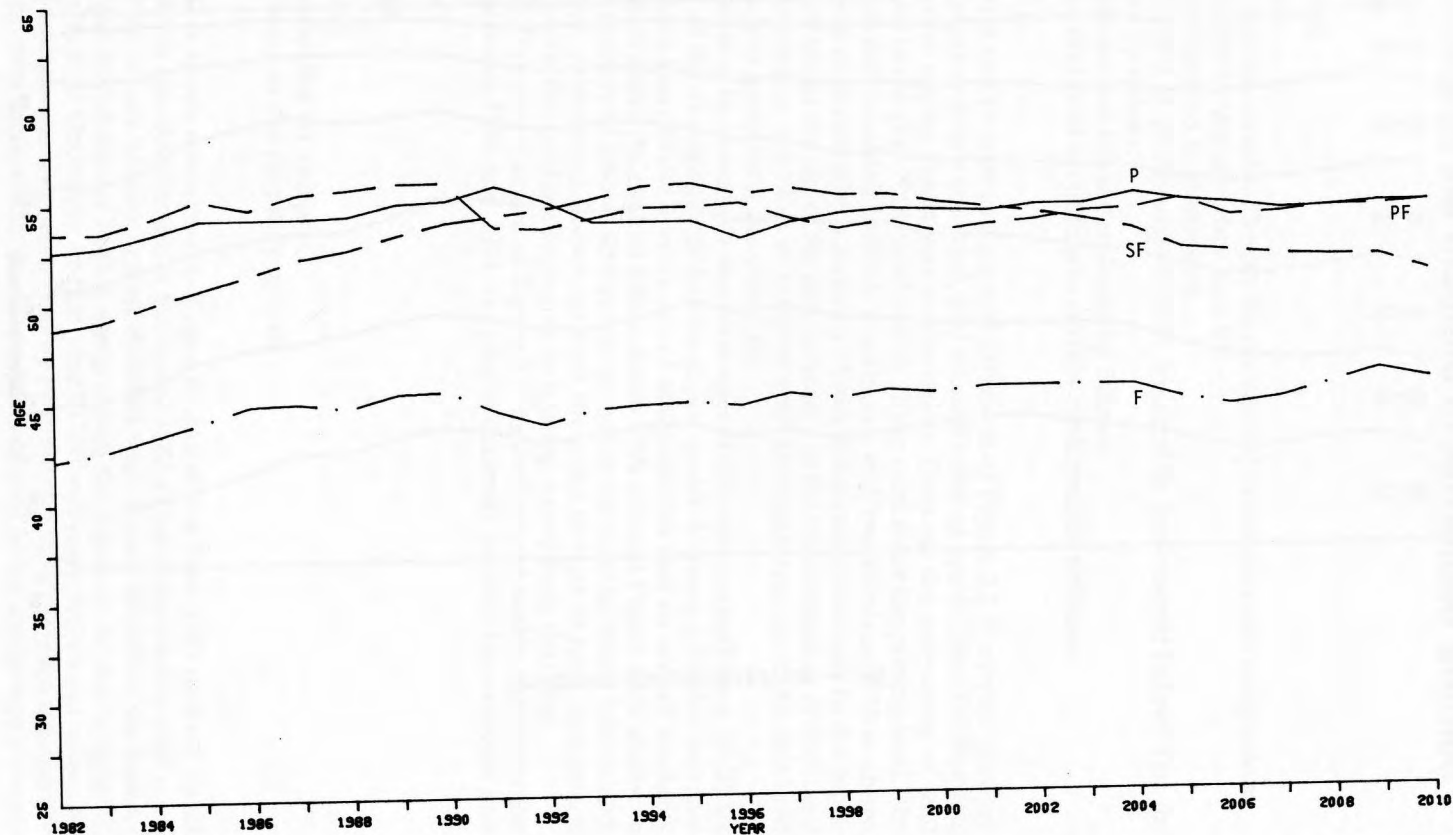


FIGURE B1.C

PROJECTED RANK STRUCTURE - IAS

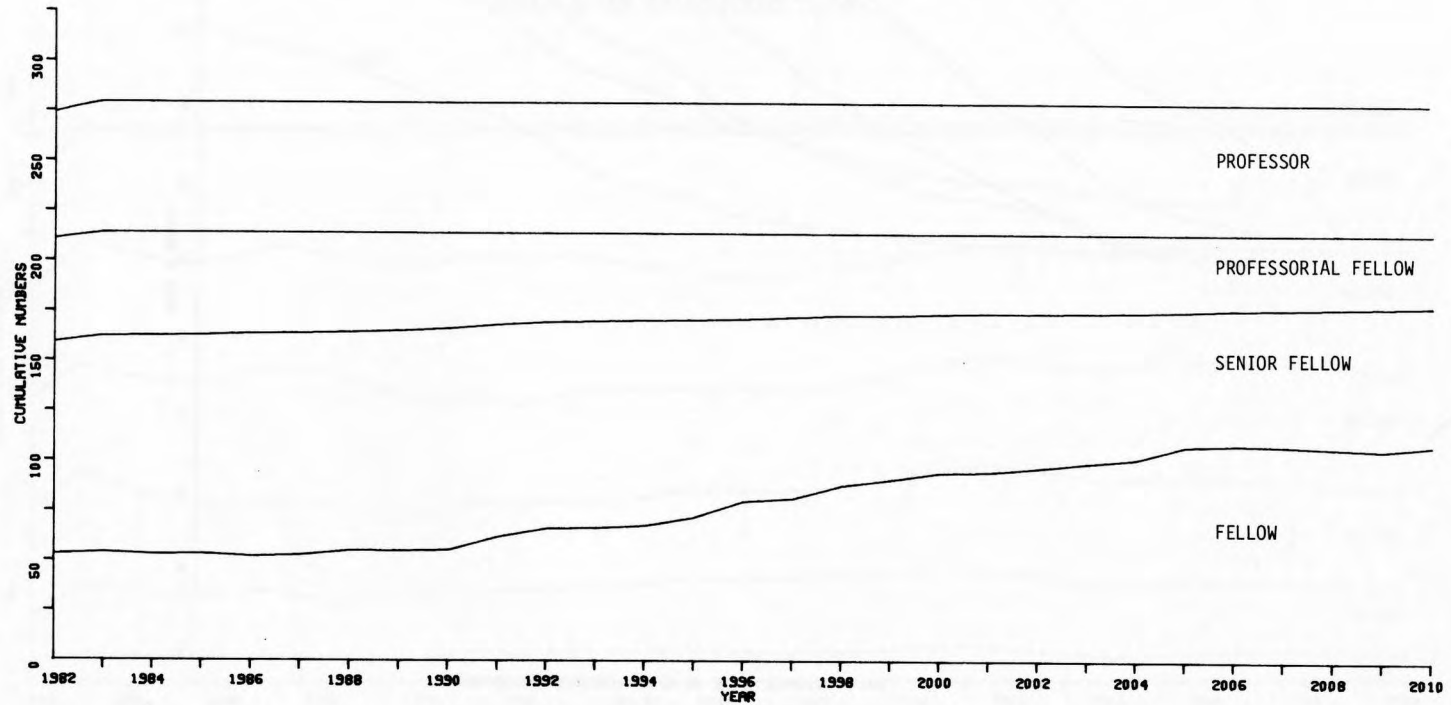


FIGURE B1.D

PROJECTED REPRESENTATION OF BIRTH COHORTS - IAS

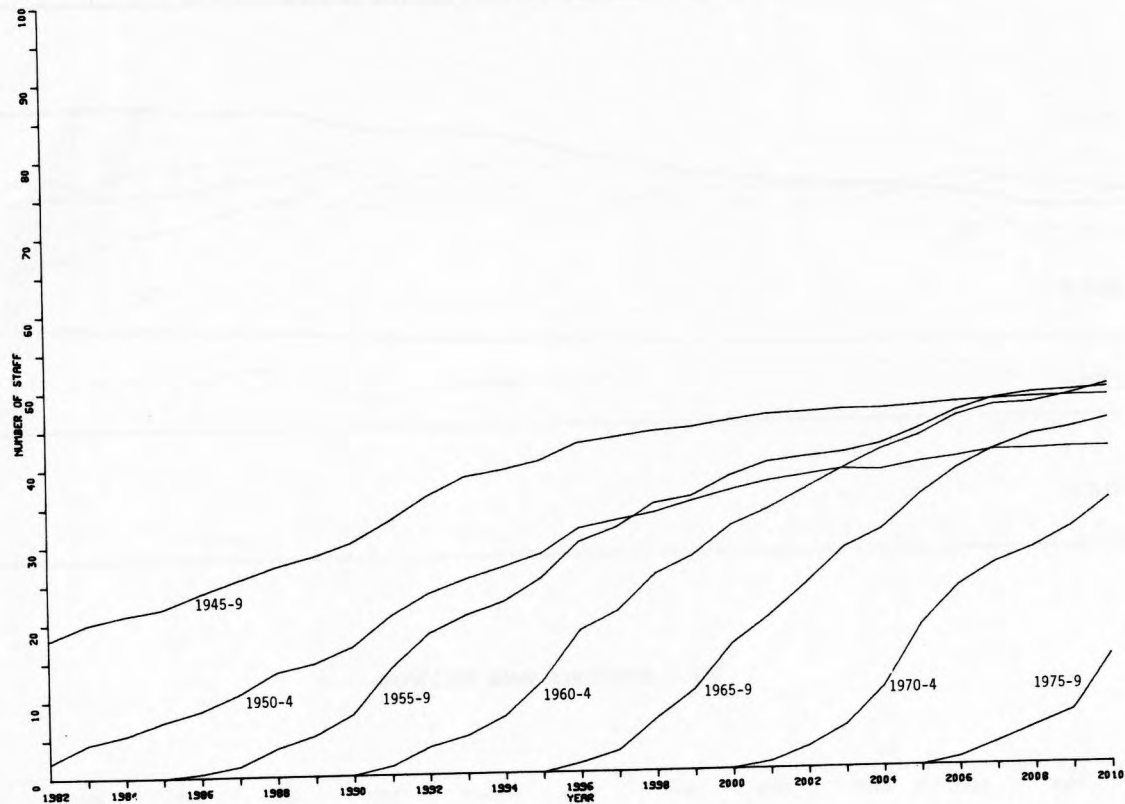


FIGURE B2.A

PROJECTED AGE DISTRIBUTION - IAS

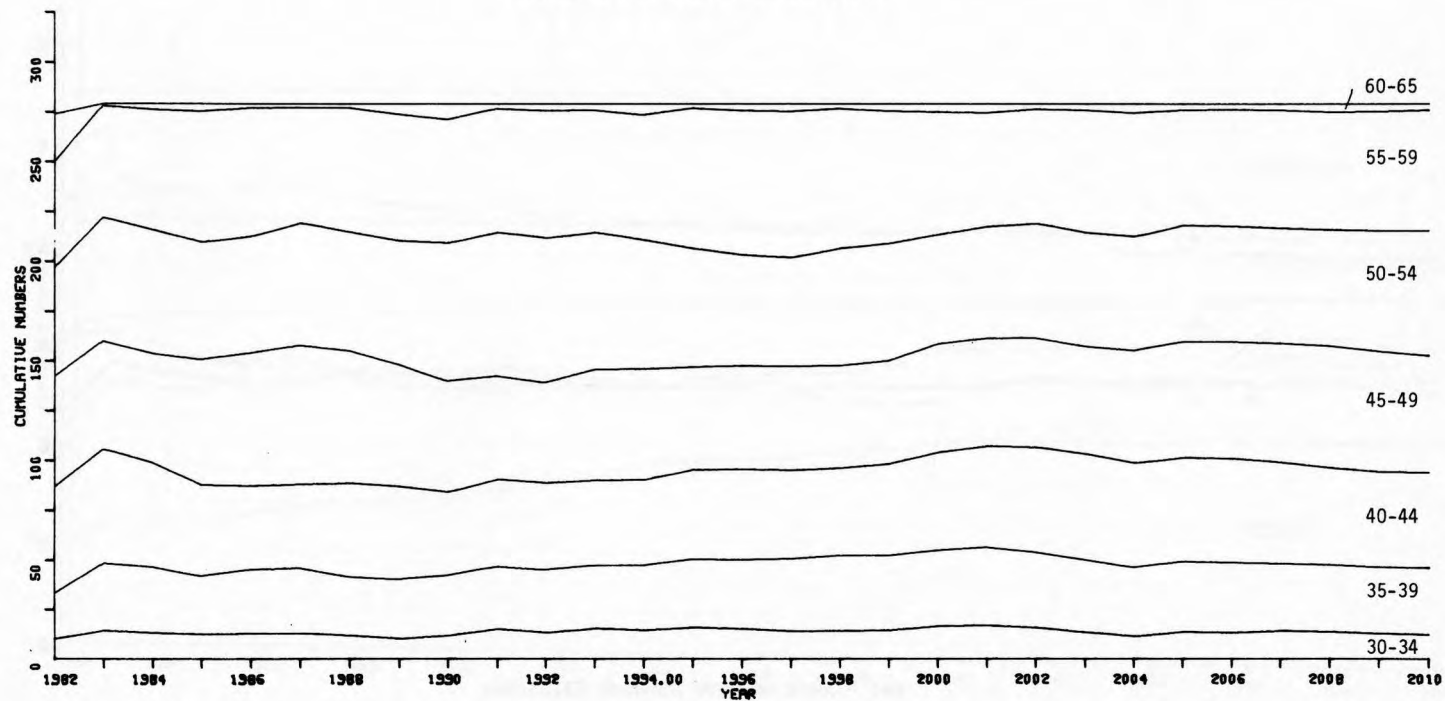


FIGURE B2.B

PROJECTED AVERAGE AGES BY RANK - IAS

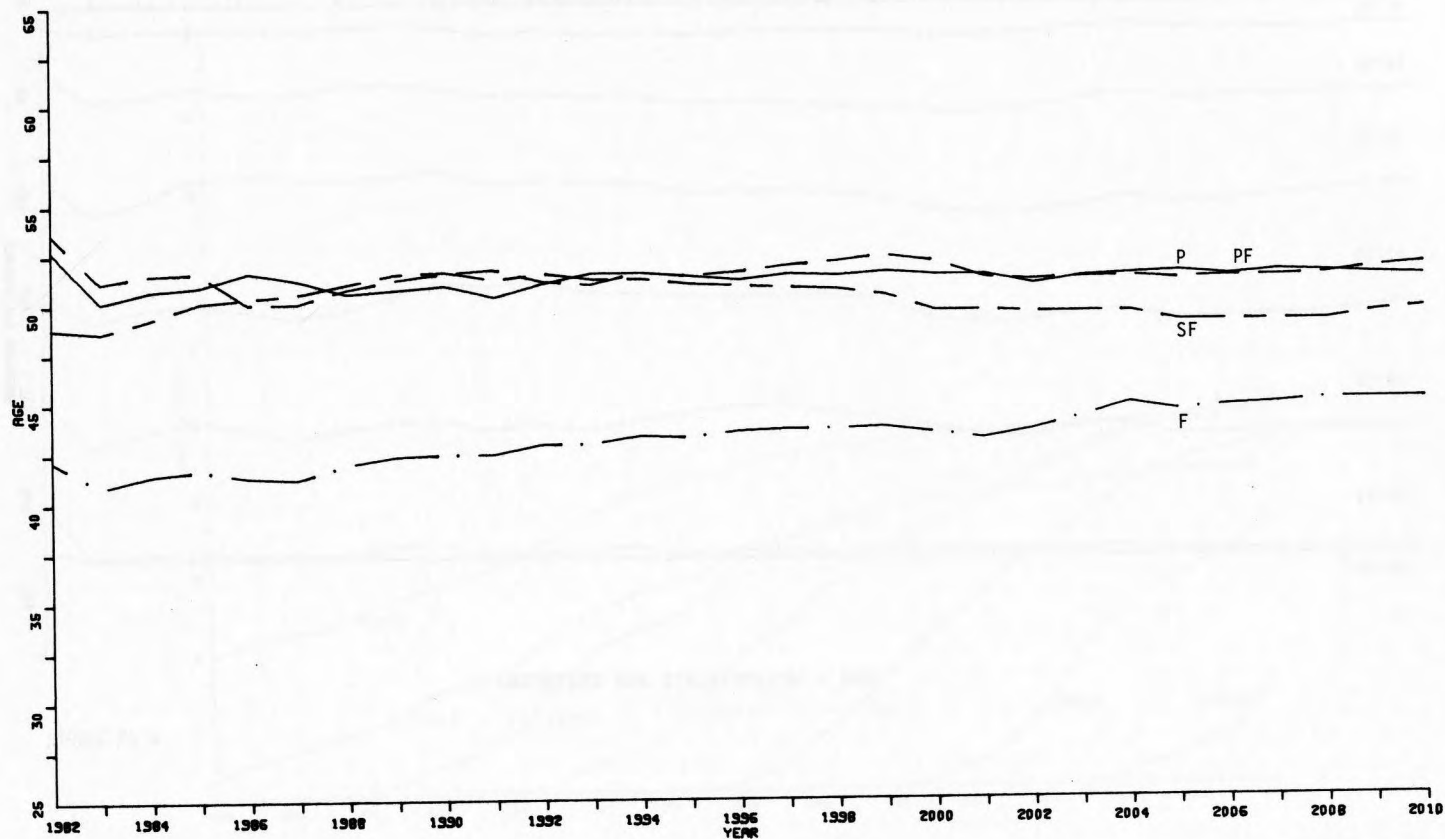


FIGURE B2.C

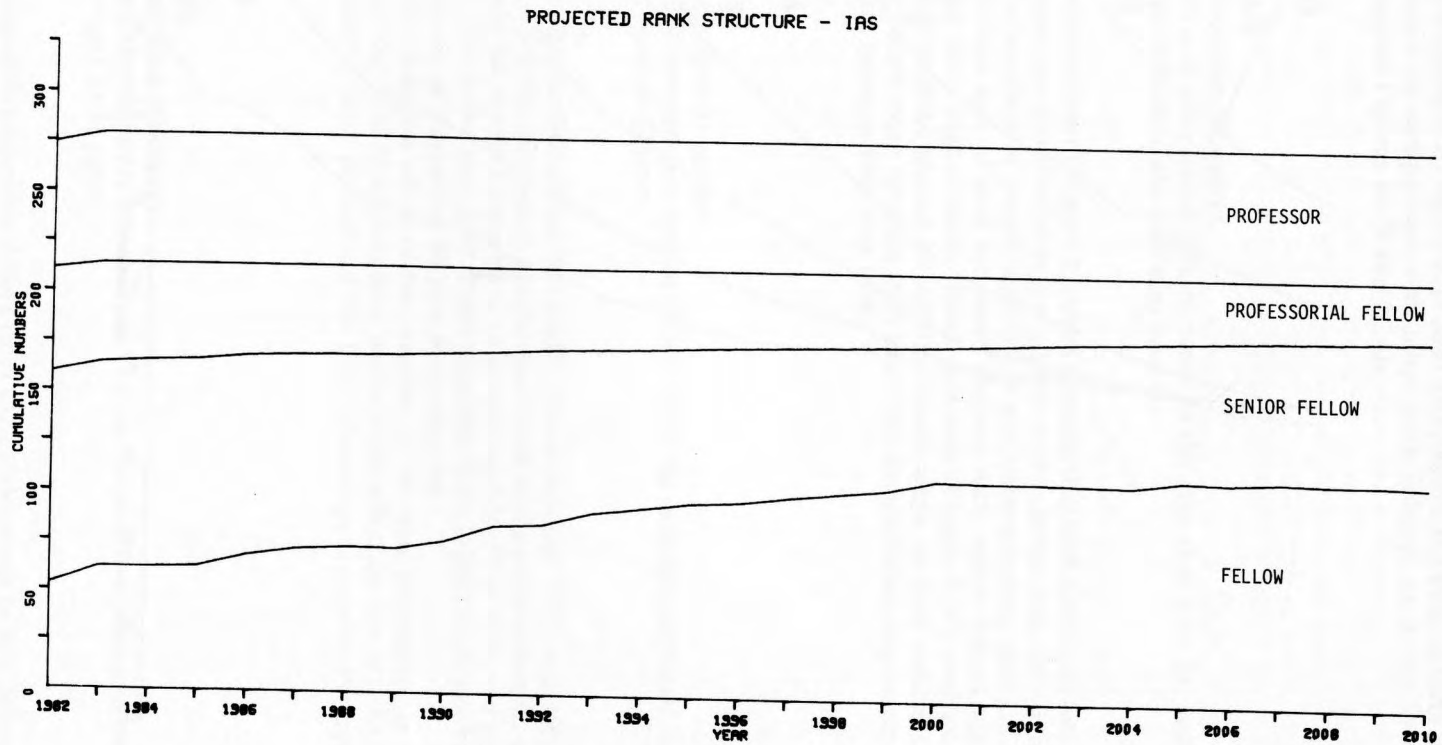
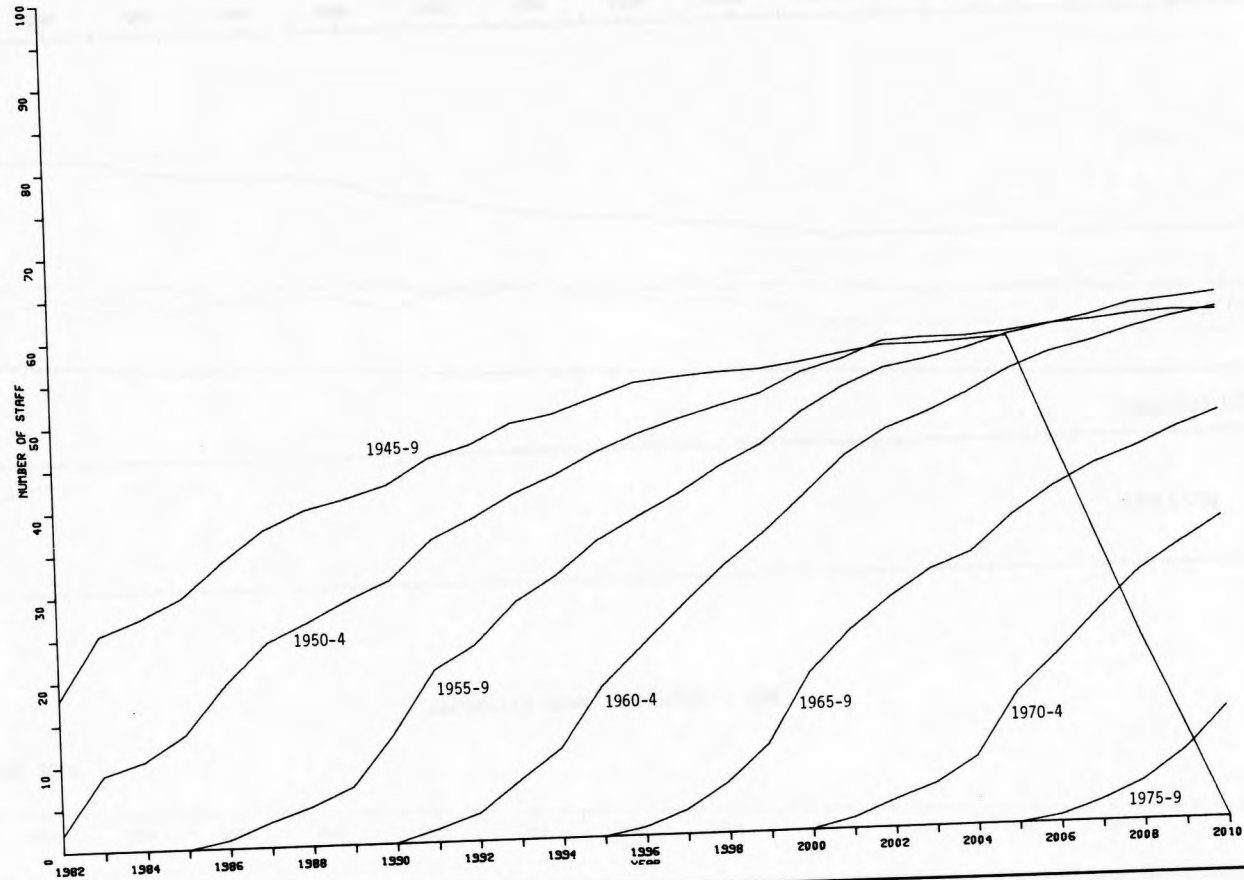


FIGURE B2.D

PROJECTED REPRESENTATION OF BIRTH COHORTS - IAS



By the year 2000, the rank structure implied by Projection B2 is the same as that attained under Projection B1 by the year 2000. In addition, the 1950-54 birth cohort is not disadvantaged by comparison with other birth cohorts, as it was in the first projection (compare Figures B1.D and B2.D).

Projection B3

ASSUMPTIONS

As for Projection B1 except

3. Professors and professorial fellows retire in the year they turn 65; and senior fellows and fellows in the year they turn 60.

FINDINGS

The age distribution of Figure B3.A lies between that of the previous two projections. The ultimate age distribution is very similar to the current one, except for slight increases in the numbers of people aged 35-39 and corresponding declines in staff aged 40-44. Average ages of staff are more distinct, with senior fellows always on average younger than higher ranks. Rank structure (Figure B3.C) evolves almost identically with that of the second projection. Finally, while no birth cohort is clearly disadvantaged, people born between 1955 and 1964 are ultimately represented more than people born between 1945 and 1954.

Projection B4

ASSUMPTIONS

As for Projection B1 except

1. Three new fellowships are created each year for the next five years and are filled by people aged 30-32 years.

FINDINGS

The fourth projection allows for slight growth between 1982 and 1986. This growth is reflected in the increase in people aged 30-34 in the present decade, seen by comparing Figure B4.A with Figure B1.A, in people aged 35-39 in 1990, and so on up to people aged 55-59 in the year 2010. Other than this there is little to choose between the age distributions of Projection B1 and Projection B4.

Perhaps the strongest effect of the creation of the new fellowships is on the representation of the 1950-54 birth cohort, and a slight effect on the 1955-59 cohort, since people born in those periods fill the new fellowships (compare Figures B1.D and B4.D).

Projection B5

ASSUMPTIONS

As for Projection B3 except

1. Three new fellowships are created each year for the next five years and are filled by people aged 30-32 years.

FINDINGS

This small-growth projection differs from the previous one in that fellows and senior fellows retire at age 60, and higher ranks at age 65. It is thus related to both Projection B3 and Projection B4.

The addition of extra young fellows is immediately apparent in the expansion of the 30-34 age group over the next five years. This expansion is greater than when all retirements took place at the age of 65 years, as some new staff are replacements for fellows and senior fellows who retire at the age of 60.

There is swift improvement in the rank structure with parity of senior fellows and fellows being achieved within ten years from the present, and the number of fellows stabilizing at the turn of the century. While the average ages of fellows can be expected to rise from 1987, they will be definitely younger than senior fellows.

**Table B.1 — Projected Percentage Age Distributions
in the Institute of Advanced Studies**

PROJECTION	AGE	1982	1985	1990	1995	2000	2005	2010
B1	30-34	4	3	3	4	5	6	5
	35-39	8	7	6	9	11	12	12
	40-44	20	14	10	10	14	15	15
	45-49	20	20	16	14	13	16	17
	50-54	20	20	21	17	16	14	18
	55-59	19	23	20	22	18	17	15
	60-65	9	13	24	24	23	20	18
B2	30-34	4	4	4	6	6	5	4
	35-39	8	11	11	12	13	13	12
	40-44	20	16	15	16	18	18	17
	45-49	20	23	20	18	19	21	21
	50-54	20	21	25	22	20	21	23
	55-59	19	23	22	25	22	21	22
	60-65	9	2	3	1	2	1	1
B3	30-34	4	4	4	5	7	4	4
	35-39	8	8	10	12	14	13	11
	40-44	20	14	12	15	16	18	16
	45-49	20	21	16	16	17	19	20
	50-54	20	20	23	18	17	18	20
	55-59	19	23	20	24	19	18	19
	60-65	9	10	15	10	10	10	10
B4	30-34	4	6	4	3	5	6	4
	35-39	8	7	10	10	12	11	11
	40-44	20	13	10	14	14	15	15
	45-49	20	20	14	14	16	16	18
	50-54	20	19	20	16	15	18	18
	55-59	19	22	19	21	16	16	18
	60-65	9	13	23	22	22	18	16
B5	30-34	4	7	4	5	6	4	4
	35-39	8	9	13	12	12	12	11
	40-44	20	13	13	18	16	16	16
	45-49	20	20	15	16	21	18	18
	50-54	20	19	21	17	18	22	19
	55-59	19	22	20	22	18	18	22
	60-65	9	10	14	10	9	10	10

FIGURE B3.A

PROJECTED AGE DISTRIBUTION - IAS

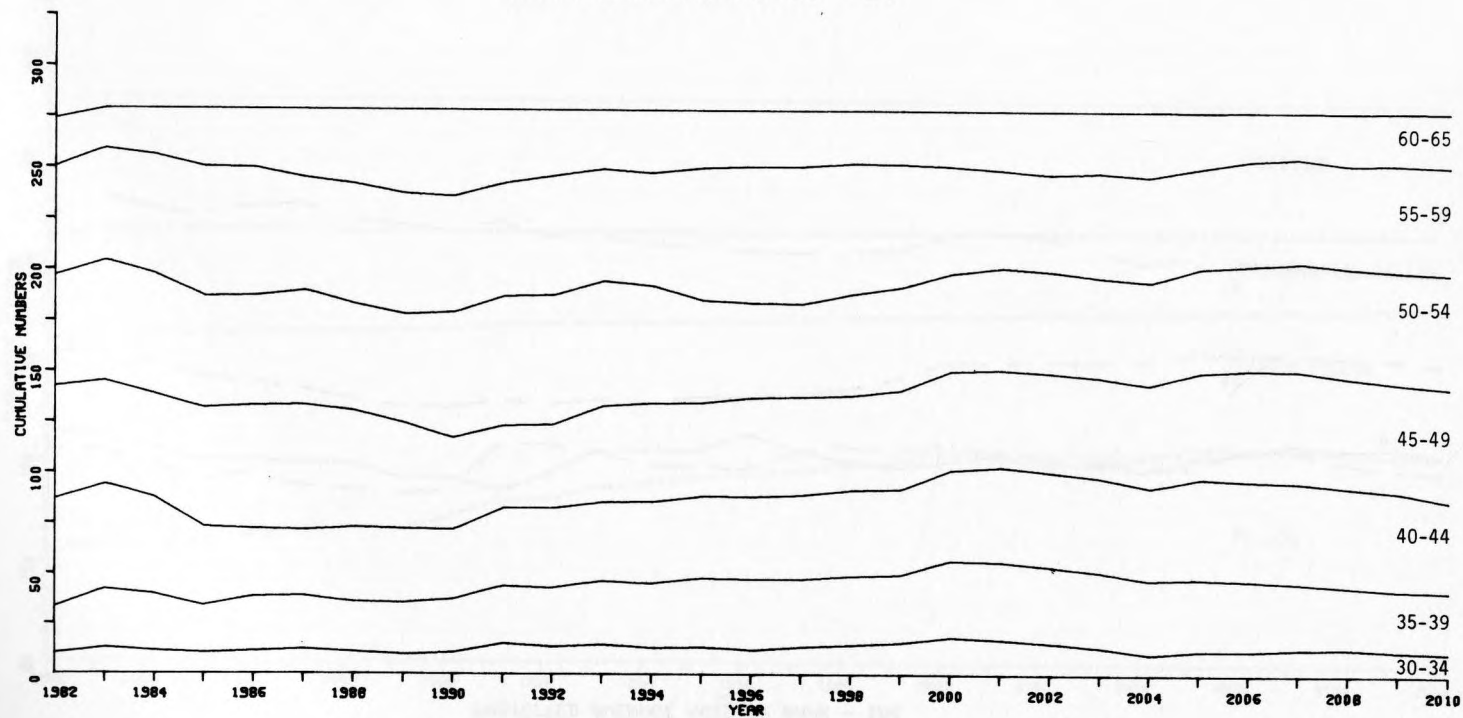


FIGURE B3.B

PROJECTED AVERAGE AGES BY RANK - IAS

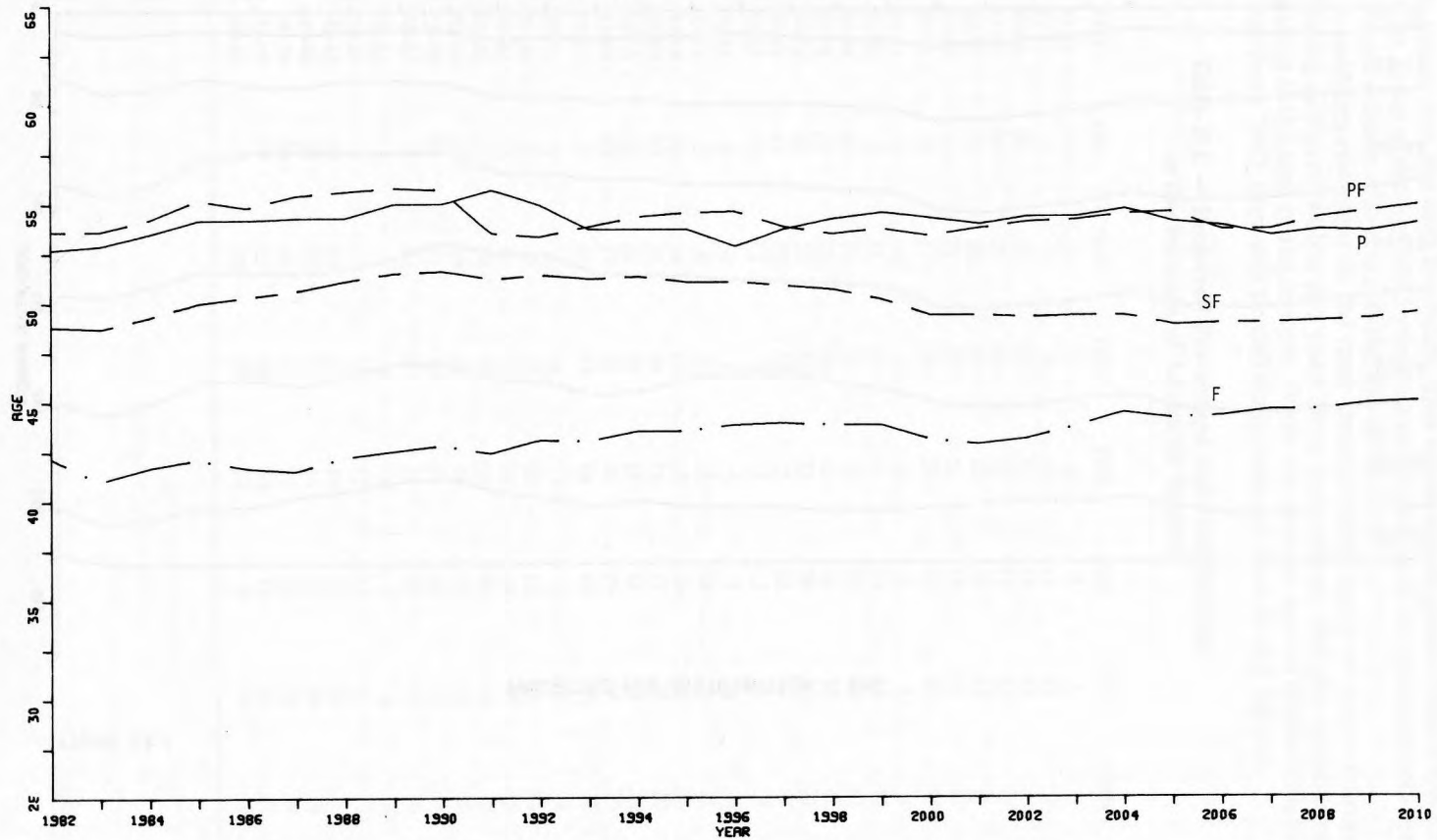


FIGURE B3.C

PROJECTED RANK STRUCTURE - IAS

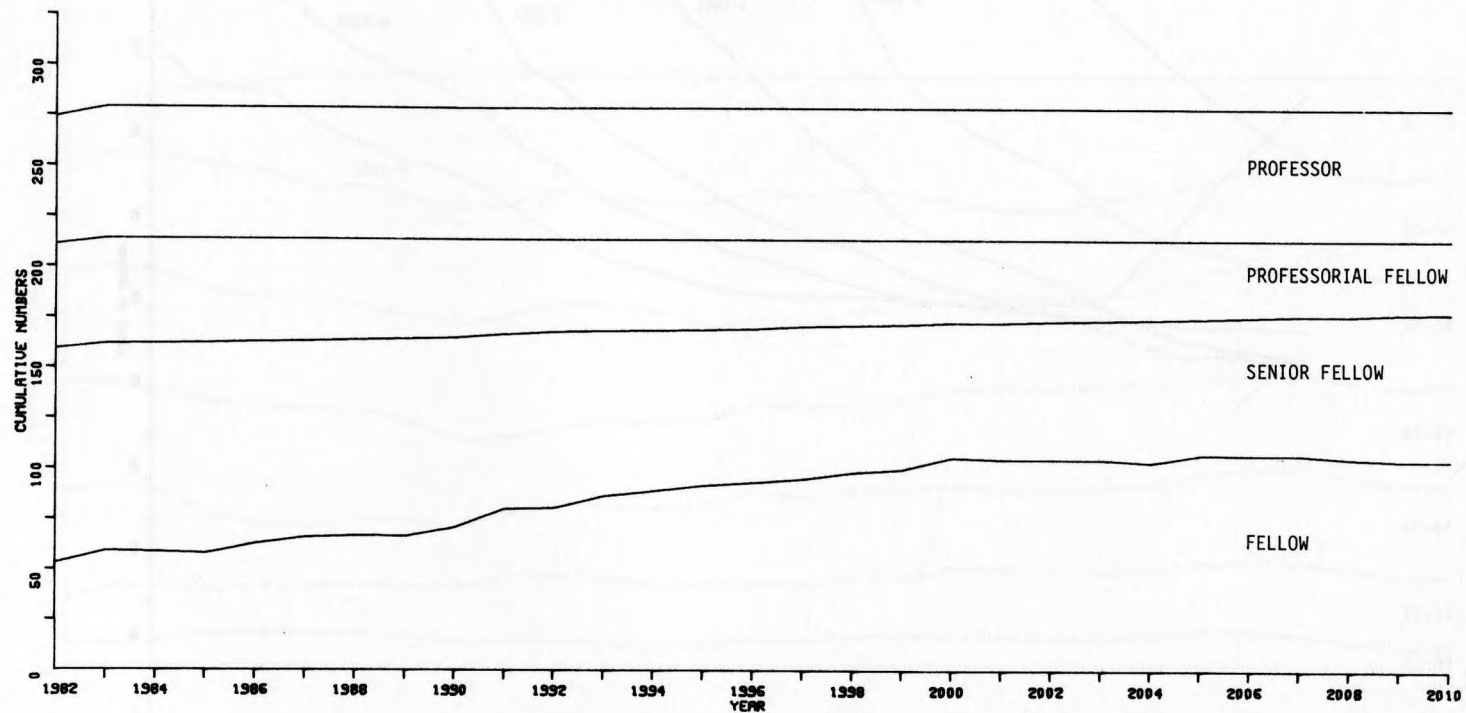


FIGURE B3.D

PROJECTED REPRESENTATION OF BIRTH COHORTS - IAS

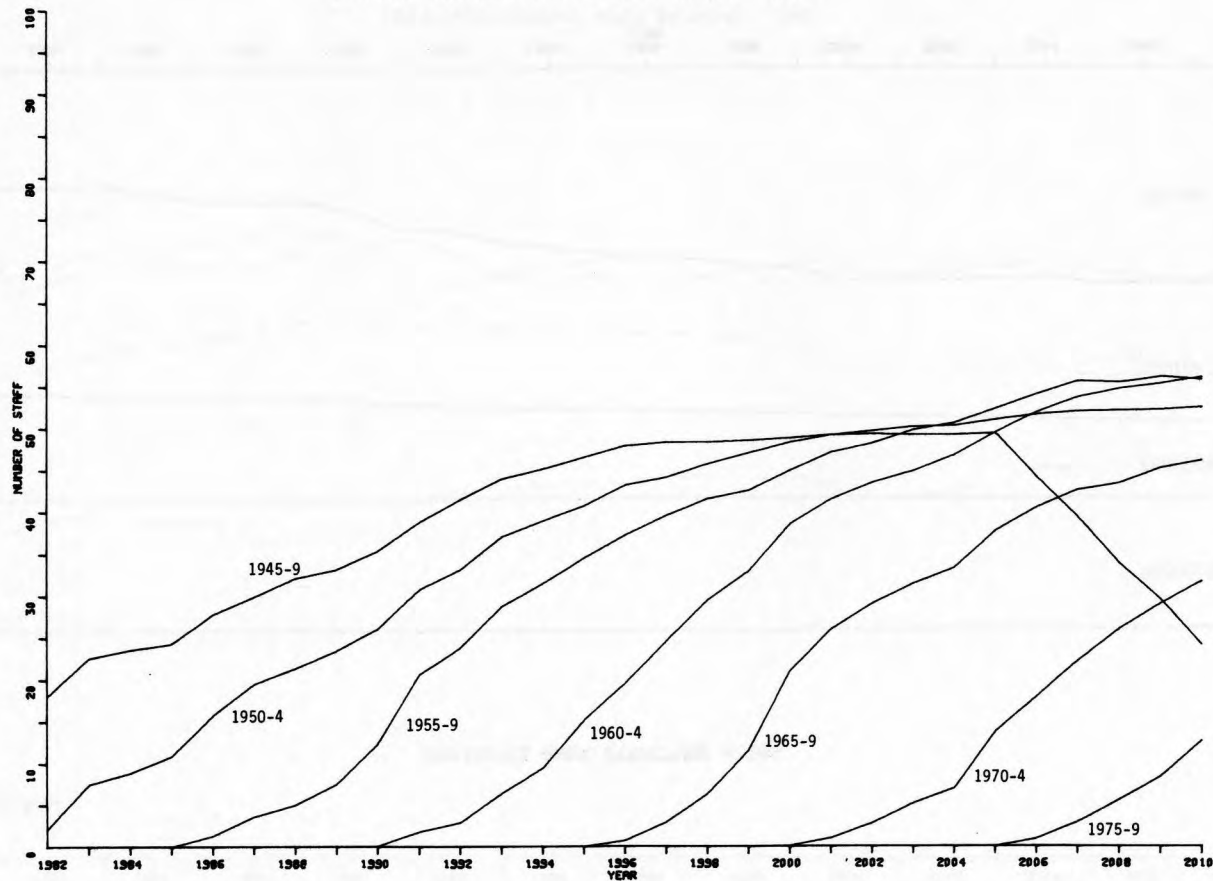


FIGURE B4.A

PROJECTED AGE DISTRIBUTION - IAS

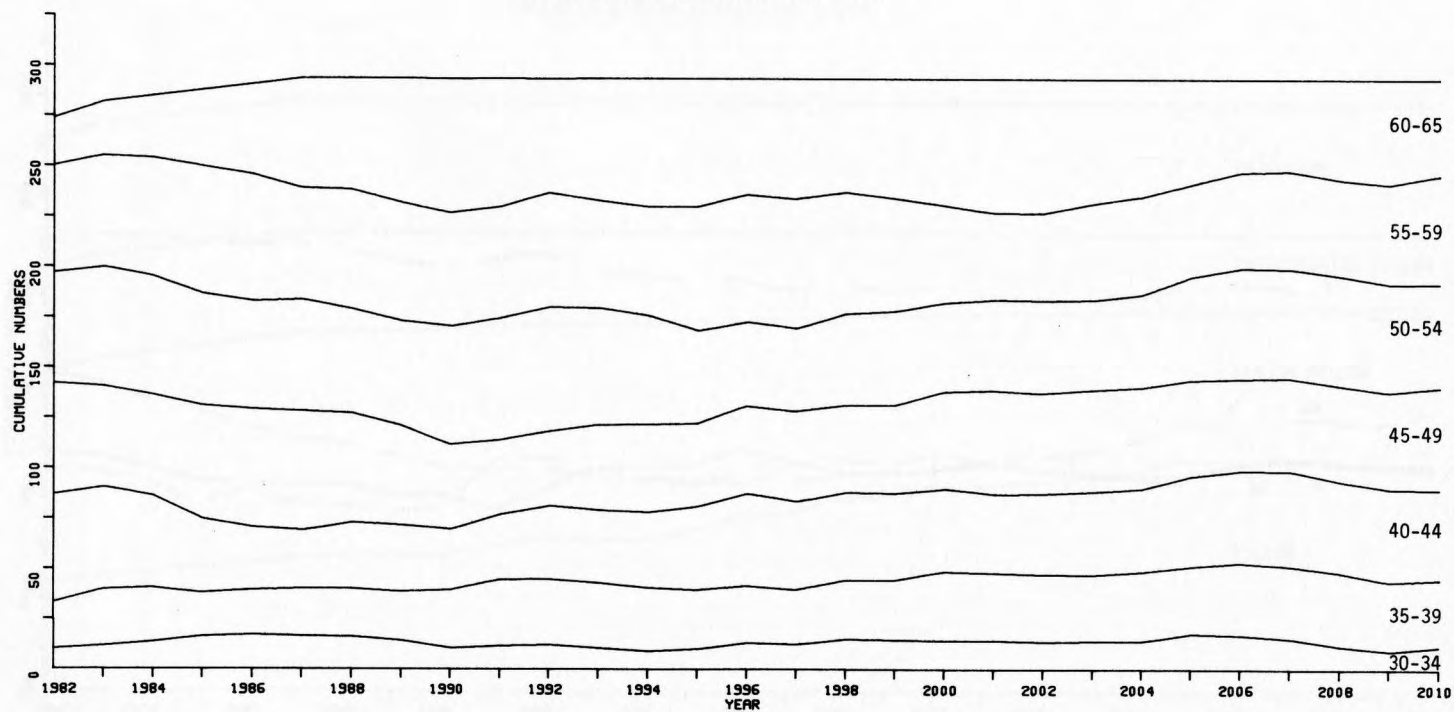


FIGURE B4.B

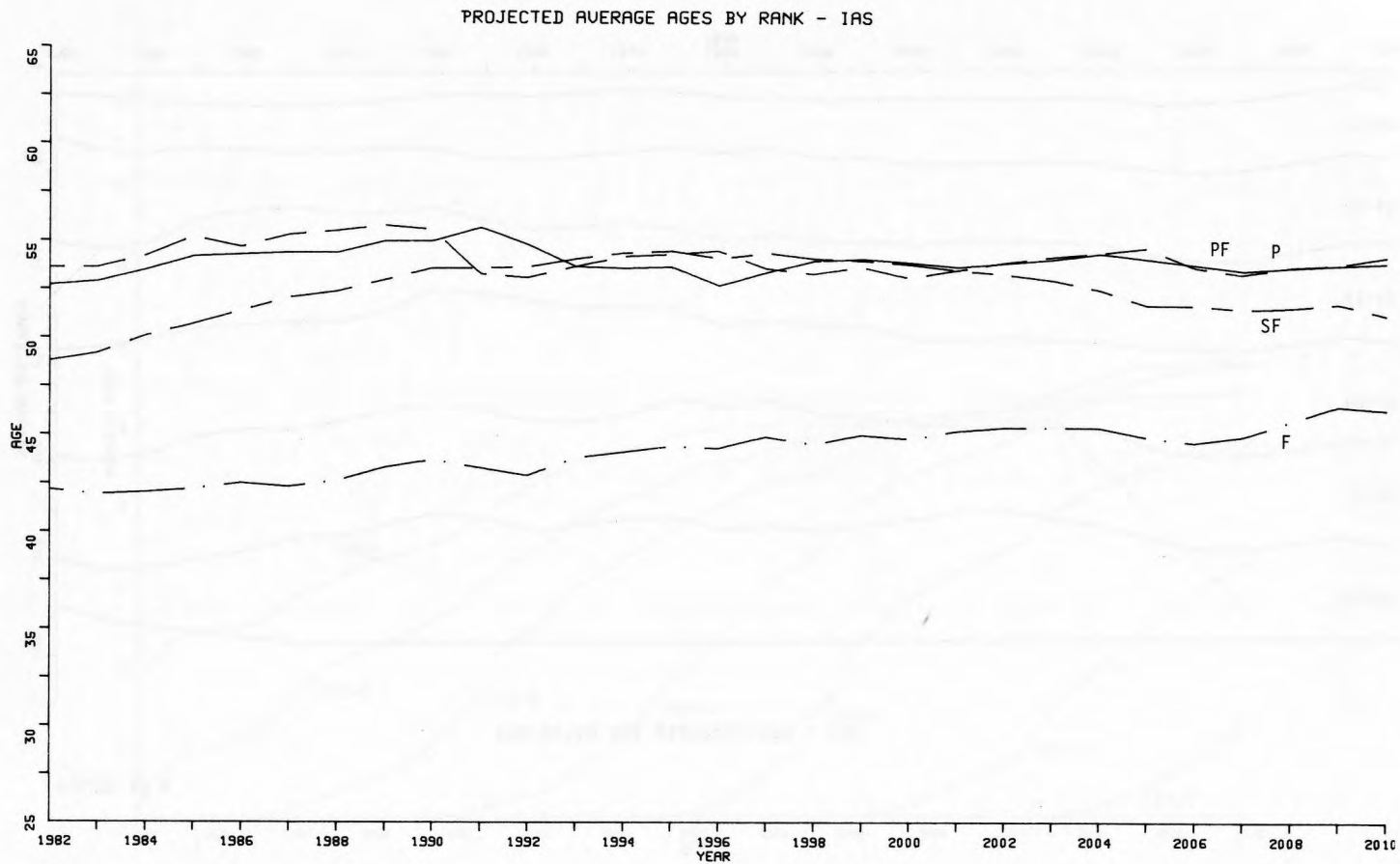


FIGURE B4.C

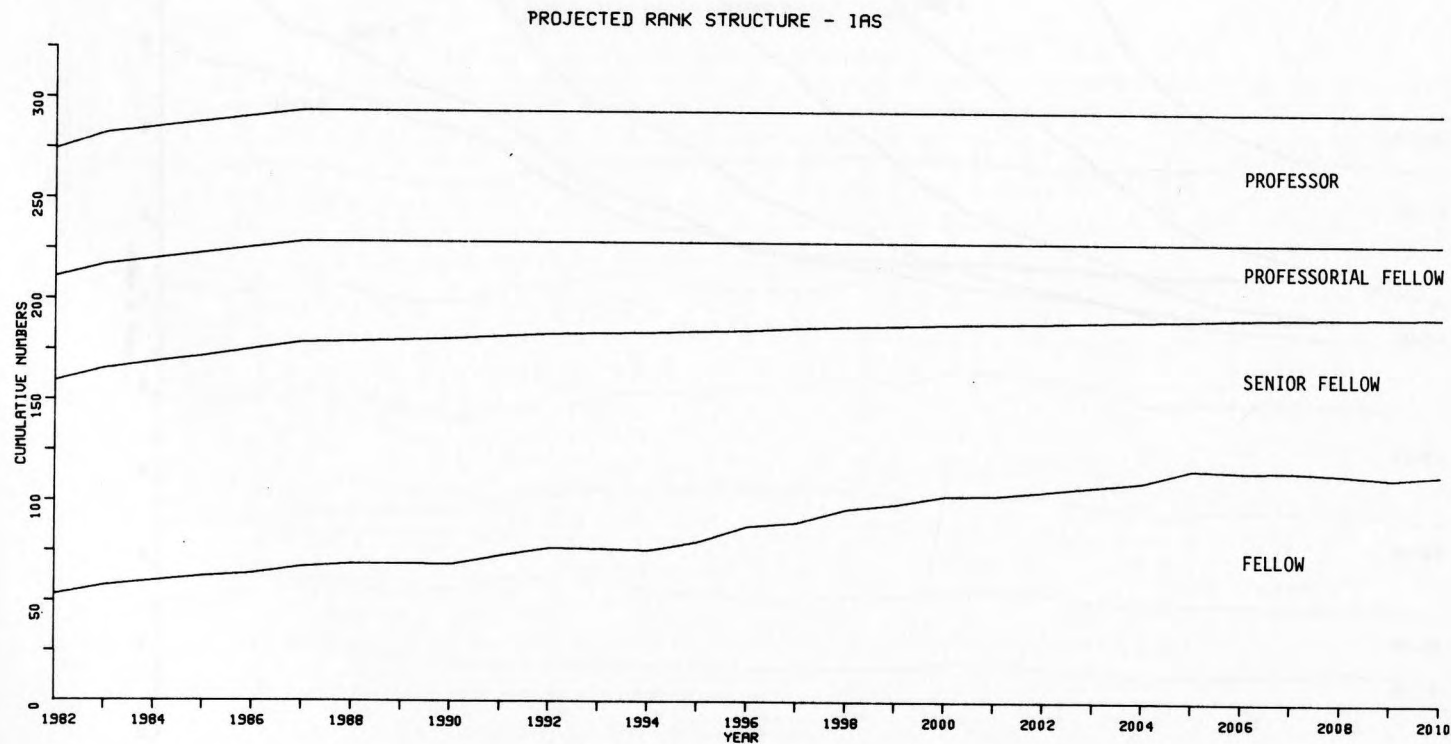


FIGURE B4.D

PROJECTED REPRESENTATION OF BIRTH COHORTS - IAS

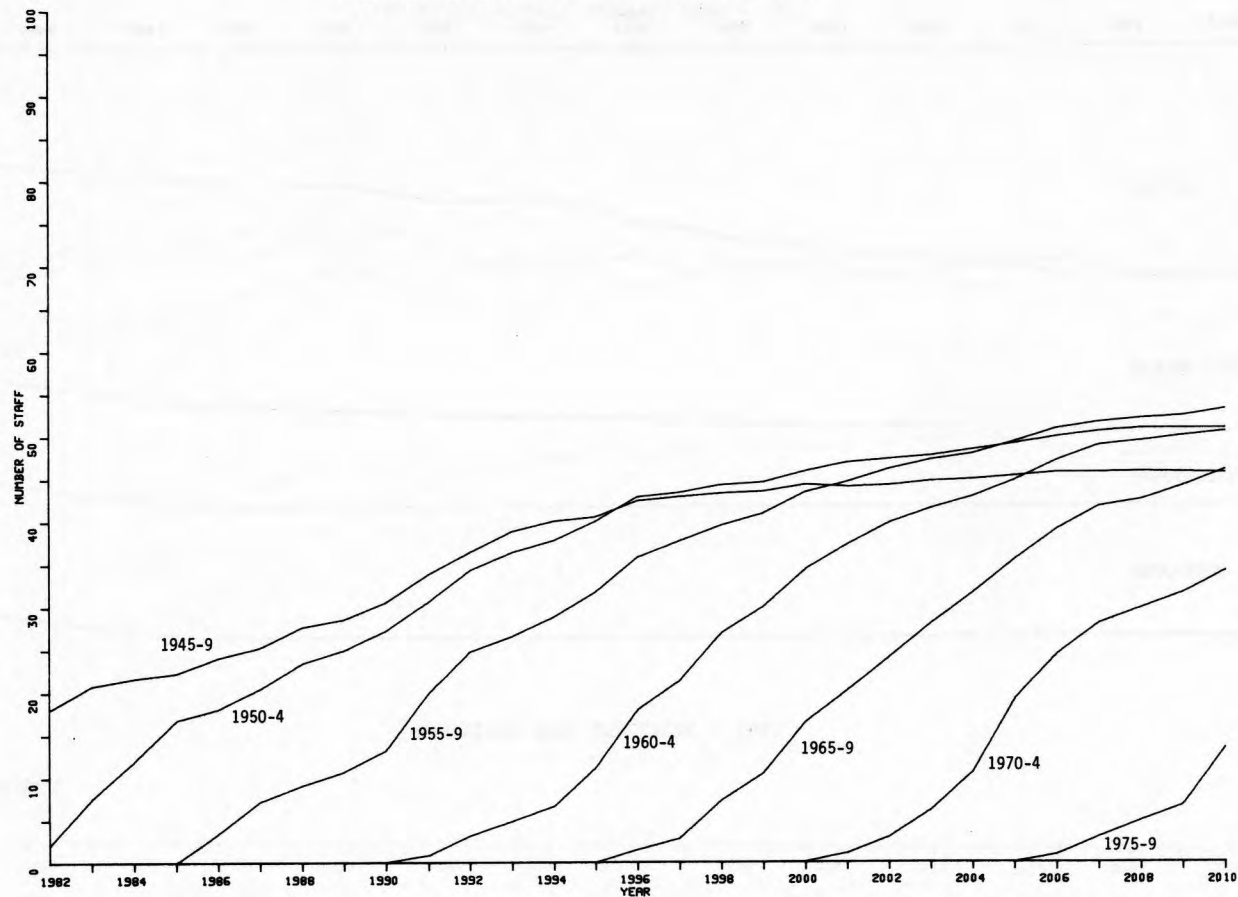


FIGURE B5.A

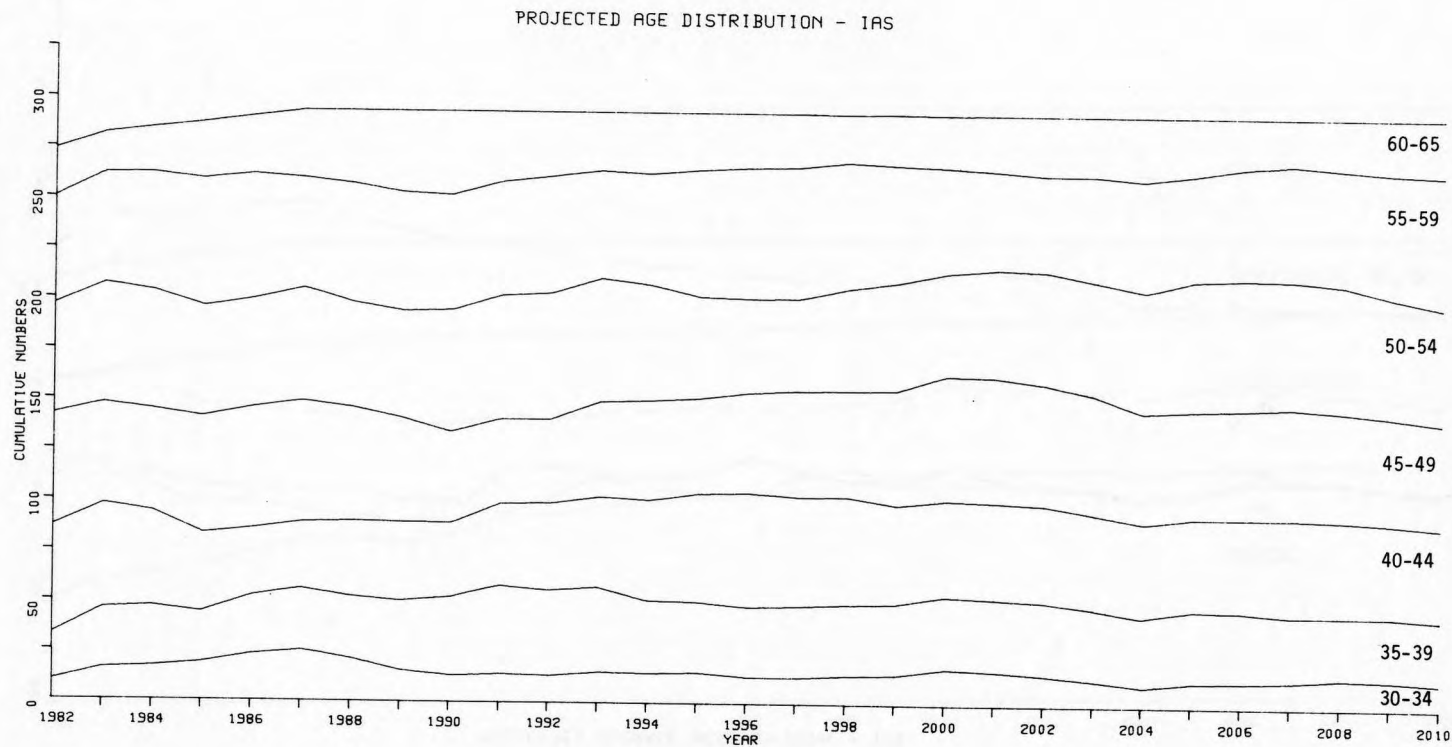


FIGURE B5.B

PROJECTED AVERAGE AGES BY RANK - IAS

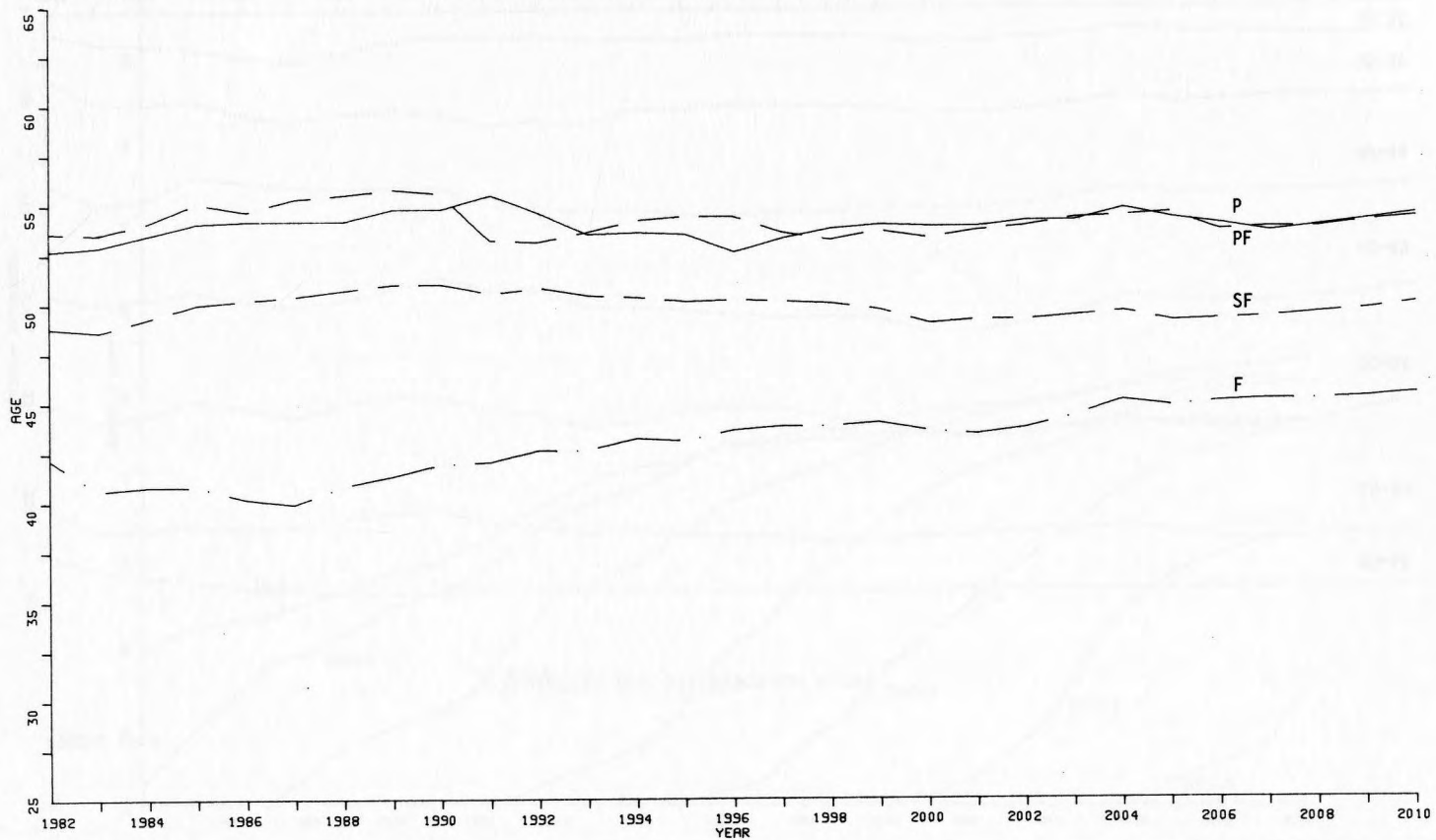


FIGURE B5.C

PROJECTED RANK STRUCTURE - IAS

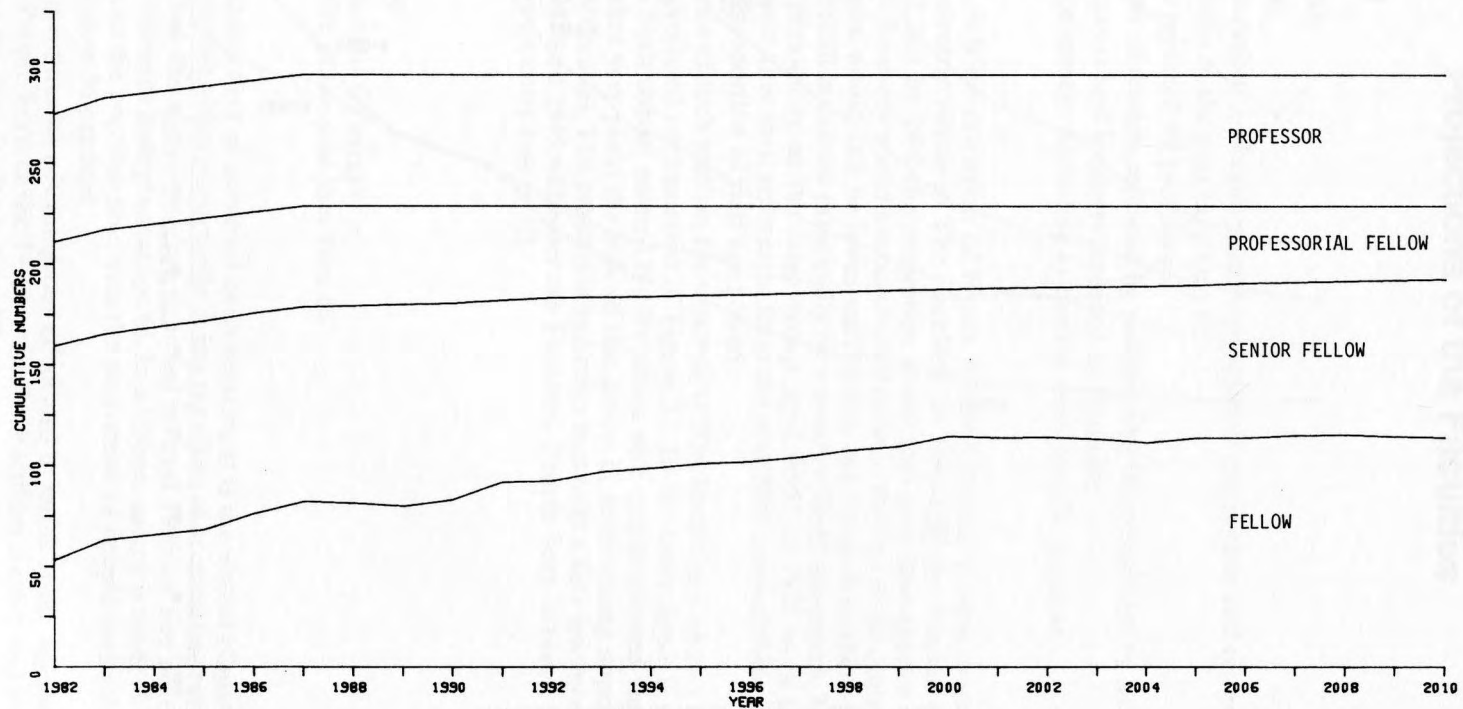
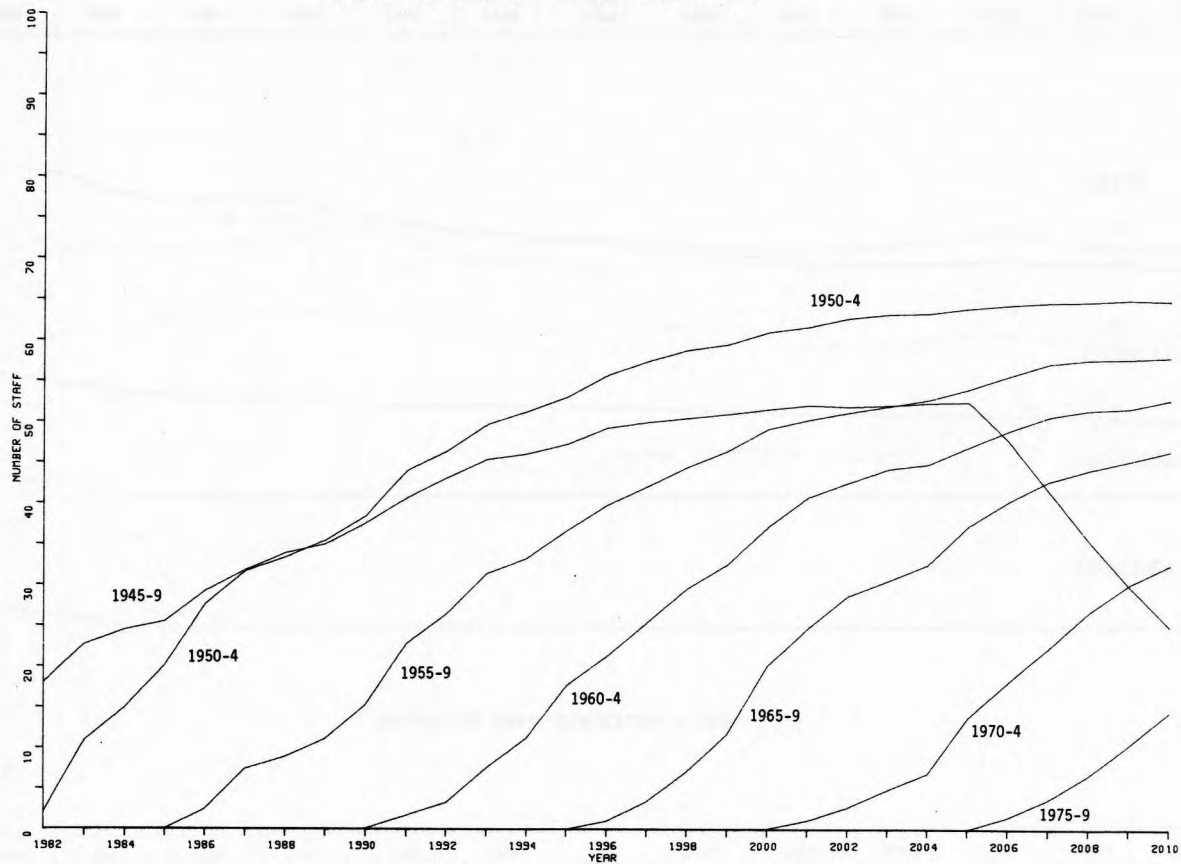


FIGURE B5.D

PROJECTED REPRESENTATION OF BIRTH COHORTS - IAS



Appendix C. Projections of the Faculties

Projection C1

ASSUMPTIONS

1. No growth;
2. Current duration- and rank-specific patterns of promotion and resignation;
3. All staff retire in the year they turn 65;
4. Professors replaced by professors;
5. One-quarter of readers replaced by readers, and the remainder by lecturers;
6. Senior lecturers and lecturers replaced by lecturers;
7. Age at appointment according to current rank-specific patterns.

FINDINGS

Figure C1.A is an extension of Figure 2.3, and depicts a continuation of the ageing process already visible in The Faculties. In 1982 half the tenured staff were younger than 45, but by 1990 the projection shows that only one-quarter would be younger than 45. Recovery would not occur until close to the end of the century but by the year 2010 there would still be fewer staff in this age range than there are at the present. The shortfall is caused principally by a smaller 40-44 age-group. The graph shows marked periodicity as the large group aged 40-55 in 1985 work their way through the system; after their retirement from the year 2005 onward there is at last a reduction in the proportion of staff aged 60-65.

The influence of such staff on the structure of The Faculties is shown clearly in Figure C1.D, a projected continuation of Figure 2.7. In the latter figure it was clear that the 1940-44 birth cohort entered the Faculties with unprecedented vigour, and Figure C1.D makes very plain the role of this group in determining appointments over the next few decades. The projection indicates that only a very few more people born between 1945 and 1949 will enter the Faculties. People born between 1955 and 1959 have the lowest entry rate of all.

Projection C2

ASSUMPTIONS

- As for Projection C1 except
3. All staff retire in the year they turn 60.

FINDINGS

The immediate effect of universal early retirement is the virtual elimination of the 60-65 age group but, more importantly, it has the effect of accelerating turnover in The Faculties. Thus the ageing process is halted around 1995, or five years earlier than when all retirements took place at age 65. In addition, ageing is never as extreme in this projection as the previous one, with the proportion of people under the age of 45 never falling below 36 per cent.

Early retirement has an advantageous effect also in terms of the representation of birth cohorts. People born in the 1950s enter the Faculties sooner and in greater numbers than was the case for Projection C1.

FIGURE C1.A

PROJECTED AGE DISTRIBUTION - FACULTIES

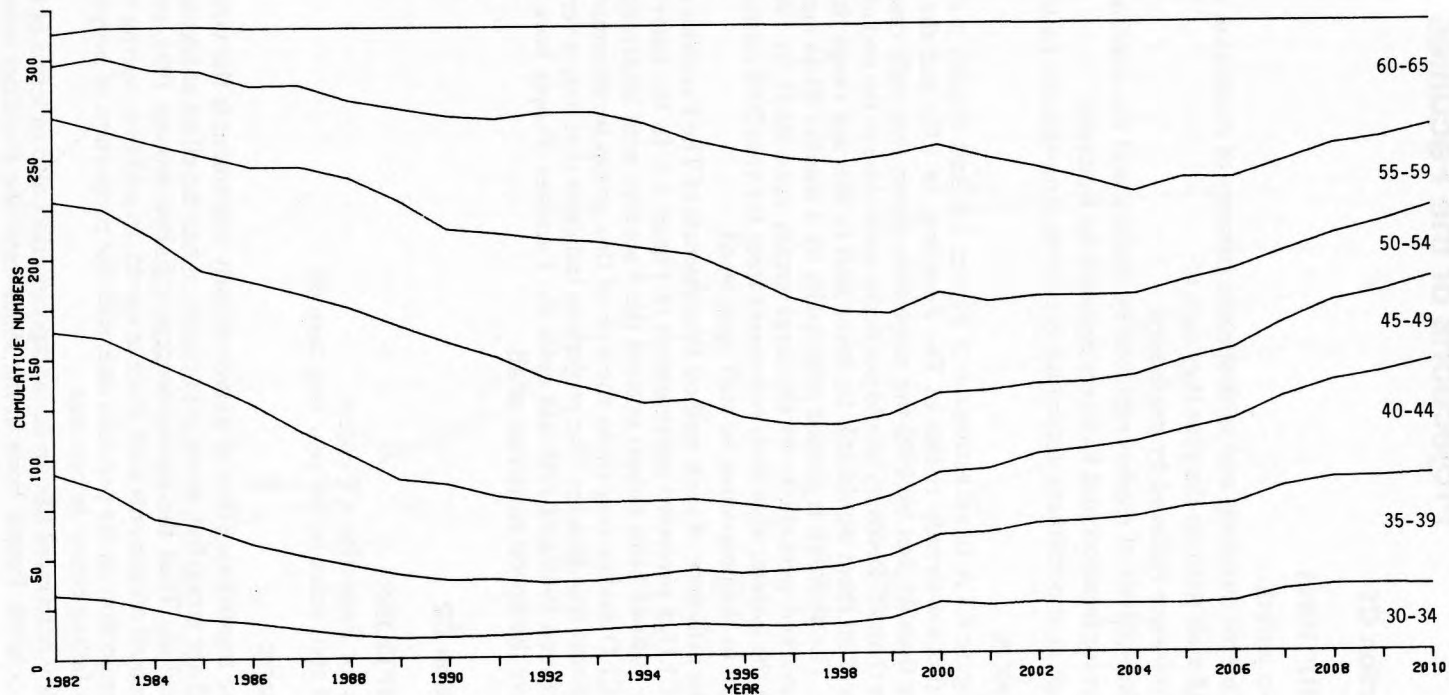


FIGURE C1.B

PROJECTED AVERAGE AGES BY RANK - FACULTIES

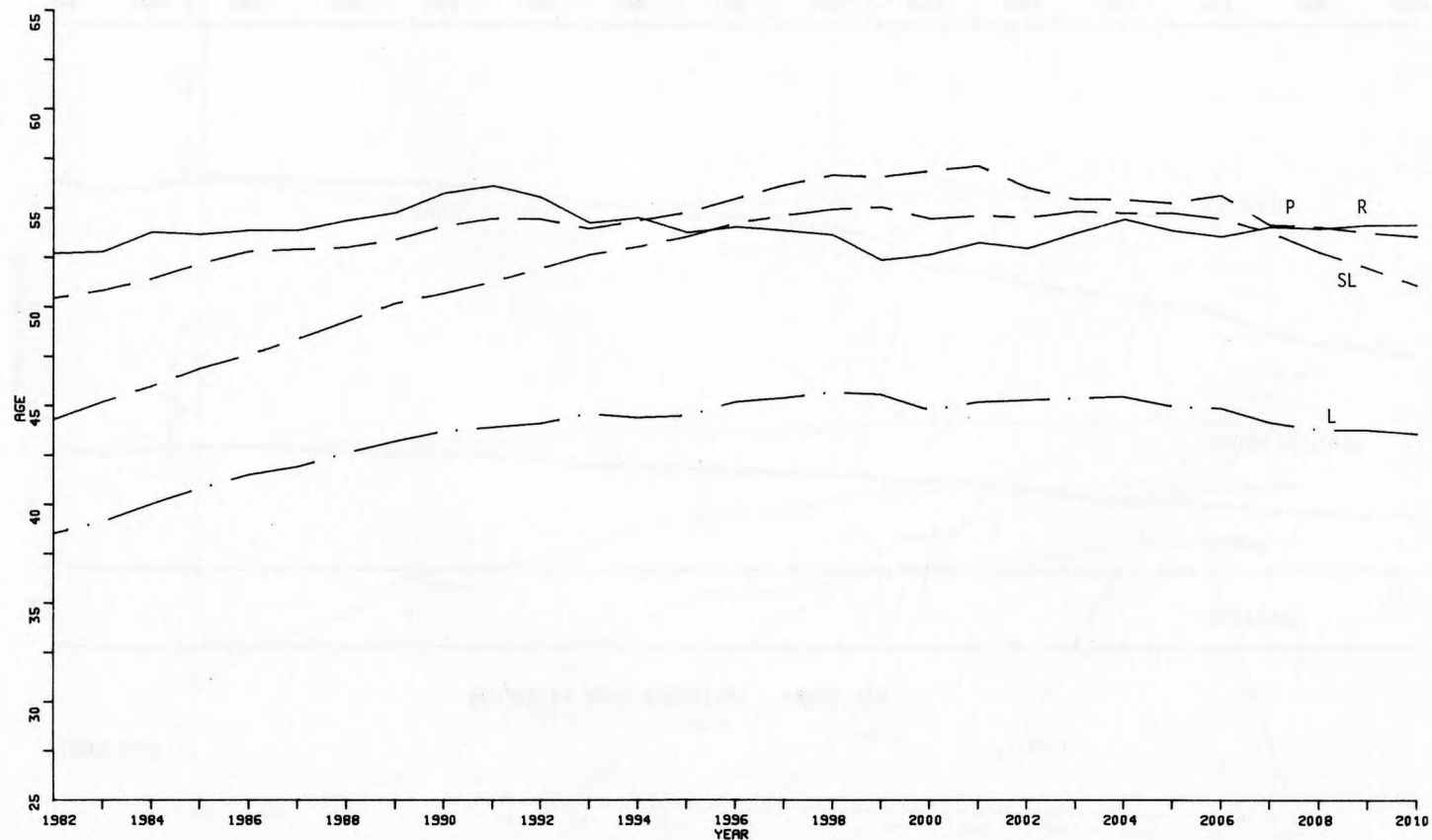


FIGURE C1.C

PROJECTED RANK STRUCTURE - FACULTIES

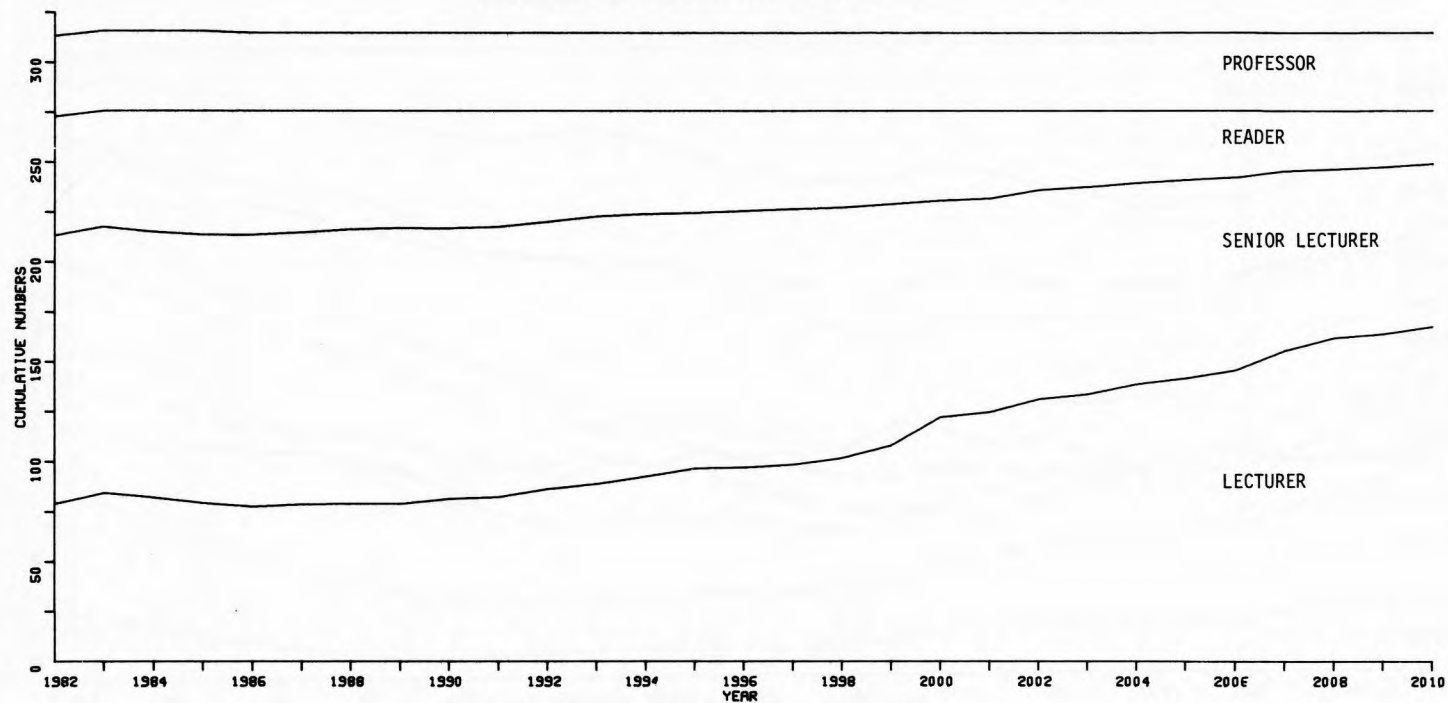


FIGURE C1.D

PROJECTED REPRESENTATION OF BIRTH COHORTS - FACULTIES

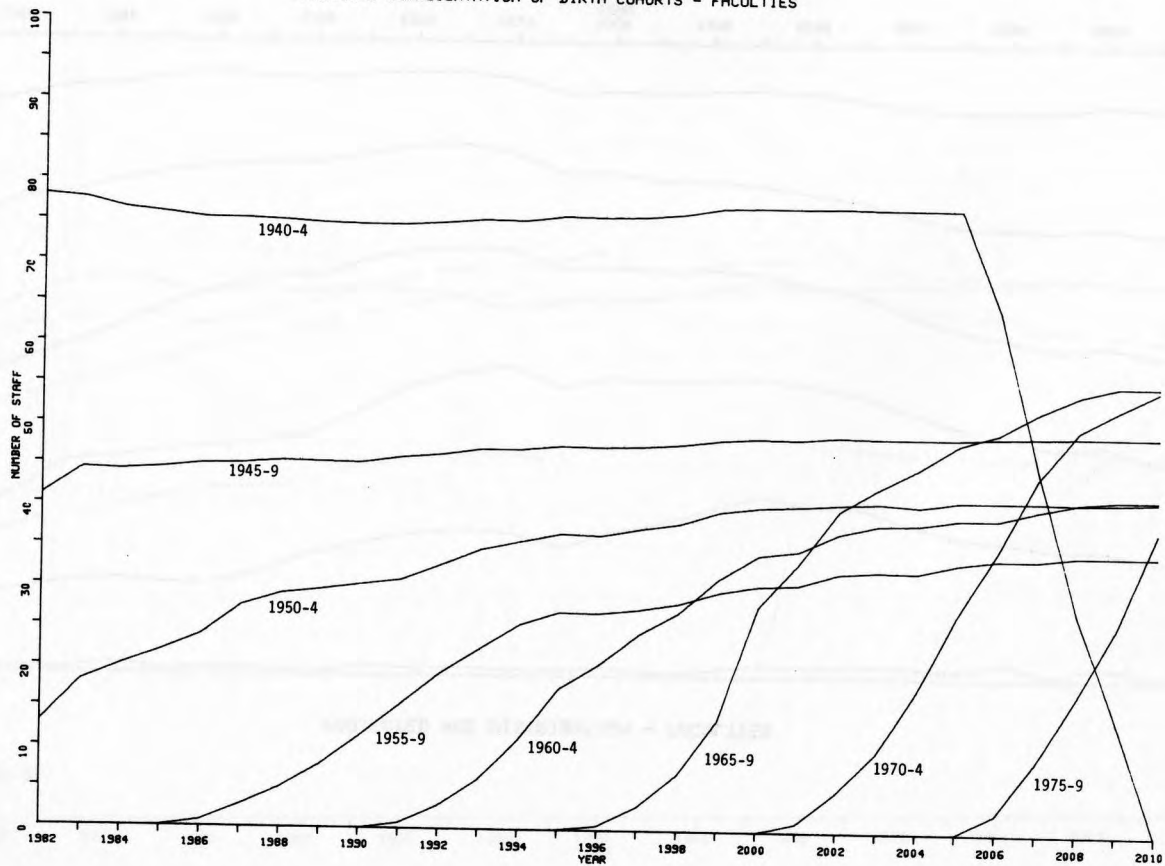
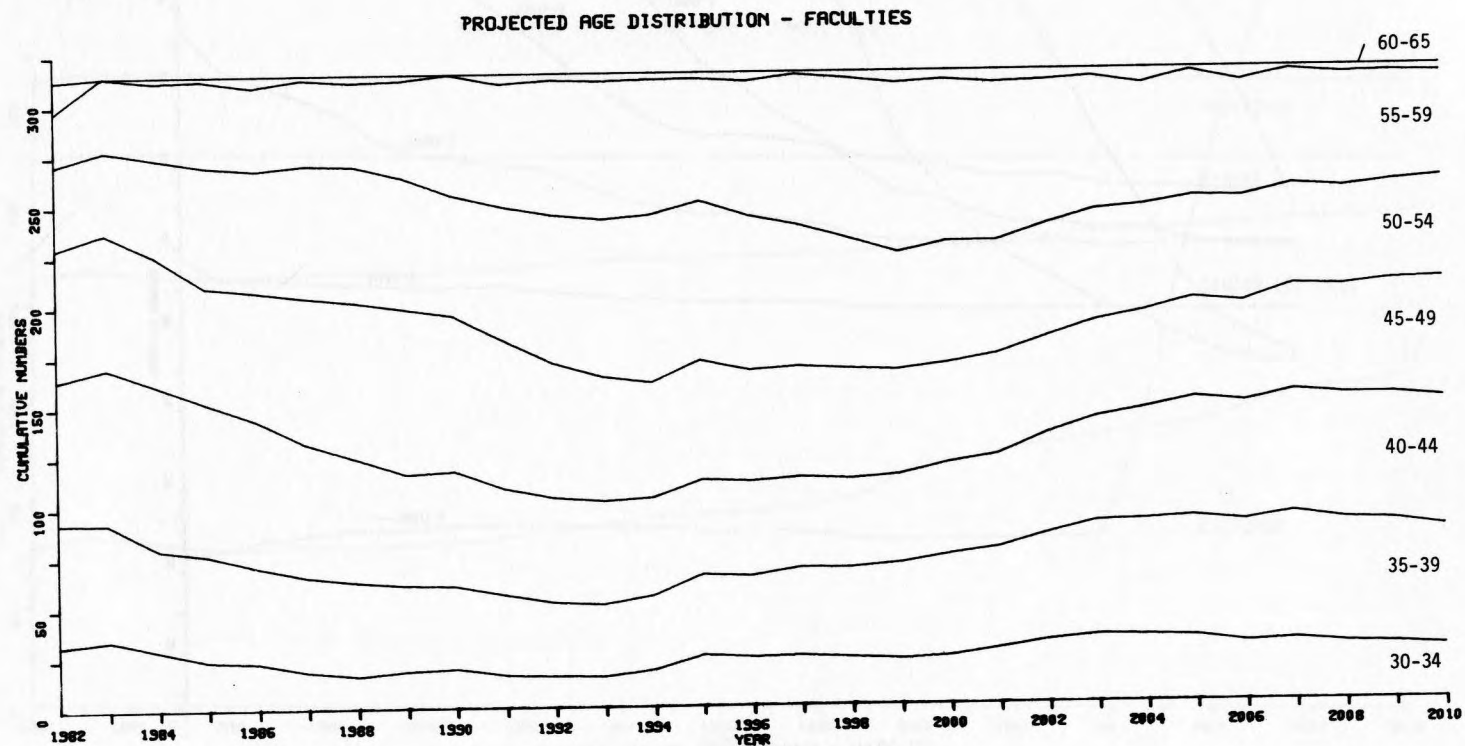


FIGURE C2.A



C2.B

PROJECTED AVERAGE AGES BY RANK - FACULTIES

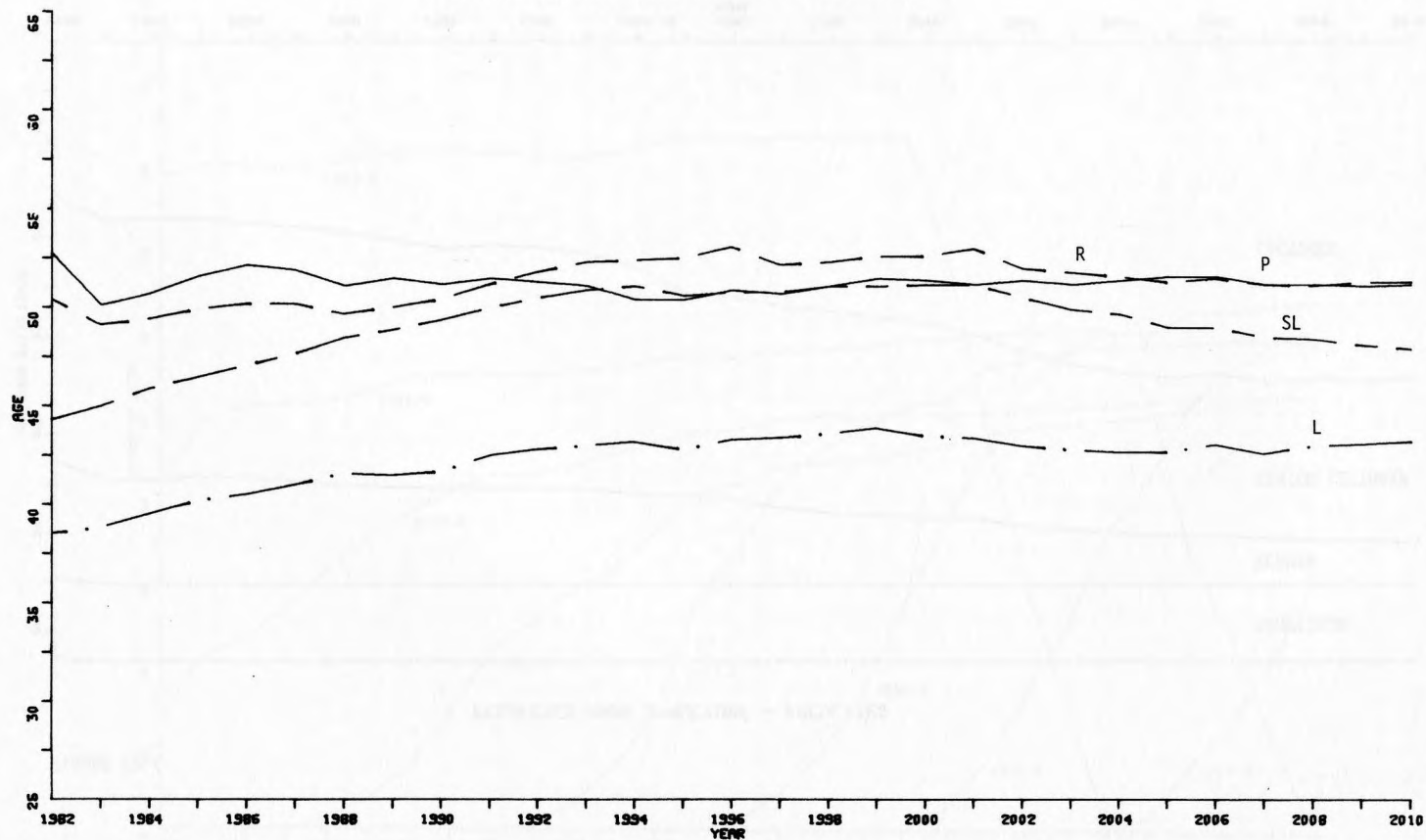


FIGURE C2.C

PROJECTED RANK STRUCTURE - FACULTIES

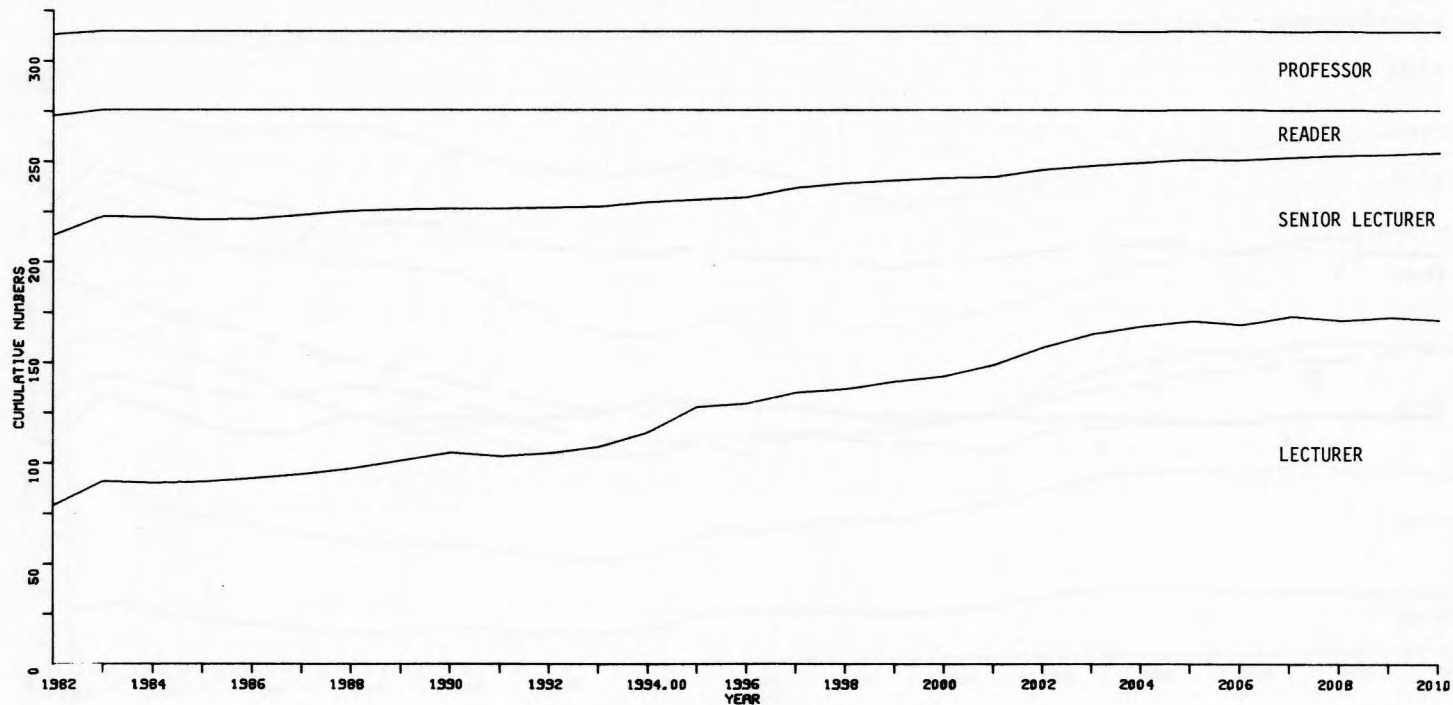
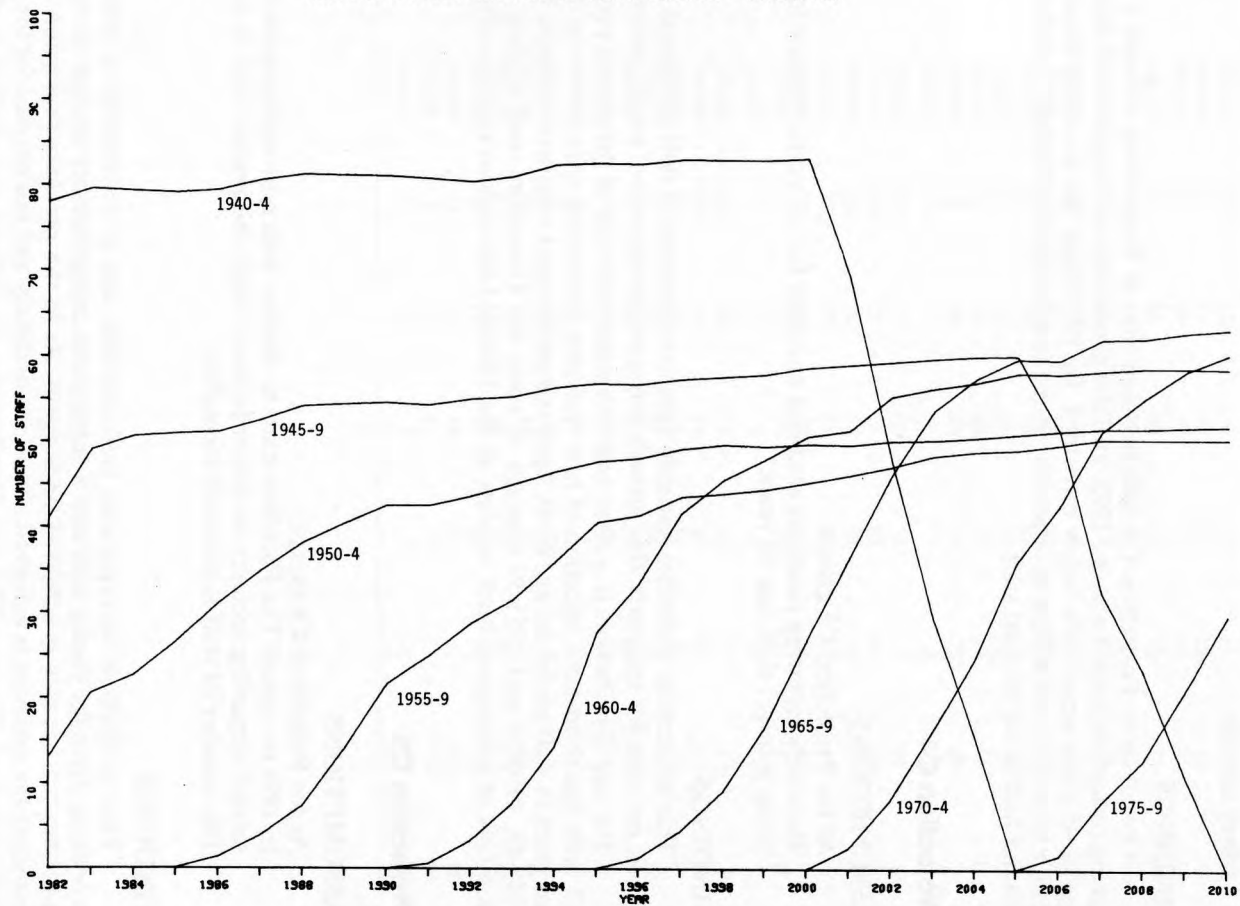


FIGURE C2.D

PROJECTED REPRESENTATION OF BIRTH COHORTS - FACULTIES



Projection C3

ASSUMPTIONS

As for Projection C1 except

3. Professors and readers retire in the year they turn 65; and lecturers in the year they turn 60.

FINDINGS

Output from Projection C3 falls between that of Projections C1 and C2. The ageing process is halted around 1995, and the proportion of tenured staff below the age of 45 years never falls below one-third. By 1995 there are as many lecturers as senior lecturers, and within another ten years the proportion of lecturers stabilizes at around half of all tenured staff.

Projection C4

ASSUMPTIONS

As for Projection C3 except

1. Three new lecturing positions are filled annually for ten years, the new lecturers being younger than age 32 years.

FINDINGS

This projection embodies variable ages at retirement as well as annual growth of one per cent for ten years, this growth being restricted to very young lecturers.

The age distribution is a clear improvement over that of the parent projection C3, with the short-term injection of new lecturers preventing a decline over the next ten years in staff under the age of 40. Approximately equal numbers of people born in 1945-49, 1950-54 and 1955-59 manage to enter the University, and slightly greater numbers of subsequent birth cohorts as the 1940-44 birth cohort reaches retirement.

Projection C5

ASSUMPTIONS

As for Projection C4 except

1. In 1998 the size of The Faculties starts to decline, with non-replacement of every second departing lecturer or senior lecturer, until the present size is reached. The number of staff is constant thereafter.

FINDINGS

This projection incorporates rank-specific age at retirement, a temporary recruiting drive for young staff and a subsequent compensatory decline in numbers until the present size is achieved once again. As in the previous projection a fairly constant age structure is achieved almost immediately and maintained for the projection period of 30 years. The age distributions are indeed very similar to those of Projection C4. While there are very slight declines in the proportion of staff aged 30-34 and 35-39, there is a larger decline in the 40-44 age group which is, at one-quarter of all current staff, presently over-represented. There is approximately equal representation of each of the post-1944 birth cohorts.

Table C.1 — Projected Percentage Age Distributions in the Faculties

PROJEC- TION	AGE	1982	1985	1990	1995	2000	2005	2010
C1	30-34	10	6	3	5	8	8	10
	35-39	20	15	9	9	11	15	18
	40-44	23	23	15	11	10	12	18
	45-49	21	18	23	16	12	11	13
	50-54	13	18	18	23	16	13	11
	55-59	8	13	18	18	24	16	13
	60-65	5	7	14	18	19	25	17
C2	30-34	10	7	6	8	8	10	9
	35-39	20	17	13	13	16	19	19
	40-44	23	24	18	15	15	19	20
	45-49	21	18	25	19	16	15	19
	50-54	13	19	19	25	19	16	16
	55-59	8	14	19	19	25	20	16
	60-65	5	1	—	1	2	1	1
C3	30-34	10	7	5	8	7	11	9
	35-39	20	15	11	12	14	18	19
	40-44	23	23	16	14	13	17	20
	45-49	21	18	23	16	15	14	17
	50-54	13	18	18	23	17	15	14
	55-59	8	13	18	19	24	17	15
	60-65	5	6	9	8	10	8	6
C4	30-34	10	10	9	10	7	10	8
	35-39	20	15	14	15	16	17	18
	40-44	23	22	15	15	16	18	18
	45-49	21	17	21	16	15	16	18
	50-54	13	18	16	21	16	16	16
	55-59	8	13	17	16	22	16	16
	60-65	5	5	8	7	8	7	6
C5	30-34	10	10	9	9	7	9	7
	35-39	20	15	14	15	15	16	17
	40-44	23	22	15	15	16	17	16
	45-49	21	17	21	16	16	17	18
	50-54	13	18	16	21	16	17	18
	55-59	8	13	17	17	22	17	17
	60-65	5	5	8	7	8	7	7

FIGURE C3.A

PROJECTED AGE DISTRIBUTION - FACULTIES

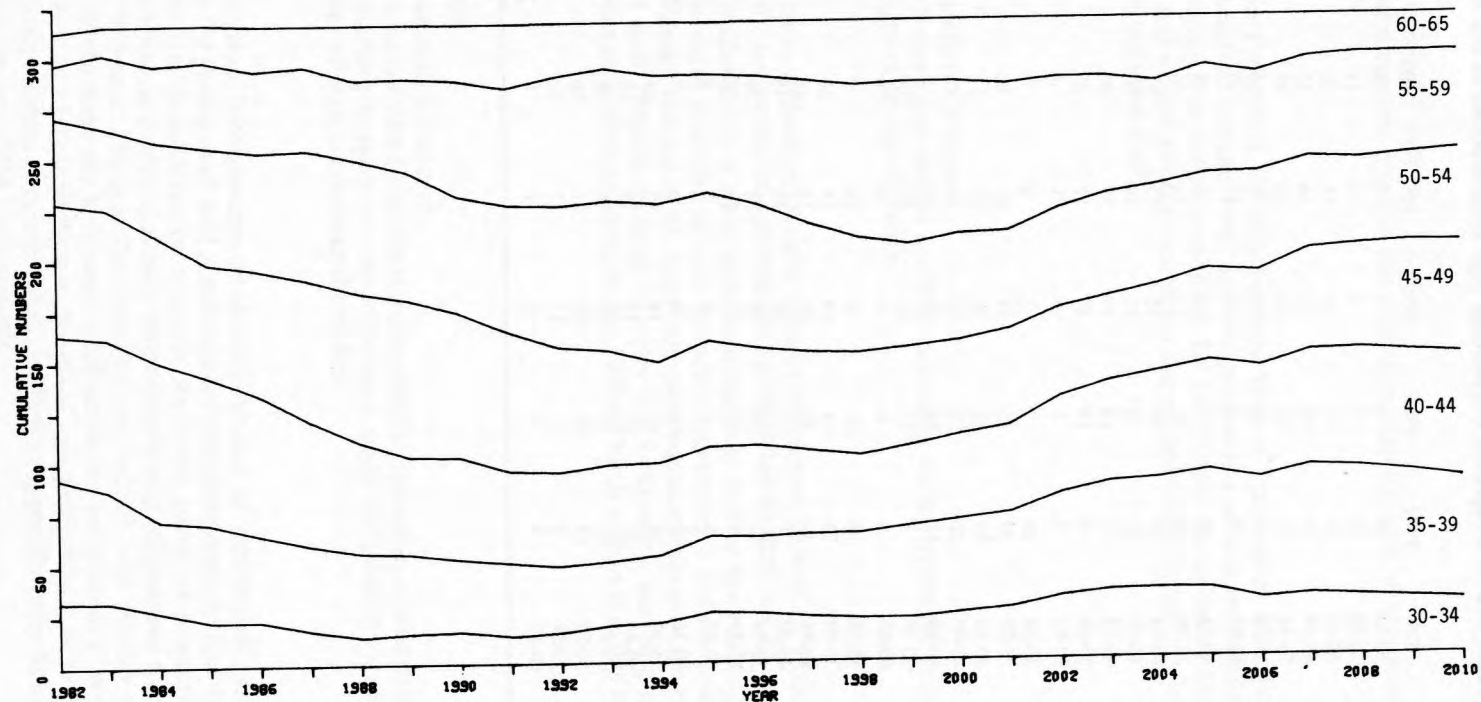


FIGURE C3.B

PROJECTED AVERAGE AGES BY RANK - FACULTIES

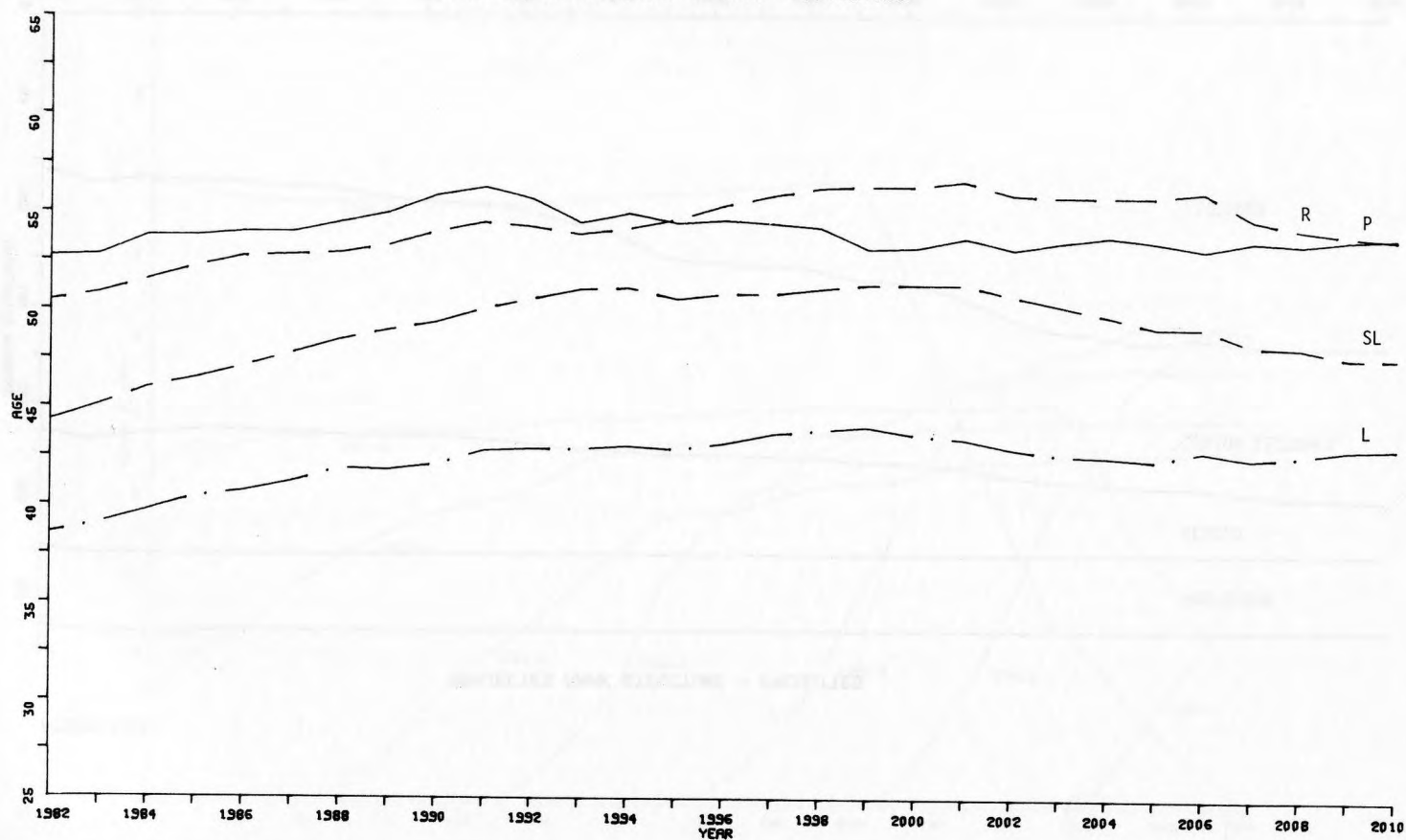


FIGURE C3.C

PROJECTED RANK STRUCTURE - FACULTIES

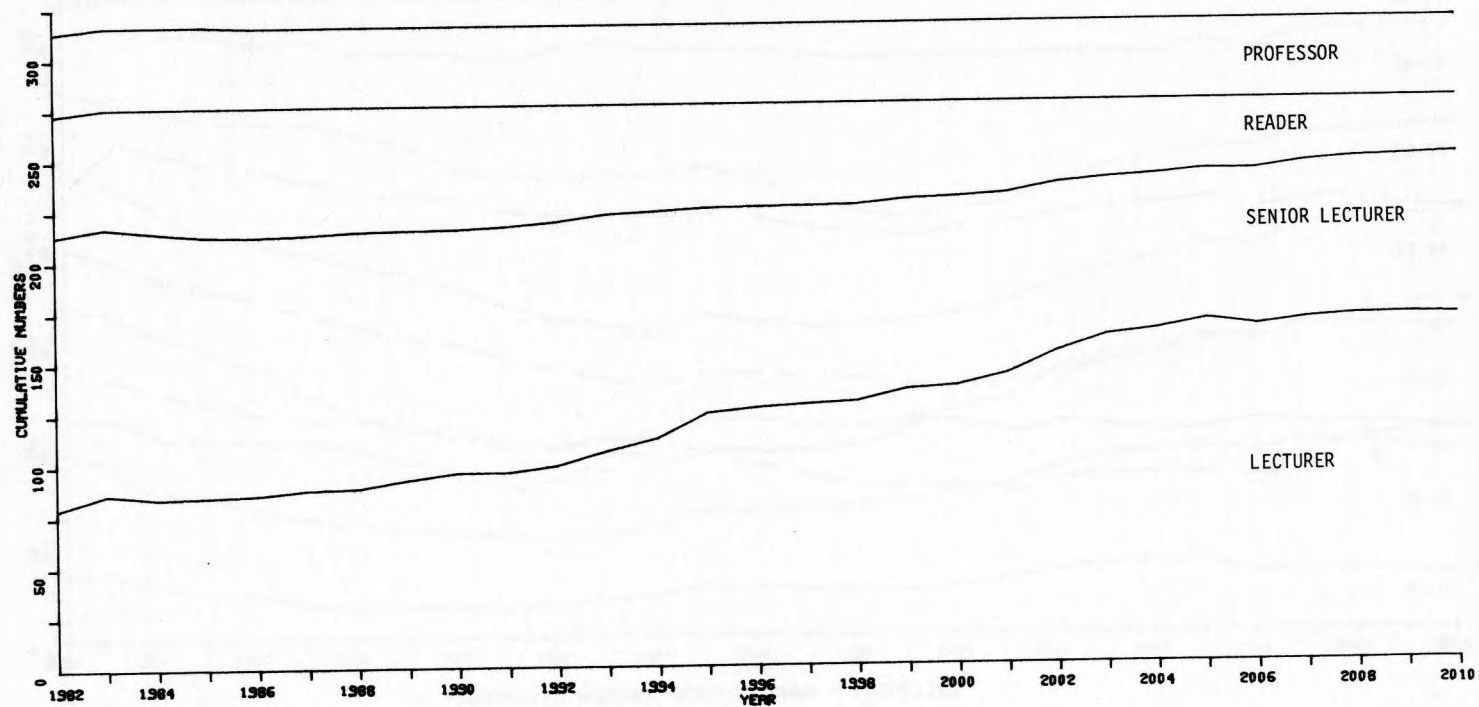


FIGURE C3.D

PROJECTED REPRESENTATION OF BIRTH COHORTS - FACULTIES

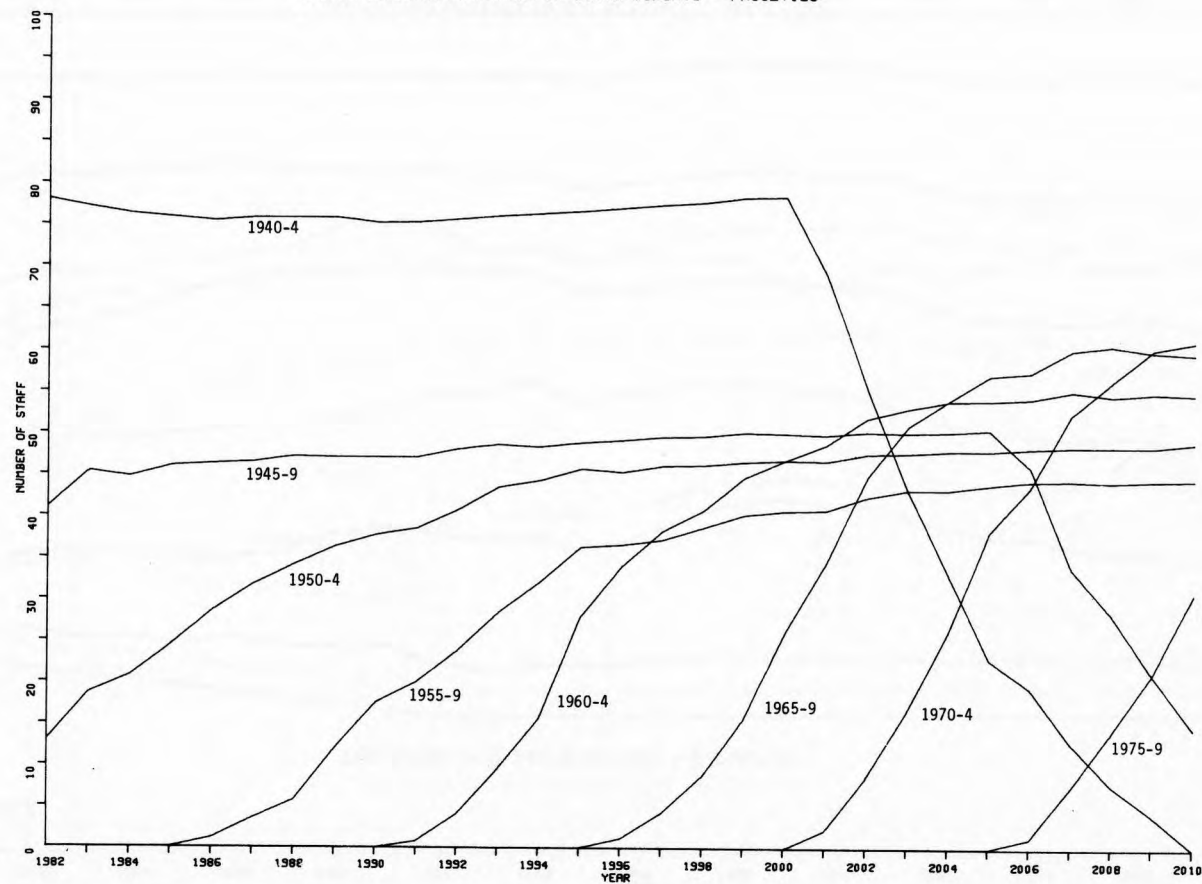


FIGURE C4.A

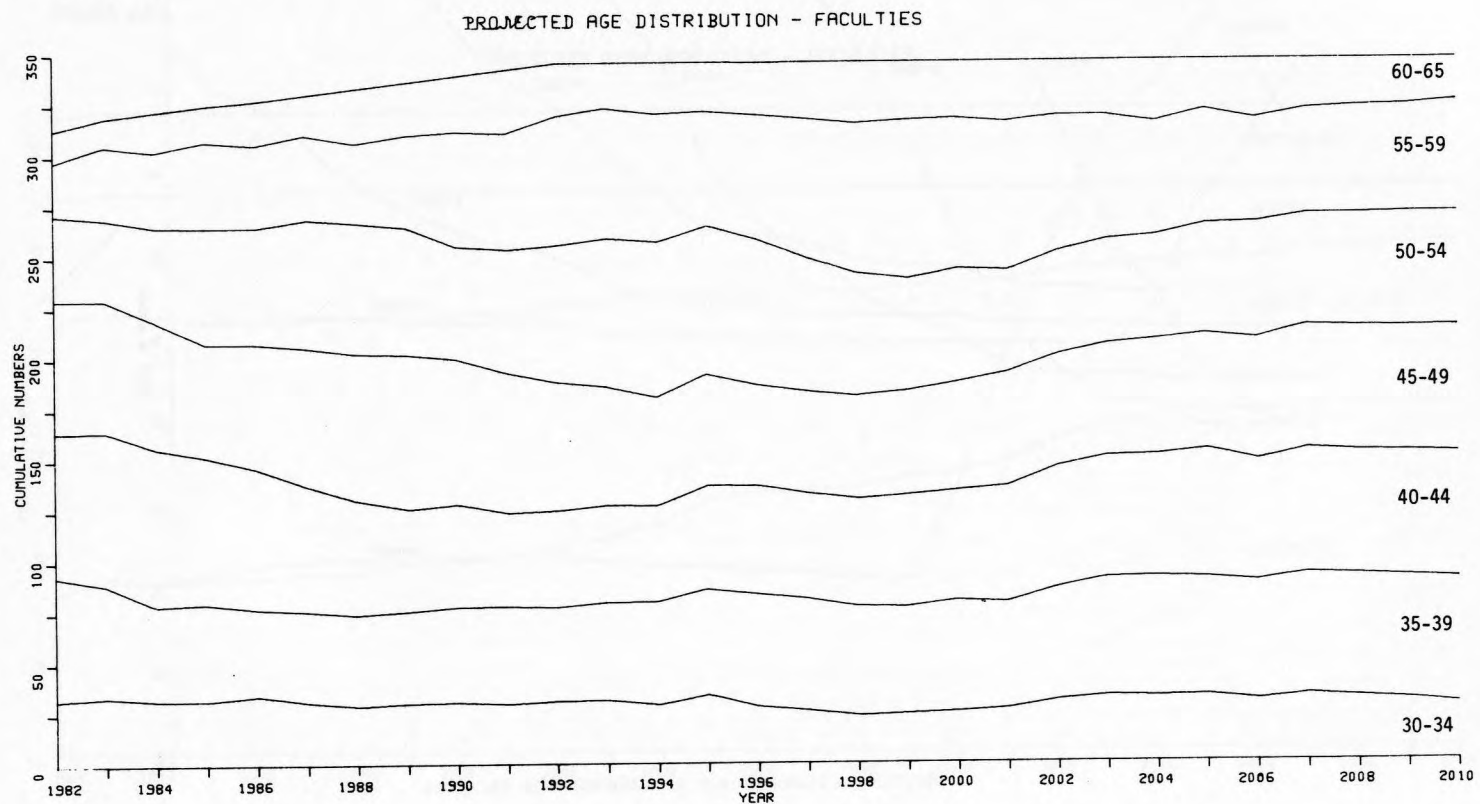


FIGURE C4.B

PROJECTED AVERAGE AGES BY RANK - FACULTIES

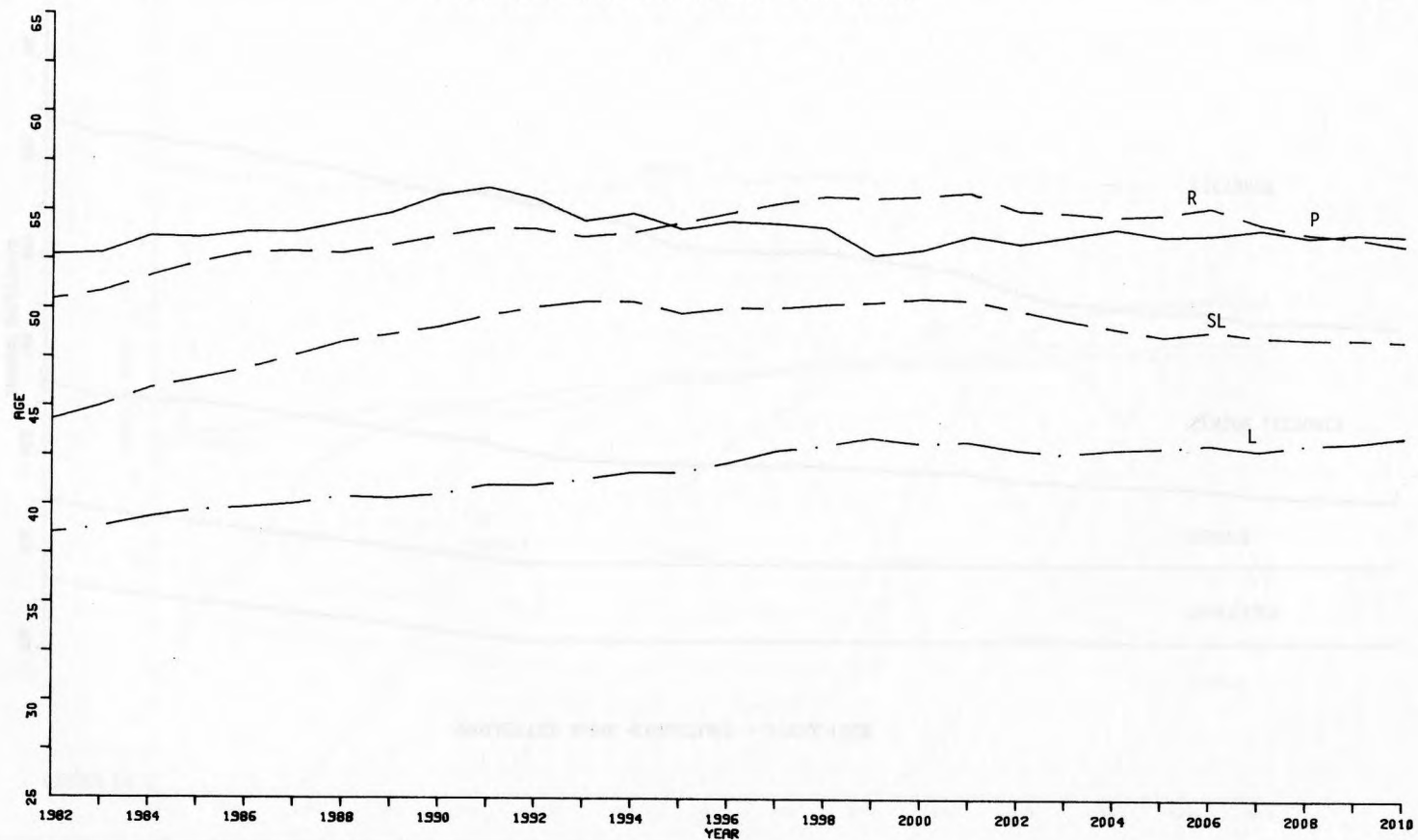


FIGURE C4.C

PROJECTED RANK STRUCTURE - FACULTIES

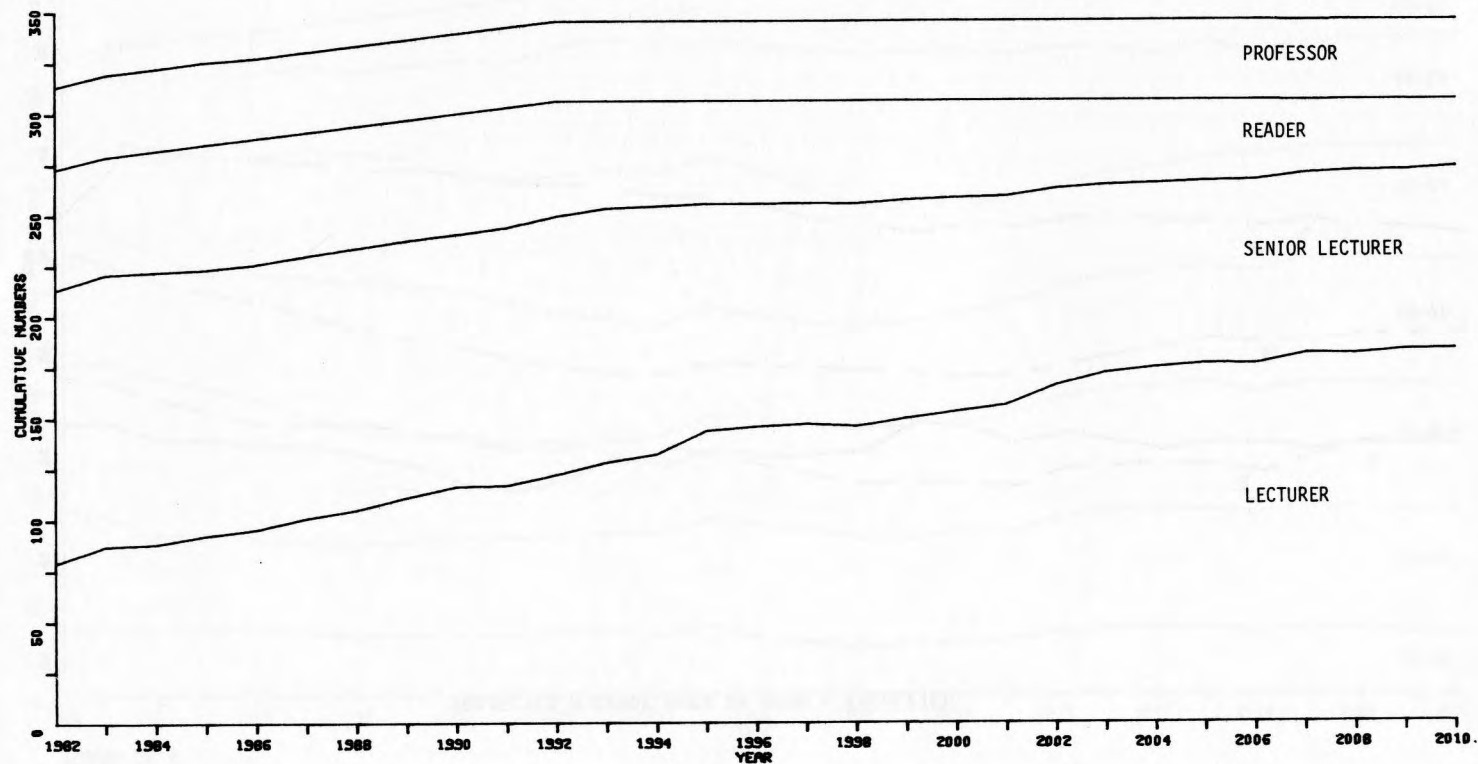


FIGURE C4.D

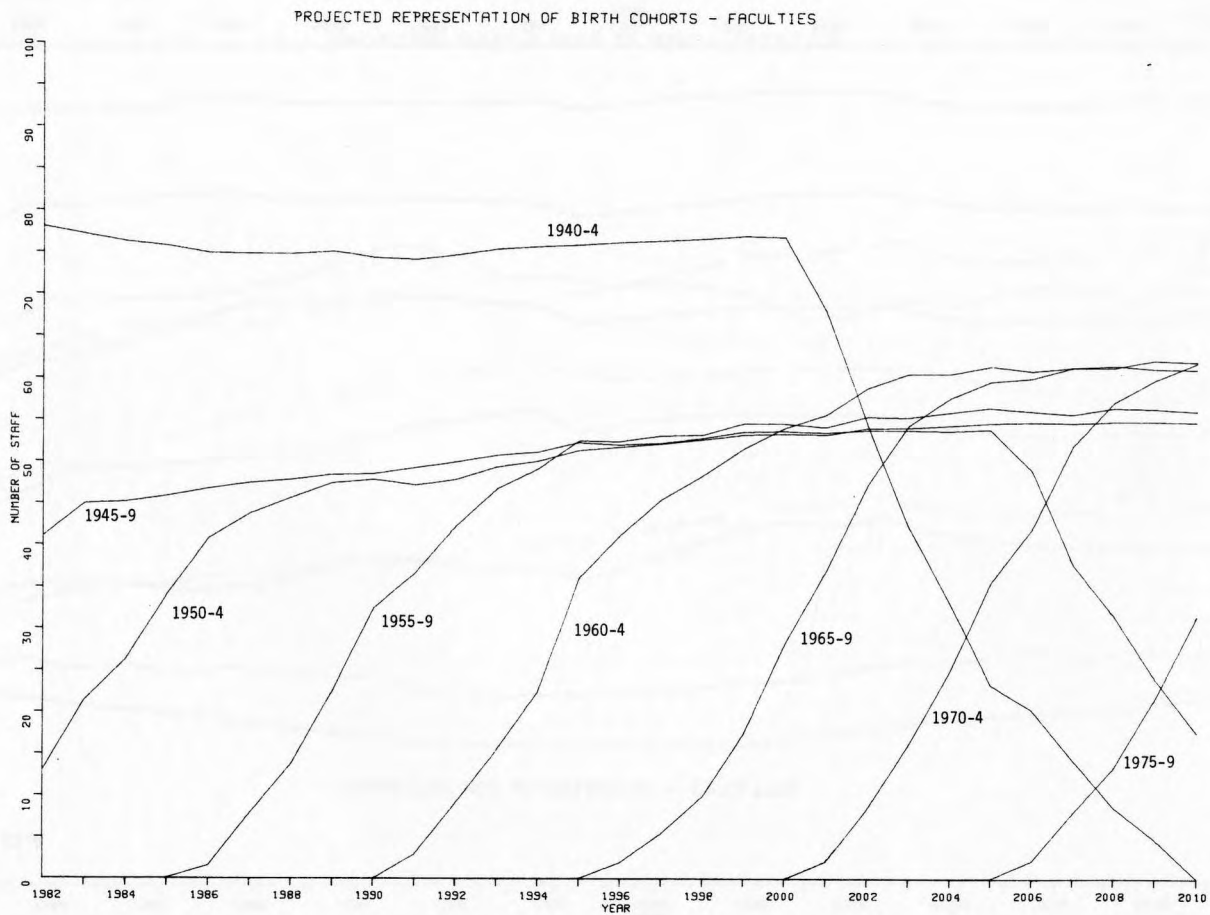


FIGURE C5.A

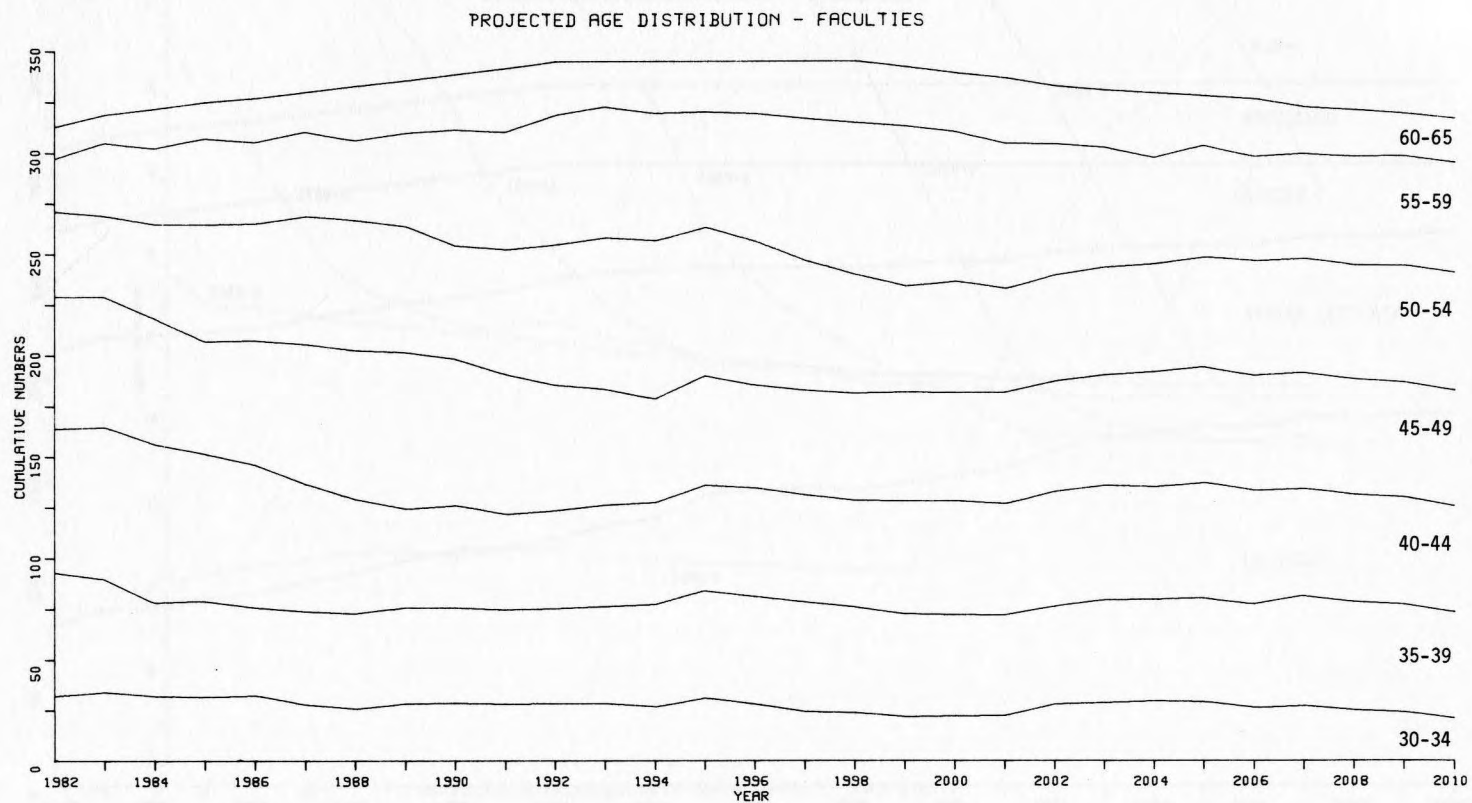


FIGURE C5.B

PROJECTED AVERAGE AGES BY RANK - FACULTIES

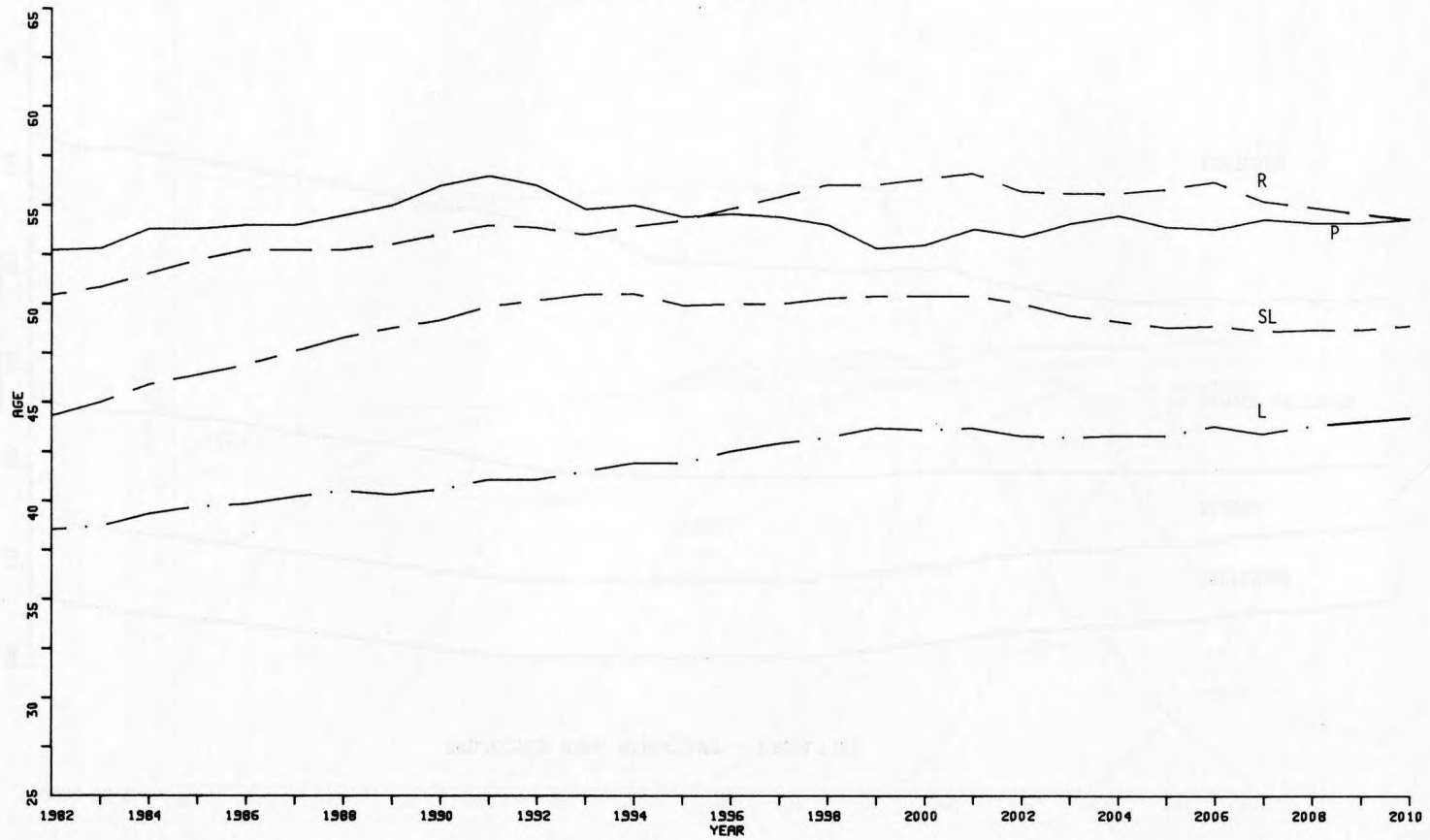


FIGURE C5.C

PROJECTED RANK STRUCTURE - FACULTIES

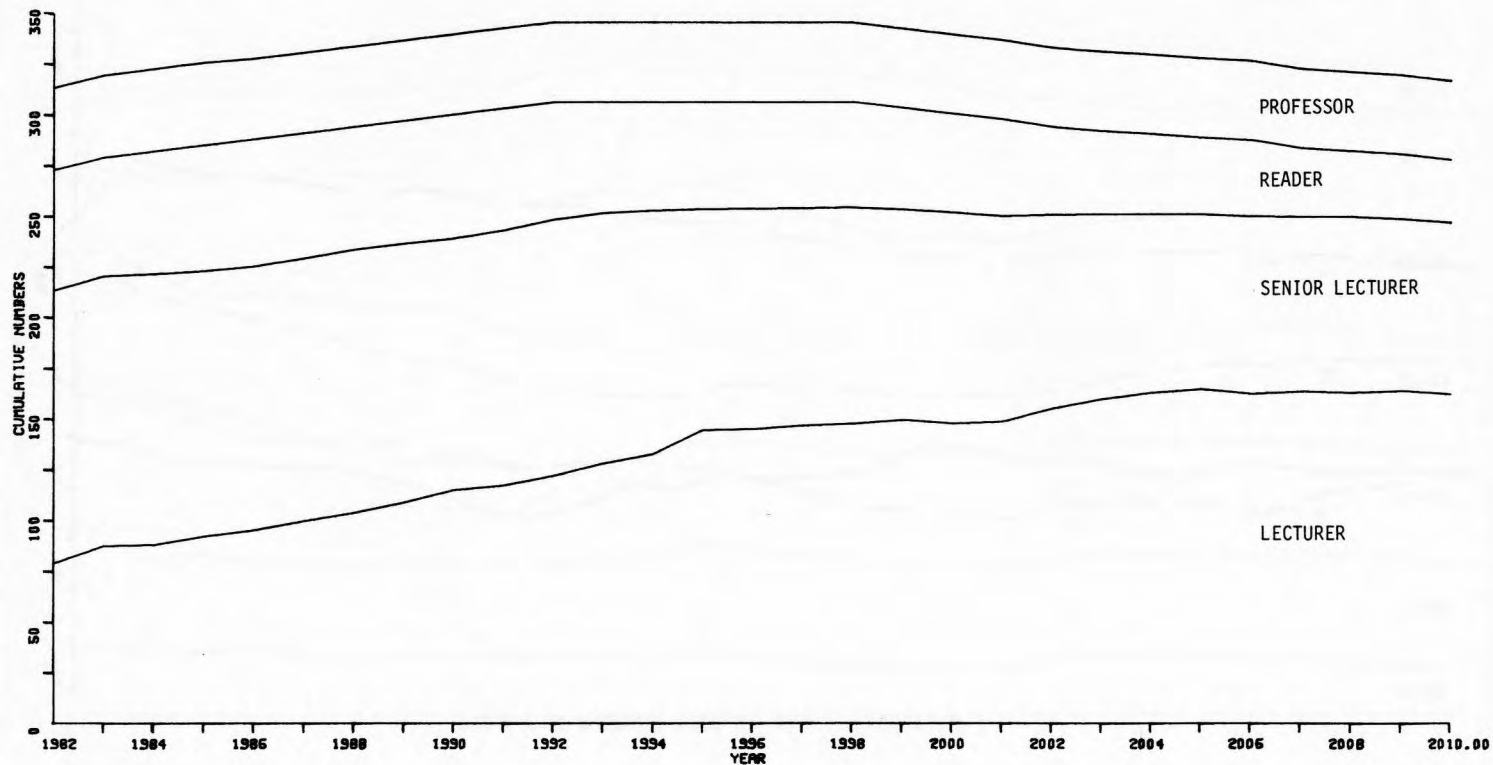
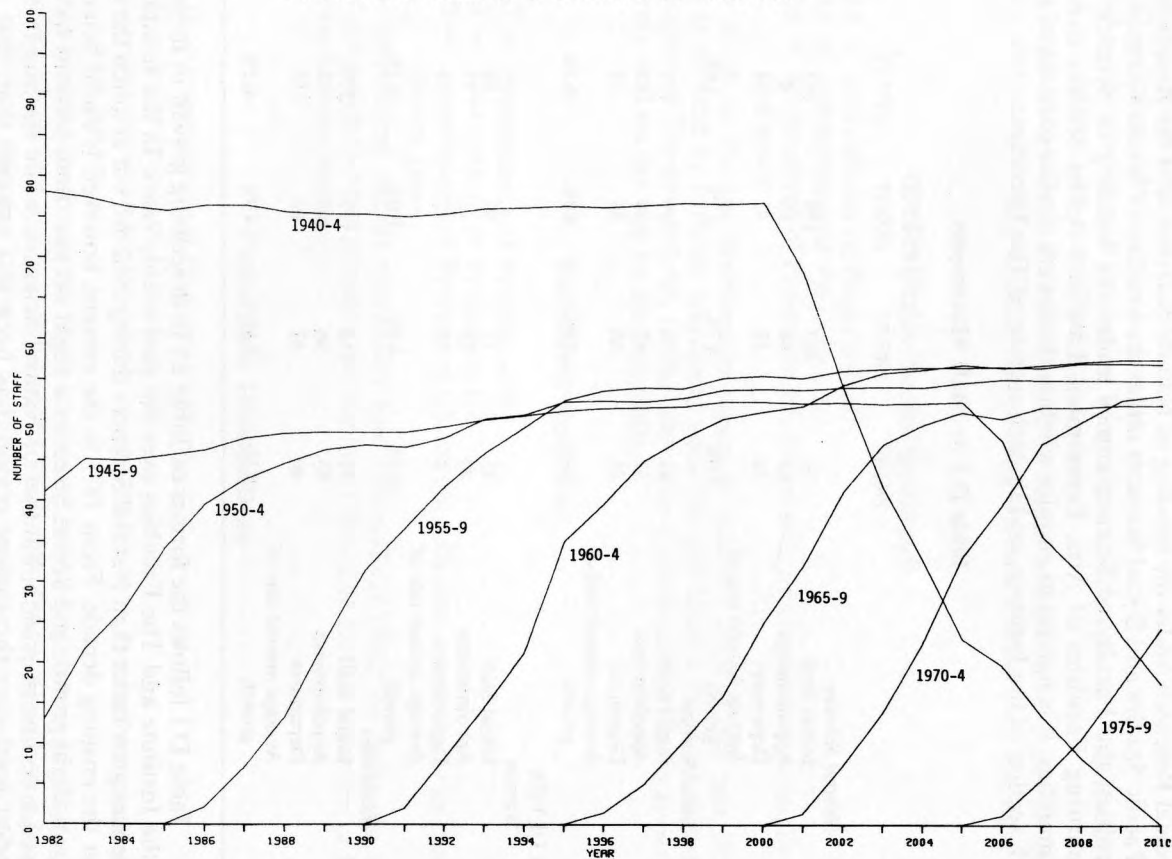


FIGURE C5.D

PROJECTED REPRESENTATION OF BIRTH COHORTS - FACULTIES



Appendix D. Sciences and Humanities

In the Institute we have grouped the Research Schools of Biological Sciences, Chemistry, Earth Sciences and Physical Sciences, and the John Curtin School of Medical Research under the heading of Natural Sciences, and the Research Schools of Pacific Studies and Social Sciences under the heading of Social Sciences. For The Faculties, the Faculty of Science comes under the heading of Science, and the remaining Faculties of Arts, Economics, Law and Asian Studies come under Humanities. It is natural to enquire whether there were similar patterns of growth in each section of the Institute, and in each section of The Faculties.

Table D.1 — Staff Movements

		PERIOD				
		1962-67	1967-72	1972-77	1977-78	1982-
IAS	<i>Natural Sciences</i>					
	Initial Staff	76	102	129	152	165
	Appointments	62	64	55	47	
	Departures	36	37	32	34	
	Average annual rate of growth	5.9%	4.7%	3.3%	1.6%	
	<i>Social Sciences</i>					
	Initial Staff	45	74	91	111	108
	Appointments	57	62	54	17	
	Departures	28	45	34	20	
	Average annual rate of growth	9.9%	4.1%	4.0%	-0.5%	
FACULTIES						
	<i>Sciences</i>					
	Initial Staff	45	77	96	96	95
	Appointments	40	35	12	17	
	Departures	8	16	12	18	
	Average annual rate of growth	10.7%	4.4%	0.0%	-0.2%	
	<i>Humanities</i>					
	Initial Staff	73	116	171	219	217
	Appointments	83	96	108	53	
	Departures	40	41	60	55	
	Average annual rate of growth	9.3%	7.8%	4.9%	-0.2%	

Table D.1 follows the format of Table 1.1 in describing growth in these sections of the Institute and The Faculties over the past twenty years. In the Institute, Social Sciences grew faster than Natural Sciences during 1962-67, but at much the same rate over the ensuing decade. From 1977 to the present, however, Natural Sciences have shown slight growth and Social Sciences a slight decline. Both sections have experienced a decline in growth, but that of Natural Sciences, while starting from a more modest level over the earliest period, has been less extreme than that of Social Sciences.

Science in The Faculties had the fastest growth of all in 1962-67, but no growth has occurred since 1972. The Humanities, in contrast, still showed growth over the period 1972-77. No area in The Faculties has shown growth since 1977.

We now present three projected continuations of the 1960-82 age structure of each of the four sections of the University. The first of the set of three projections

shows the implications of universal retirement in the year staff turn 65, the second shows the implications of rank-specific retirement at 60 or 65, and the third combines this assumption with the creation of new positions open only to young staff.

Institute: Natural Sciences

Figure D.1 — assumptions of Projection B1

Figure D.2 — assumptions of Projection B3

Figure D.3 — assumptions of Projection B5, except that there are two (not three) new fellowships annually for five years.

The expected pinch in the late 1980s is corrected somewhat by a mix of retirement ages, and completely prevented by creating ten new fellows over the next five years.

Institute: Social Sciences

Figure D.4 — assumptions of Projection B1

Figure D.5 — assumptions of Projection B3

Figure D.6 — assumptions of Projection B5, except only one new fellow annually for five years.

The pinch in the age distribution began to manifest itself in the late 1970s. Recovery is assisted by variable retirement ages, but accelerated more by the additional injection of five new fellows. In the latter case an immediate effect is apparent and recovery well on the way by the late 1980s.

Faculties: Sciences

Figure D.7 — assumptions of Projection C1

Figure D.8 — assumptions of Projection C3

Figure D.9 — assumptions of Projection C5, except only one new lecturer annually for ten years.

Rank-dependent age at retirement has a beneficial effect by reducing the severity of the pinch to be experienced in the late 1980s. The further injection of ten new lecturers hastens recovery.

Faculties: Humanities

Figure D.10 — assumptions of Projection C1

Figure D.11 — assumptions of Projection C3

Figure D.12 — assumptions of Projection C5, except two new lectureships annually for ten years.

As with Social Sciences in the Institute, variable retirement, while beneficial, is not enough to rehabilitate the age distribution. The additional injection of ten new lecturers, however, has the effect of holding the present age structure fairly constant.

FIGURE D.1

AGE DISTRIBUTION - IAS, NATURAL SCIENCES

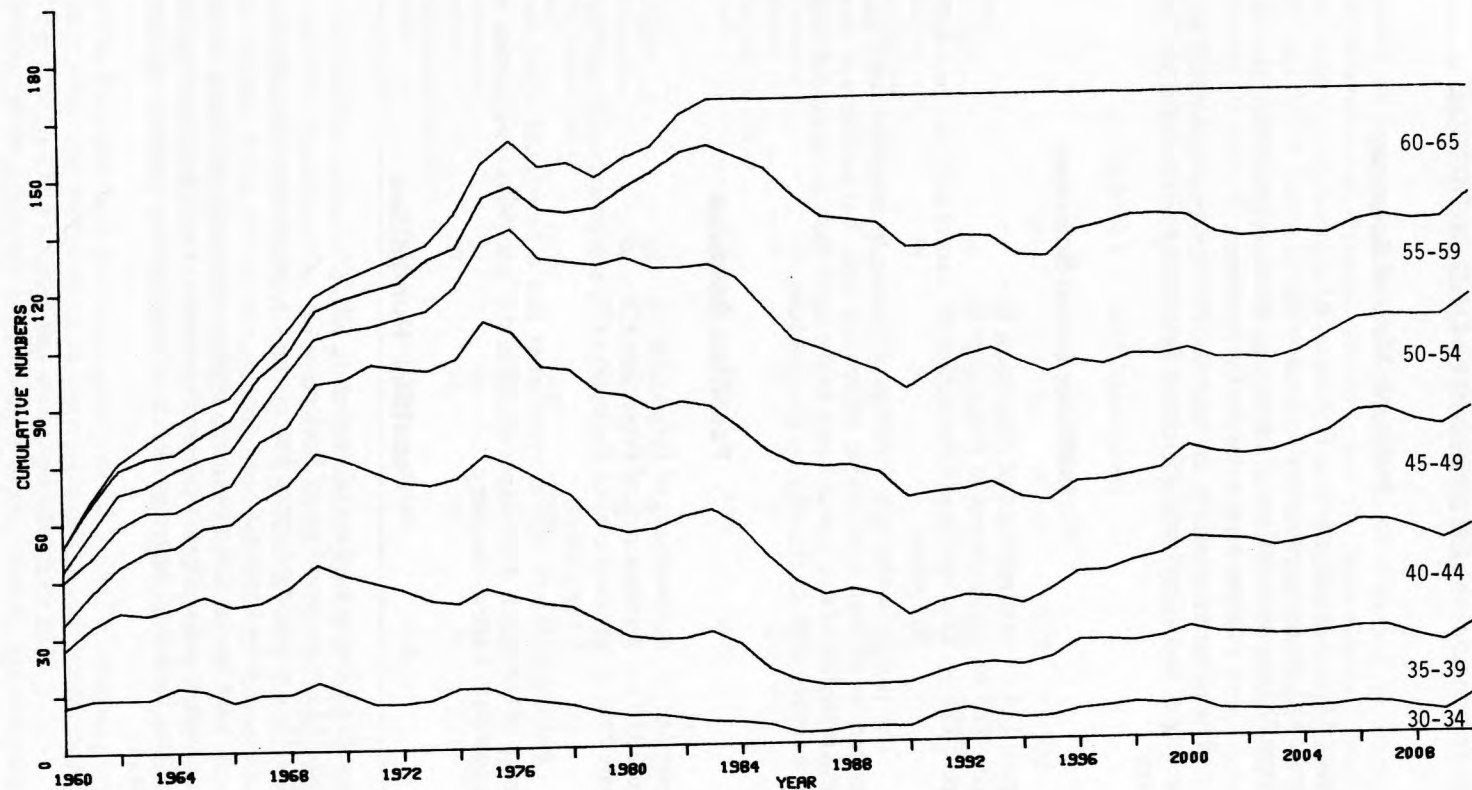


FIGURE D.2

AGE DISTRIBUTION - IAS, NATURAL SCIENCES

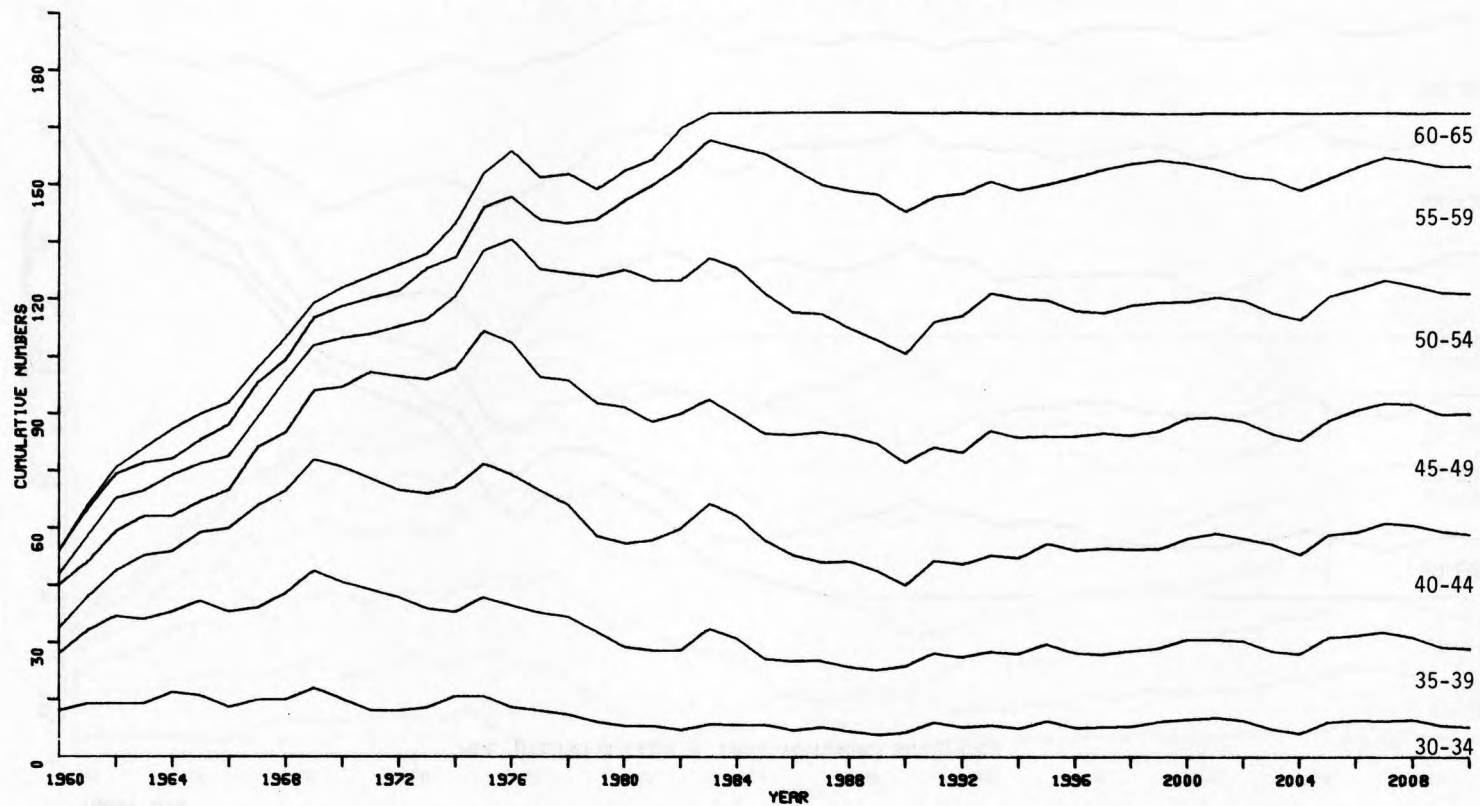


FIGURE D.3

AGE DISTRIBUTION - IAS, NATURAL SCIENCES

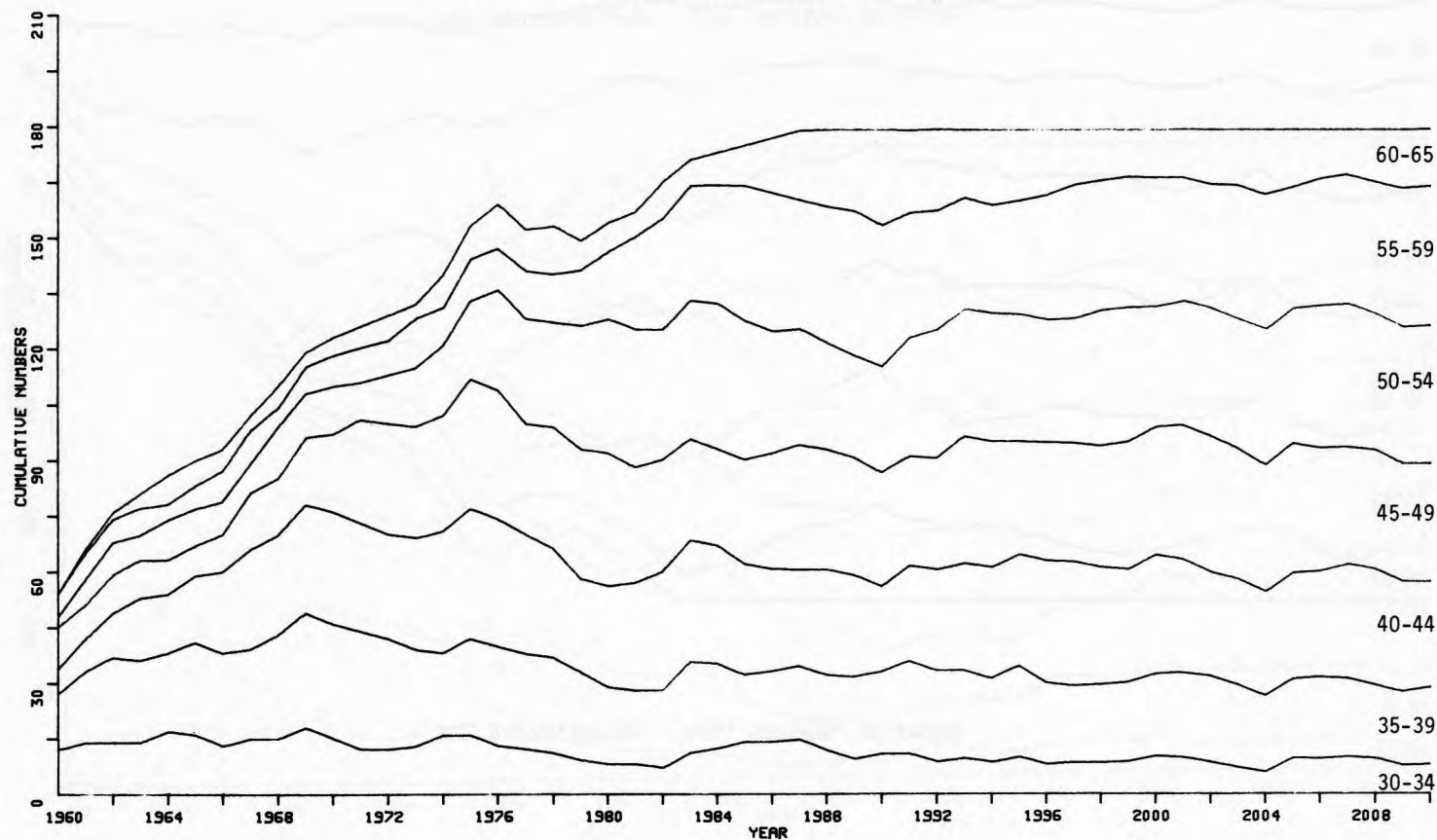


FIGURE D.4

AGE DISTRIBUTION - IAS, SOCIAL SCIENCES

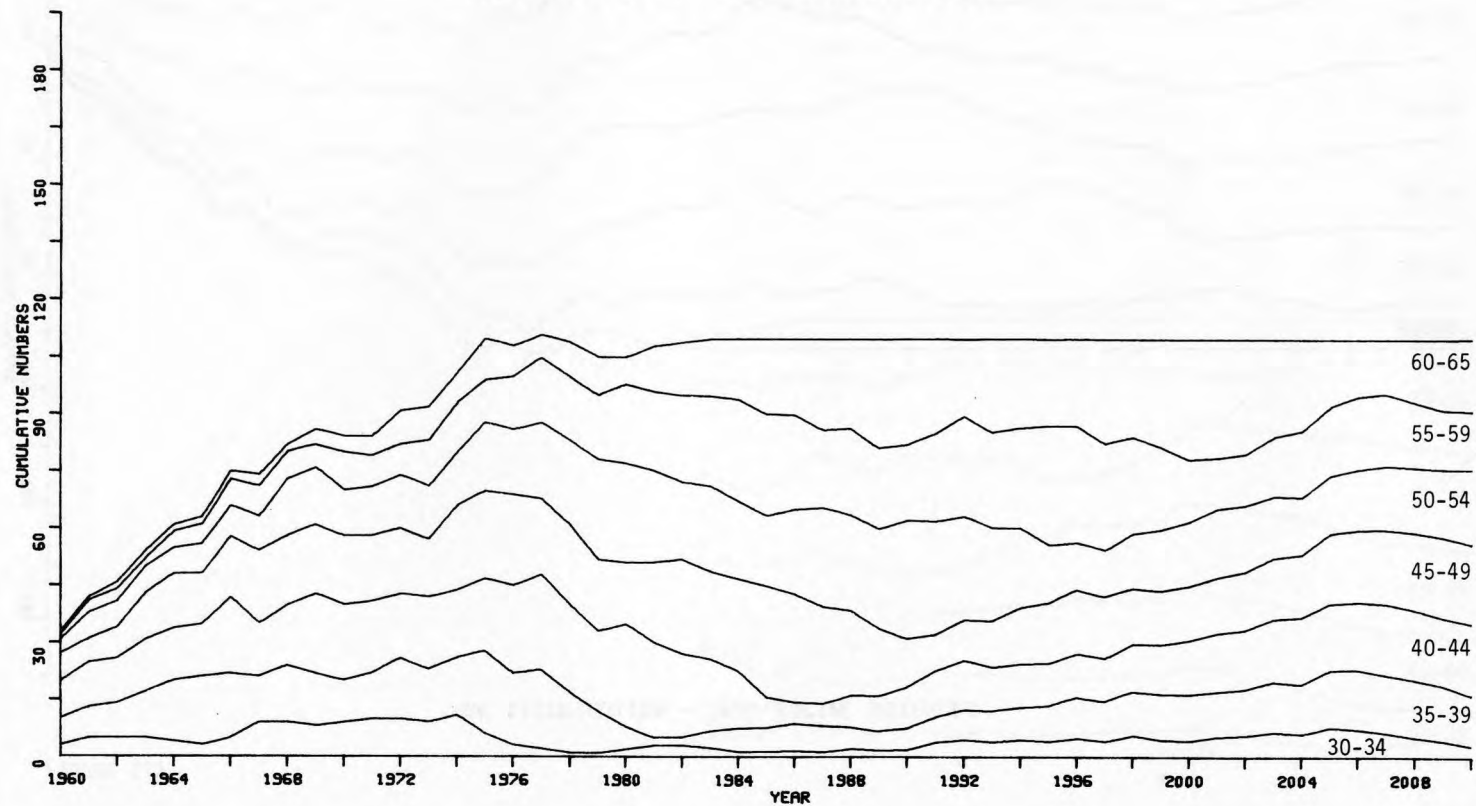


FIGURE D.5

AGE DISTRIBUTION - IAS, SOCIAL SCIENCES

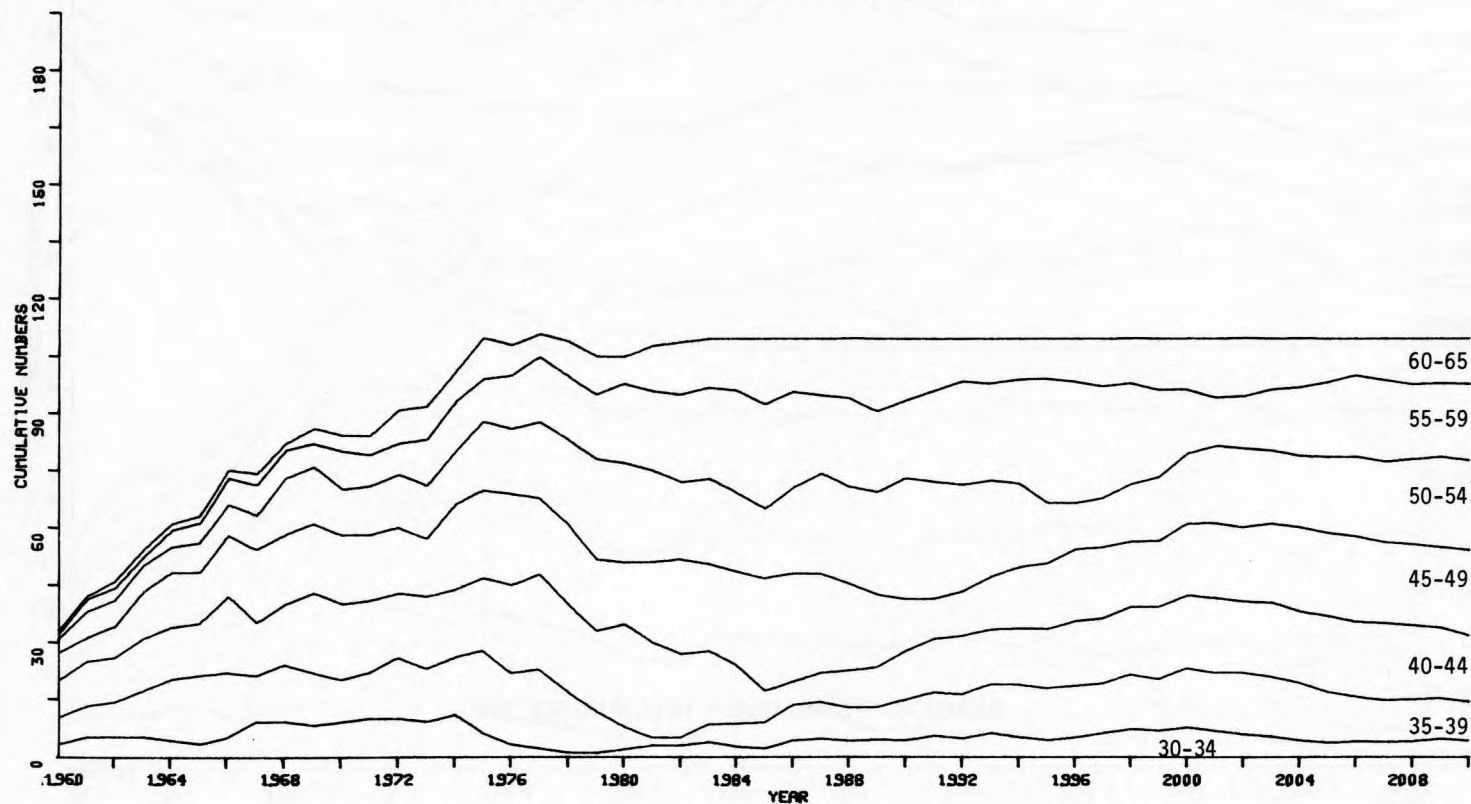


FIGURE D.6

AGE DISTRIBUTION - IAS, SOCIAL SCIENCES

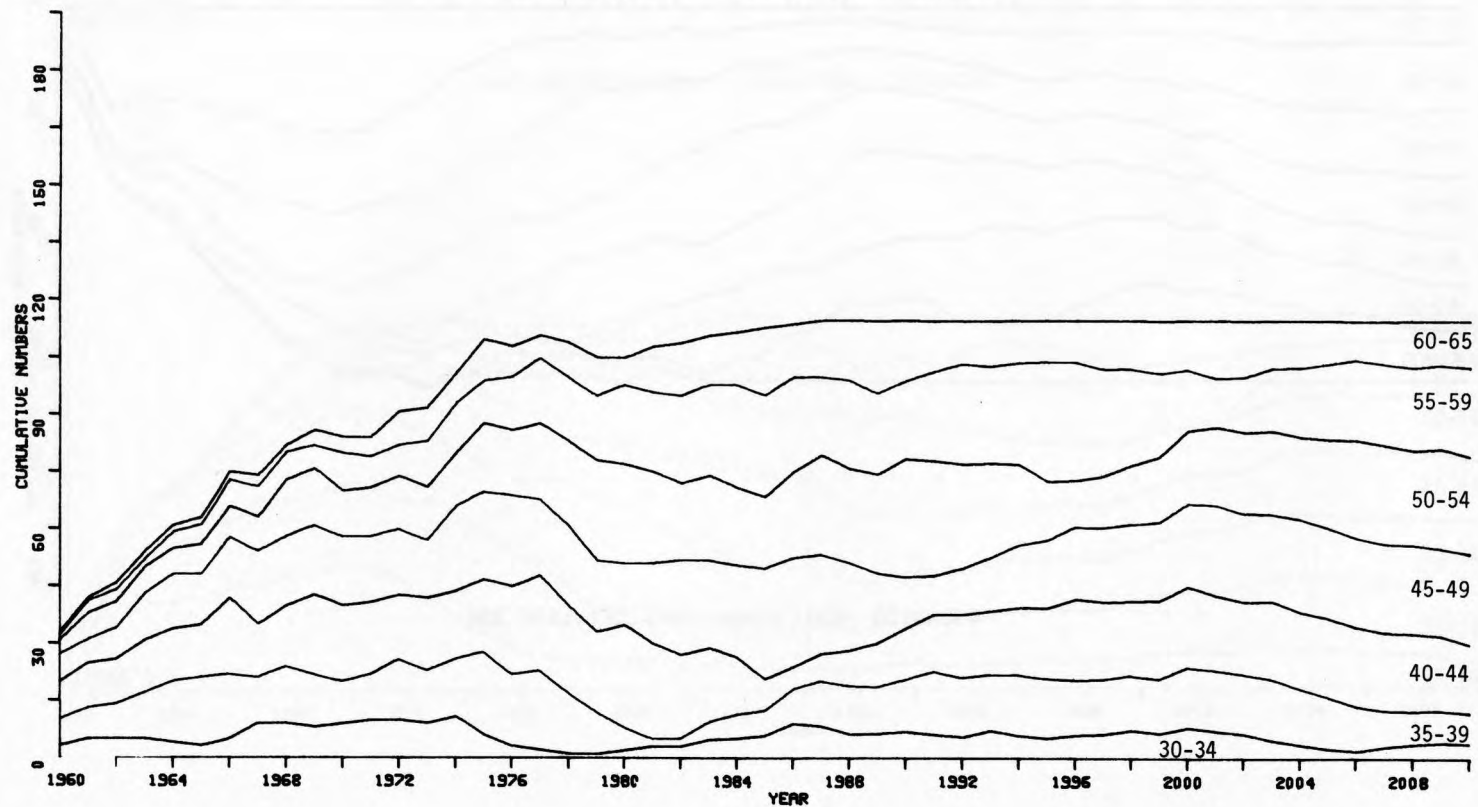


FIGURE D.7

AGE DISTRIBUTION - FACULTIES, SCIENCES

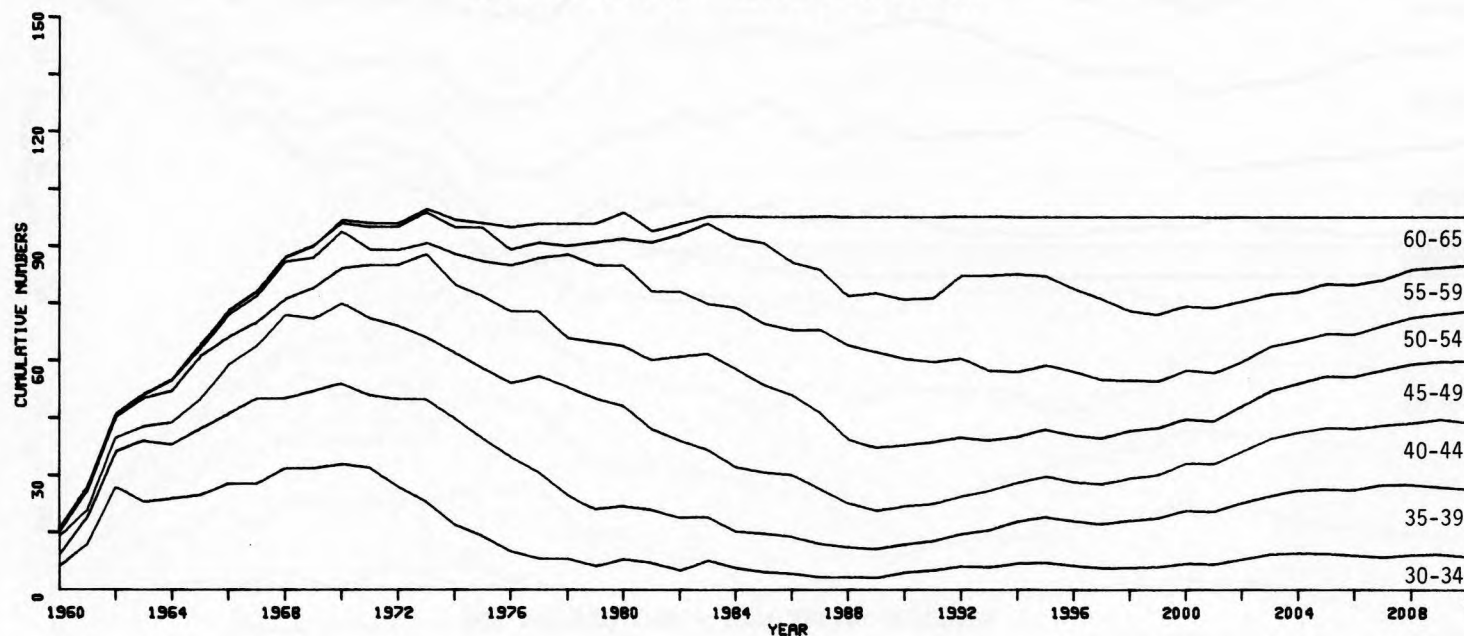


FIGURE D.8

AGE DISTRIBUTION - FACULTIES, SCIENCES

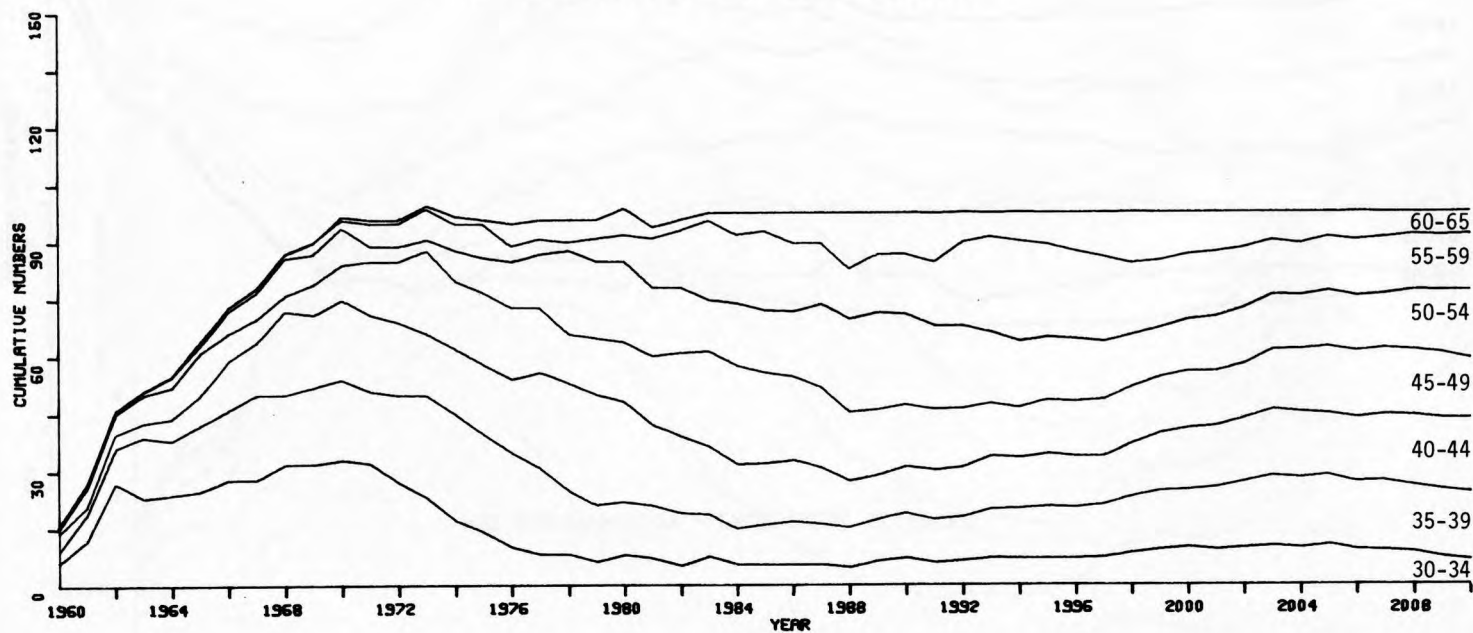


FIGURE D.9

AGE DISTRIBUTION - FACULTIES, SCIENCES

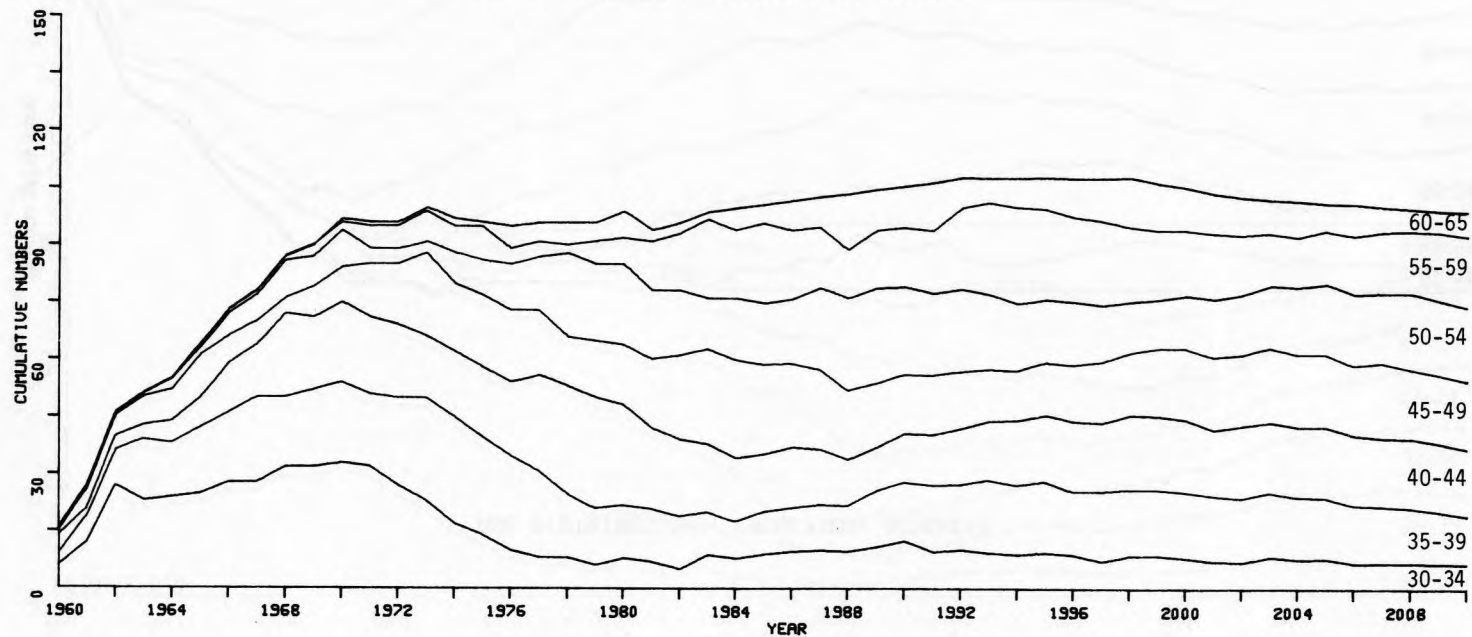


FIGURE D.10

AGE DISTRIBUTION - FACULTIES, HUMANITIES

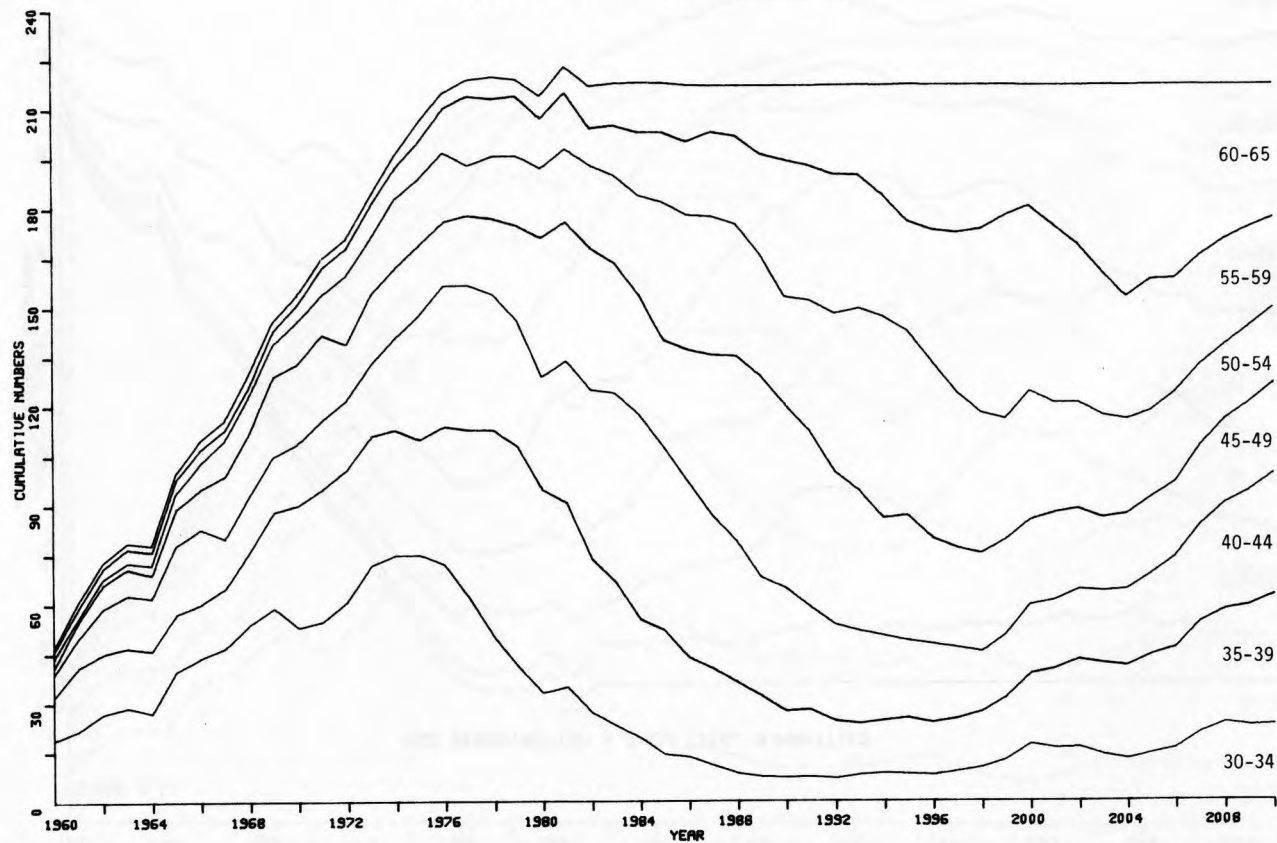


FIGURE D.11

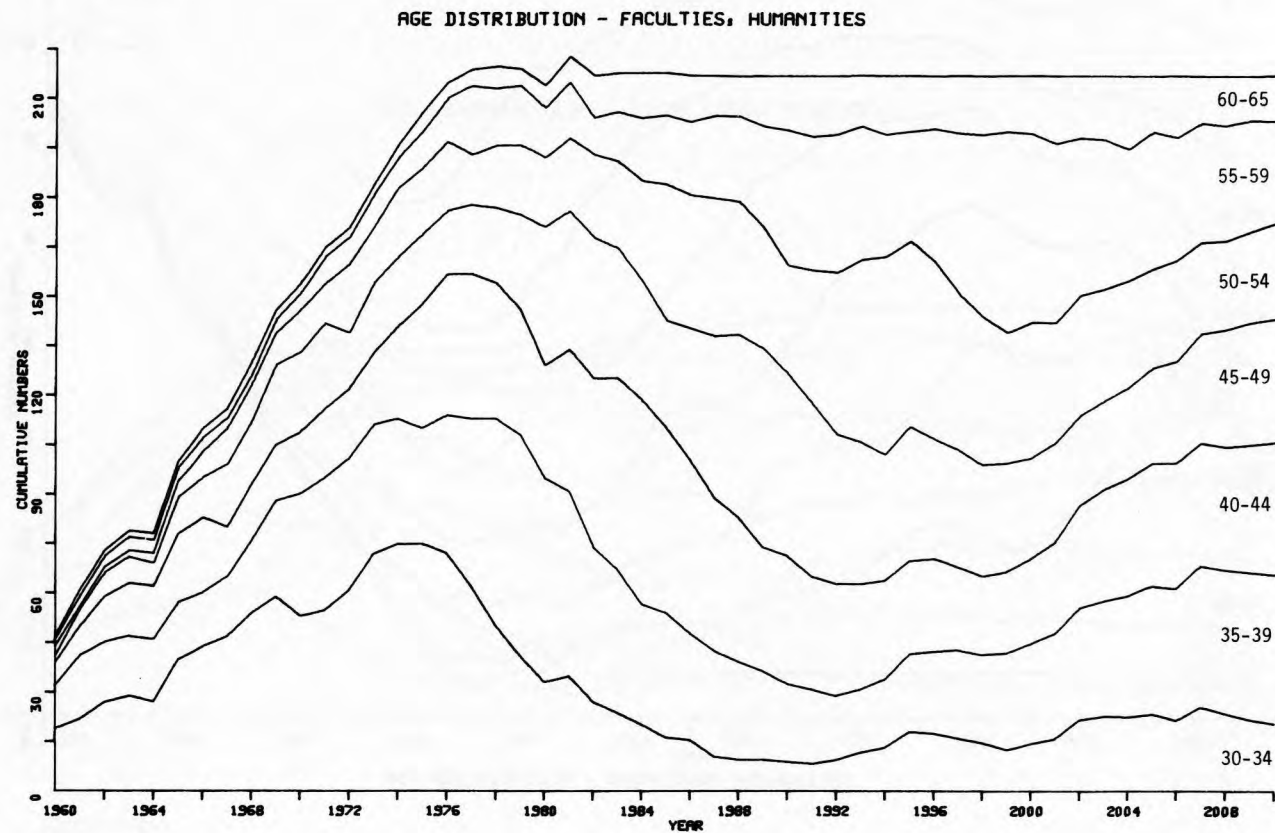
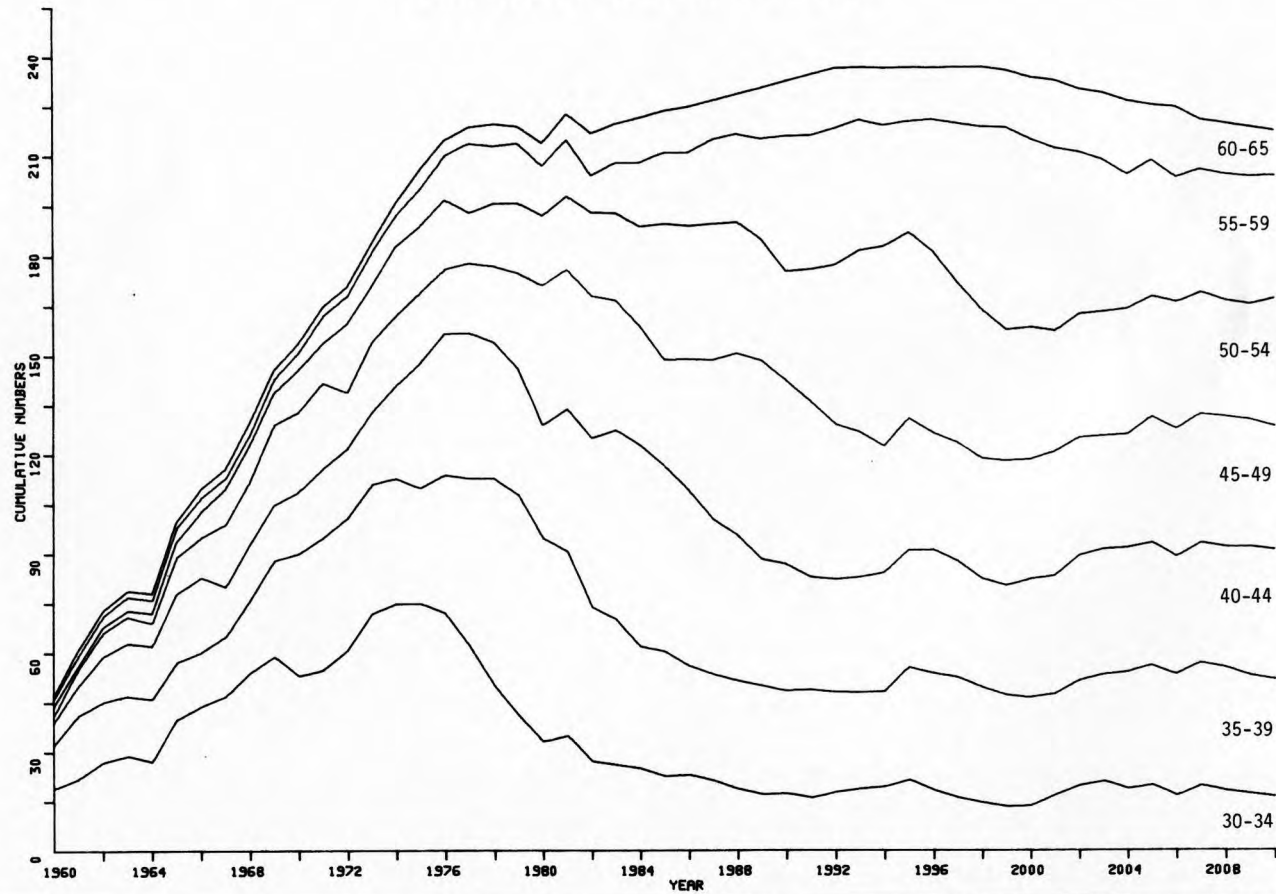


FIGURE D.12

AGE DISTRIBUTION - FACULTIES, HUMANITIES



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