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ABSTRACT

The recognized need for institutions to make policy decisions about the hiring, career progress, and retention of highly qualified academic and nonacademic staff prompted this manpower study. A statement of some basic elements in Ontario universities pertaining especially to faculty career planning is presented followed by a quantitative examination of university demography and of some aspects of the age, rank, and salary distribution of faculty, both present and prospective. Current practices are analyzed for possible impact on future staffing patterns at Ontario universities. Some alternative scenarios of staffing patterns and their implications for the next three decades are presented and discussed. (JMF)

ACADEMIC CAREER PLANNING:

THE IVORY TOWER AND THE CRYSTAL BALL

Report of the Joint COU/OCUFA Committee on the

Study of Academic Career Development in Ontario Universities

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May, 1976

76-13

PREFACE

This report is the culmination of a two-phase joint COU/OCUFA study of career development of Ontario university faculty. In March, 1974 COU received a report resulting from Phase 1 which studied early retirement options at McMaster University. Following the presentation of that report, a proposal was agreed upon for Phase 2 which aimed at compiling and analyzing more extensive data on faculty demography for the system.

The report of Phase 2, Academic Career Planning: The Ivory Tower and the Crystal Ball, has been endorsed by OCUFA and formed part of its brief to OCUA in May, 1976.

In June, 1976 COU discussed the report and approved its recommendations with the following observations:

> that the scheme for implementation proposed in recommendation 1 be developed by OCUA in consultation with the universities;
>
> that the word "principal" in recommendation 2 be changed to "sole";
>
> that with respect to recommendation 4, an OCUFA/ executive heads committee is already addressing the problem of pensions.

OFFICE OF THE VICE-PRESIDENT
ACADEMIC

UNIVERSITY OF GUELPH · GUELPH · ONTARIO · CANADA AREA CODE 519 - 824-4120

April 22, 1976

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Gentlemen:

I am enclosing herewith 15 copies of the report of the committee that the executives of your organizations established to study some questions related to academic career planning for the next three decades. The report is entitled Academic Career Planning: The Ivory Tower and the Crystal Ball. It has the support of the entire Committee.

The Committee would like to draw attention to two points that seemed inappropriate for inclusion in the report itself, but are nevertheless significant:

1. We have referred in the text of the report to the "rediscovery" that costs associated directly with teaching and research staff salaries comprise the single largest item in university operating expenses. Although it is tangential to the essential concern of this committee, we wish to make the point that there are other very large salary items in university budgets, which ought to be scrutinized as closely as faculty salaries. There are large numbers of professional and other support staff personnel - in libraries, computer centres, building and maintenance units, planning departments, administrative offices, and so on - who effectively have working conditions, provisions for promotions, salary increases, and the like, not dissimilar to those that pertain to faculty. In some situations their training is as specialized as that of faculty members; in many, however, it is not. We suggest that universities ought to scrutinize these areas at least as carefully and candidly as they now do their faculties.

...

2. In its early stages, the work of the Committee was much delayed because of the difficulty of obtaining information necessary to the task. Many universities appear to have no ready means of providing such basic data as the number of full-time faculty members they have; how many are in the various ranks; how many will be retiring within a given year; and the like. Very few institutions, if any, can readily provide reliable information about numbers of part-time faculty or numbers of positions occupied by them. It must surely be obvious that any effective planning in connection with faculty careers requires that such information be accurately compiled, kept up to date, and readily available

As Chairman of the Committee, I wish here to acknowledge the work done by my colleagues - not only the Committee members, but Mr. Bert Hansen of the C.O.U. office and Mr. Walter Vaughan, my own Assistant at the University of Guelph.

I request that the Committee be now discharged.

Yours truly

J. Percy Smith
Vice-President Academic

JPS:mlm
Enclosure

Background

The study of career development prospects for Ontario university faculty had its inception in April, 1973 in a proposal by McMaster University that the financial implications of early retirement should be explored as one possible solution to the universities' financial squeeze. McMaster had been conducting extensive investigations of this alternative, had developed computer models for analysing impacts of assumptions about the future, and felt that it would be worthwhile for COU to extend and apply these models to an analysis of impacts on the system.

Because such studies are of immediate concern to faculty associations, the COU Secretariat proposed a joint OCUFA/COU study of early retirement options. The two parent bodies agreed that such a study was desirable and a joint technical committee of six members, three from each body, was formed to identify factors to be included in studies of early retirement and reduced time options, determine what modifications of the McMaster models would be required to include the factors and make the models applicable to other Ontario universities, estimate the costs of including the factors and extending the model, and identify specific studies to be undertaken and make recommendations about further work to the parent bodies. In the early discussions of the study two phases were envisaged:

1) early retirement options and 2) career development prospects for continuing faculty. The committee proposed that the first be examined initially (Phase 1) with the second to follow (Phase 2) if the conclusions of Phase 1 studies seemed to justify proceeding. The following terms of reference were then established for Phase 1:

1) To study the benefits and costs of early retirement of academic staff at different ages, for different years of service, with pension based on service to normal retirement age and salary to early retirement age.
2) To study the benefits and costs of partial early retirement of academic staff, that is, conversion to some proportion of full-time work and some proportion of retirement pay, at different ages, for different years of service, with pension based on service to normal retirement age and salary to early retirement age.
3) To study this initially on the McMaster model using McMaster data.
4) To furnish the results to the other Ontario universities so that they may perform similar calculations if they are on a best-years salary plan.
5) To provide the methodology for calculation of the additional costs to those universities with money purchase plans.

The results of the Phase 1 study were outlined in a February, 1974 report to the Executive of COU and OCUFA. In summary the study showed substantial potential growth in the McMaster salaries budget as a proportion of total budget (from 39.4% in 1972-73 to 51.6% in 1986-87) resulting from the present highly skewed salary/age distribution of faculty and the necessity of providing career progress opportunities for continuing faculty. This potential growth could be reduced only slightly (to 50.1%) if there were early retirements in the numbers considered likely. The Committee concluded that "...even if a large proportion of those eligible to retire early...choose to do so, the net saving to the university is marginal unless no retirees are replaced. Since universities will always be faced with some programmes growing while others are contracting, the option of not replacing any retirees is not really feasible. If we assume progression rates, as in the McMaster model, the cost of career progress for those on staff now will be very large and ameliorated only marginally by early retirements. Early retirement at age 60, if taken advantage of by a large proportion of those eligible and especially if the positions vacated are not filled, offers a measure of flexibility, but other measures will be necessary if the McMaster assumptions are characteristic of the future of Ontario universities."

Following presentation of the report, the Executive of COU suggested that a definitive proposal should be developed for Phase 2 - a study of academic career development in Ontario universities. Phase 2 became necessary, not because early retirement is not useful in certain cases and as one of a variety of solutions, but because by itself, early retirement will not solve the present academic career development problems of universities. The proposal for Phase 2 was aimed at preparing much more information and analysis so that universities would be better informed when making important staffing decisions.

A proposal for Phase 2 was presented and approved by the parent bodies in the spring of 1974 with the following terms of reference:

1) Study the present age/salary profiles, rank distributions, and other characteristics of patterns of full-time and part-time academic staff at Ontario universities.
2) Analyse the COU Report on Academic Staff Hiring and Renewal Practices at Ontario Universities for possible impact of these practices, if continued, on future staffing patterns of Ontario universities.
3) Study the plans of universities for faculty career development and plans, if any, for modifying staffing patterns through altered practices in appointment, renewal or non-renewal of appointments, early retirement, termination, or reassignment

of faculty (including updating and extension of the above COU Report on Academic Staff Hiring and Renewal Practices).

4) From these studies and analyses, and in consideration of possible provincial enrolment levels and distribution patterns, examine realistic alternative scenarios of staffing patterns and their implications for Ontario universities for the next three decades.

5) Report to COU and OCUFA on the results of these studies.

The report that follows begins, after some gloomy reflections on vaticination, with a statement of some basic elements in the current scene that pertain especially to faculty career planning. It proceeds to an examination, in quantitative terms of university demography and of some aspects of the age, rank, and salary distribution of faculty, both present and prospective. That examination leads to the setting out and discussion of some "scenarios" of the sort called for in the terms of reference of the Committee, including discussion of some items for special consideration. We stress that throughout this report we are viewing the universities of Ontario <u>as a collectivity</u>. The various schemata suggested or dealt with and generalizations made vary, inevitably, in their applicability to individual institutions. At best, this report may provide a framework and suggest a methodology that each university may utilize in studying its particular circumstances

and dealing with its own problems.

Problems of Forecasting

The February 3, 1975, issue of The Chronicle of Higher Education refers to a recent presentation at a symposium on science and engineering manpower at the annual meeting of the American Association for the Advancement of Science.[1] In this presentation, David W. Breneman, Staff Director of the National Board on Graduate Education and senior fellow in economics at the Brookings Institution, described an analysis of past manpower projections which shows that they "have often been wide of the mark within a few short years." An even more pessimistic conclusion is that reached by Bashir Ahamad and Mark Blaug, the editors of a recent book, The Practice of Manpower Forecasting. They concluded: "Manpower forecasting has not so far proved to be particularly useful for educational decision-making; we may even go so far as to say that it has on occasion been positively misleading."[2]

Mr. Breneman attributes the main causes of failures in forecasting to assumptions that there are "unchanging linkages between education and occupations particularly over an extended period" and to the tendency of "the supply of educated labour .... to create its own demand." The Chronicle article cites a number

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1. "Manpower: Clouded Forecasts," The Chronicle of Higher Education, Volume IX, Number 18, February 3, 1975, p. 7.

2. Ahamad, B. and M. Blaug, Practice of Manpower Forecasting, Jossey-Bass Inc., 1973.

of instances of past failures that resulted from faulty assumptions about numbers and rates assigned to sensitive parameters. Mr. Breneman's melancholy conclusion is that "one would not recommend that existing projection models become the basis for policy setting."

Set against these very pessimistic conclusions is the need for institutions to make policy decisions about the hiring, career progress and retention of highly qualified academic and non-academic staff.

Edward Shils points to "...a mood of despondency because academic staffs cannot increase; new appointments cannot be easily made without corresponding deaths and retirements. There is, with good reason, apprehension among younger staff members because their chances of promotion or even retention have been damaged. With no expansion, and with so many recently appointed professors and others on permanent tenure at fairly young ages, the prospects of those still younger and not on permanent tenure are darkened. All this is not only directly injurious to those without hope, it is also injurious to the universities as institutions of science and scholarship. It breeds scepticism about the value of the academic career and of the pursuit and transmission of knowledge."[3]

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3. Edward Shils, "An Unresolved Dilemma", Minerva, Volume X, Number 3, July 1974.

Despite the risks of making wrong guesses about the future, the Committee believes that the academic costs of not speculating are too high. Universities ought at the very least to have scenario-style information which shows the relative impacts of varying levels of such key variables and parameters as number of students, number of forthcoming PhD graduates, rates of retirement, sectoral absorption rates and other faculty outflows, hiring rates, career progress factors, salaries and benefits as a portion of total expenditures, and the prospective funding of universities.

Some Elements in the Current Scene

What society expects of universities has been stated and restated ad nauseam in recent years. In the comparatively buoyant days of the Commission on Post-Secondary Education, the Commissioners said boldly, "The key point is that no one who seeks to proceed to post-secondary learning should be deprived of the opportunity through shortcomings or barriers in the present system, in either its facilities or its financial arrangements."[4]

In common usage, the word "facilities" is likely to refer to washrooms rather than to people. The Commissioners must, however, have been referring here to the entire physical fabric of universities and colleges, including that particular human element without which they could not function at all: the teaching faculty. Good teaching has sometimes been done in bad buildings and with bad equipment; it has never been done by bad teachers, nor is good

4. The Learning Society, p. 33.

scholarship carried on by bad scholars. The question is not whether the public and government of Ontario want good teaching and good scholarship to go on in the universities of the province: that goes without saying. The question concerns the conditions under which they are possible, and the cost of them. One significant view of the general picture is shown in Table 1. Our purpose here, however, is to say something about the basic conditions and the cost as they relate directly to faculty members.

The most elemental fact to be faced in this connection is that university teachers and scholars are not created in a week or a year. An army hut may be hauled onto a campus in a short time and used as a classroom or a laboratory, sometimes for a much longer period than was intended. The university teacher or researcher who may occupy it is the product - the specialized product - of many years of costly training at the undergraduate and graduate levels. The process involved is not one of training only, but of selection, and the selection is itself complicated. In part, it is carried out by the faculty members of the institutions at which the future scholar studies. In part, it is carried out by the scholar himself, as his own career objectives become clear and he measures the relative attraction for him of various possible choices.

University staffing policies, which ought to be aimed at attracting the ablest scholars to universities, have a significant impact on the quality of individuals who may be interested in

Table I

Analysis of Government Expenditures on Universities

($ millions)

	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
M.C.U. - University Support (excl.OSAP)[1]	395.2	455.9[3]	464.8	503.1	569.9	654.9
Total Government Expenditure[2]	5,160.0	5,965.0	6,412.0	7,223.0	8,722.0	10,552.0
Total Government Revenue[2]	5,024.0	5,340.0	6,046.0	6,844.0	8,176.0	8,982.0
Gross Provincial Product (billions)[4]	35.6	38.5	42.7	49.2	57.5	64.0
Ratios						
M.C.U.-Univ. Support / Total Govt. Expenditure	7.65%	7.64%	7.24%	6.97%	6.53%	6.21%
M.C.U.-Univ. Support / Gross Prov. Product	1.11%	1.18%	1.09%	1.02%	0.99%	1.02%

1. Source: 1975-76 from The Estimates 1975-76, Ontario Legislative Assembly.

   1970-71 through 1974-75 from the Public Accounts with adjustments for similar programmes.

2. Source: Ontario Budget 1976, Table C-11, p. 28.

3. 10 month fiscal year pro-rated to 12 at 1/.85

4. Calculated from information on net debt and net debt as a proportion of GPP data for these years contained in Table C-11, p. 28 from the Ontario Budget 1976.

faculty careers. Those individuals are aware of the investments that they make in terms of income foregone and debt incurred; and they are aware that university teaching is no road to either wealth or power. If they are to be attracted to it, it must be by other objectives and conditions that sustain them: by the provision of a milieu in which intellectual work can be carried on with a reasonable degree of freedom from political or ideological interference; by the opportunity to participate actively, at many levels, in the life of a university community; by an income level sufficiently high and stable to justify the investment made, and a commensurate pension entitlement.

Much has been said about the expansion that the universities underwent in the 1960's, and we do not wish to belabour the matter here. Enrolment increased dramatically, and in order to meet the need, faculty numbers were similarly increased. In order to achieve that necessary increase, universities were obliged to recruit faculty members from outside Canada, in considerable numbers. It is also true that they recruited as faculty some persons who were less than adequately qualified at the time; of these, many proceeded to improve their qualifications, at great expense, as opportunities arose, while others were obliged to withdraw from the university scene.

We wish to make the point here, however, that in the same period the universities were undergoing some other changes as an effect of the generally shifting social scene:

they were introducing new concepts of university government, and - more especially in so far as the present discussion is concerned - they were developing clear, coherent, formal statements of policy in regard to the conditions under which faculty members were employed: their hiring, their responsibilities, their salaries, their career progress, and so on. Such statements had not previously existed in most Canadian universities. They now became to a large degree the formal, recognized codification of the relationship between the university and the faculty member. We stress the point because such policies constitute commitments made by the universities, the effects of which are far-reaching in time, and their existence is of crucial importance in any study of faculty career patterns. The review that we have made of recent changes in hiring and renewal policies indicates that most of the changes have had to do with clarifying or making firmer already existing procedures, not with tackling new policy problems. We note, however, that five universities now have policies for dealing with the termination of appointments for budgetary reasons, and some others are in the process of developing them.

To sum up, then: the development of university teachers is a long, difficult, sensitive process; the attracting of able young people into university teaching must involve the offering of career patterns that provide compensation of various kinds

for long training, foregone income, and the renouncing of opportunities for the rewards that the worlds of business, government and private professional practice hold out; and the continuance of universities as effective institutions depends on the continuing recognition of these facts. All of these are matters demanding long-range consideration and decision, both by individuals and by institutions. The point that we wish to make - and it is the most important point that we can make - is that faculty career planning, which must be at the heart of university planning, is long-term planning, and effective long-term planning cannot be done on the basis of short-term budgeting. If universities are to serve society as they should, they must have clear assurance of the level of their support over a period long enough to enable planning to be done in long-range terms.

> The first and most basic recommendation of the committee, then, is that COU and OCUFA jointly urge, with all the authority they can muster, that OCUA propose to the Minister of Colleges and Universities the development of a scheme of university financing that will make it possible for the universities and OCUA to engage in effective long-term planning.

We believe that such a step would go a considerable distance towards making faculty career planning possible. It is clear that the uncertainties and stringencies of the present scene are having deleterious effects. We wish to comment briefly on five points:

1) The Per-Student Basis of Financing

An element in the existing fiscal arrangements that exacerbates the difficulties of planning is the use of year-by-year student numbers as a base. As has been often enough pointed out, a university cannot know how many students it will have until they register for courses. Yet it must be prepared to receive them, with qualified faculty members ready to give those courses. The effects are inevitable: an annual, indeed virtually continuous, competitive scramble among universities for students; lower standards of admission and perhaps of grading in those institutions that must grow in order to be solvent; a disposition on the part of universities to hire faculty members for short periods of time only - and therefore to hire those, generally the less well qualified, who accept such conditions because they must. The effects on both quality and morale are obvious.

2) The Use of Contractually Limited Appointments

In the 1974 report on Hiring and Renewal Practices, the authors commented as follows:

> In the majority of cases, policy statements are most emphatic about the attitude that should be taken towards the limited appointment: it is an exceptional appointment to deal with exceptional teaching needs. It is not meant to substitute for the other types of appointments or to keep any appreciable number of the faculty in a position where they have no possibility to be promoted or to look to achieving possible tenured status.

Later, they added this comment:

> To avoid costly and unpleasant confrontations, universities are increasingly turning toward term appointments.

Undoubtedly the process referred to in the latter comment is now going on apace, not so much as a matter of avoiding confrontations as because budgetary circumstances and prospects are in effect forcing the issue. One university - to take the extreme case - is reported to have announced its intention of having forty per cent of its faculty in non-tenurable positions. Others are pursuing similar, if less draconian, objectives. The long-term effects of these policies on university teaching as a career are of course difficult to estimate, but they are certain to be harmful. They tend to the creation of a group of highly qualified young people, faced annually (or even more frequently) with the prospect of being forced to move or of being unemployed; implicitly warned against developing any strong commitment to a particular university or its environment; as a consequence, obliged to function as second-class citizens of the university community, unable to participate fully in various aspects of its life and work or to plan their lives and careers with reasonable hope. One must ask not only about the equity of such conditions, but about their effects on the ability of universities to attract to their faculties the most able people - indeed, whether able people are likely to wish to enter university teaching or to go through the difficult and expensive process of qualifying themselves for it.

3) The Current Conception of Career Progress

A matter which seems not as yet to have been given careful thought is the appropriateness of certain existing faculty policies to the current scene. For example, most faculty policies dealing with promotion through the ranks were developed in a period of expansion in which it was reasonable to expect that a faculty member who proved his or her quality and served effectively would progress through the ranks at a reasonable and predictable rate. Such policies were presumably based on the unstated assumption that career progress would take place without preventing the maintenance of an appropriate distribution of faculty members among the three or four ranks. It is obvious, however, that as universities move to a "steady state", in which faculty numbers as well as student numbers are stabilized, the continued application of existing policies will lead to a situation in which the distribution will be increasingly weighted toward the upper ranks, with the theoretical possibility that all faculty members will be tenured full professors.

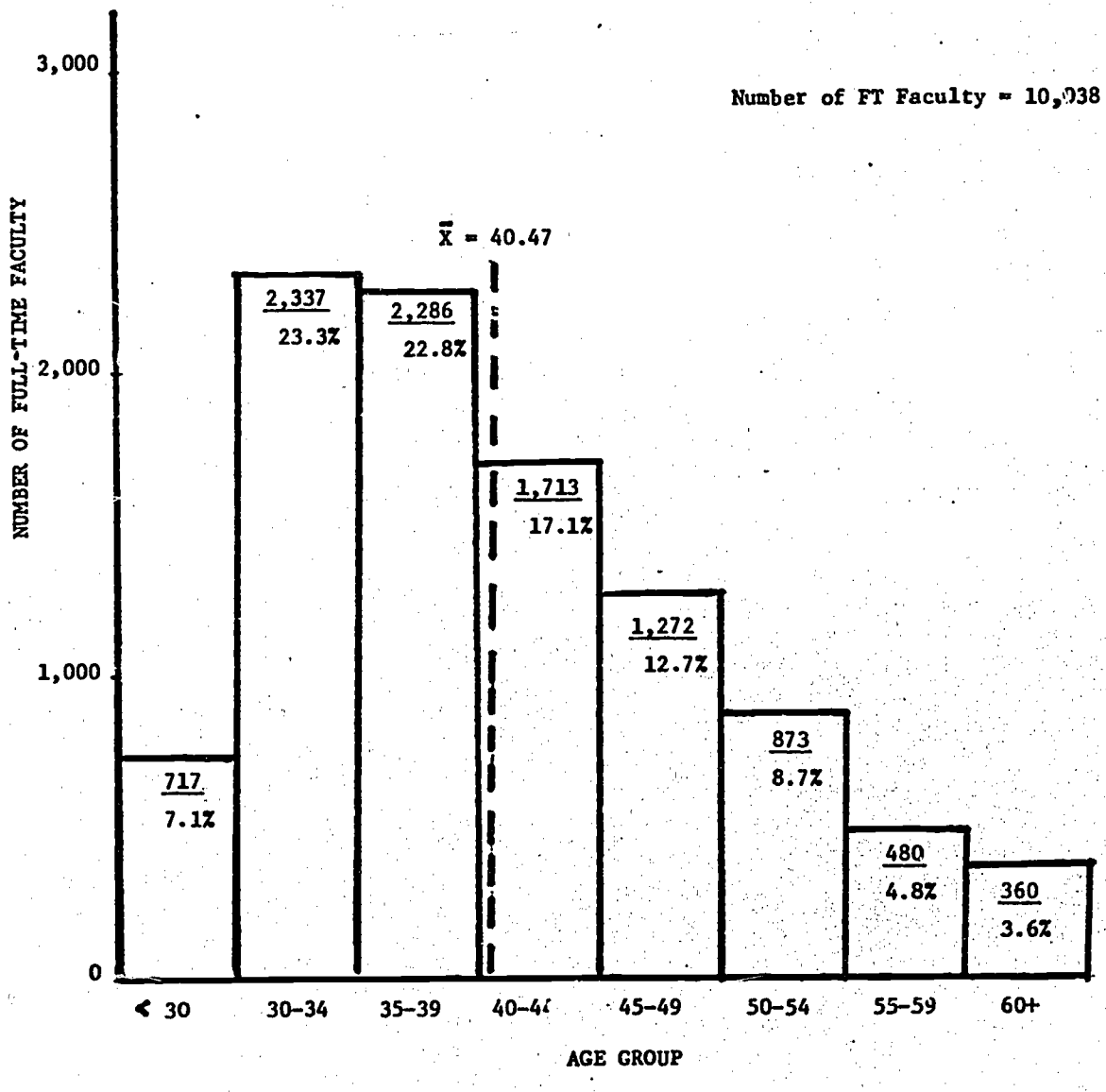
4) The Current Distribution of Faculty by Age Group

The significance of Table 2 should be underlined. It makes clear that in 1983-84, if the total number of faculty members and the proportions by age groups hold good, 21.4% of faculty will be 55 or older. Ten years

Table 2

DISTRIBUTION OF FULL-TIME ACADEMIC STAFF BY AGE GROUP

ONTARIO UNIVERSITIES 1973-74



Source: Statistics Canada Analysis of Full-Time Teachers (Ontario) 1973-74.

later, the proportion will have risen to 39.9%. The rate of retirement of faculty members in the latter period will be very high indeed. The need of new faculty members, even if there should be no overall growth in the system, will be correspondingly high and abrupt. With a degree of growth such as we envisage, it is reasonable to question whether the number of replacements at the junior end of the age spectrum will be sufficient to meet the demand, especially on short notice. If it is not, universities will again be obliged to adopt a policy for which they are now being publicly castigated because, under similar pressures, they resorted to it in the 1960's: the employing of non-Canadians, or of people whose qualifications are not sufficient to the needs.

5) The Freezing of Graduate Funding

The four preceding points relate very clearly to the relative attractiveness of university teaching as a career: the per-student basis of financing; the inequitable treatment of junior faculty members; the questionable rationality of current career progress policies; the inability of universities now to offer openings to young academics, even when they know that they will soon need their services. The recent severe restrictions on the funding of graduate programs place a fifth and immediate difficulty in the way of both the universities and those to whom they must look for their

survival: the graduate students who are the potential future faculty members. A temporary freeze may have been desirable. It is obvious that the effects of protracting it will be disastrous. We have been arguing the case for long-term planning; as to the graduate freeze - if that is planning, we hope that it is very short term indeed. We should like to draw particular attention to the section of the recently published A Commitment to Excellence* that deals with graduate education. Though the study of which it is a part refers especially to the humanities and social sciences, the principles that it enunciates are relevant to all areas.

A Quantitative Approach to Long-Term Planning

In the light of the foregoing, it is logical that we begin the quantitative consideration of long-term planning by dealing with faculty numbers and distribution. The system of per-student financing to which we have referred has led to much focussing of attention on student demography: the pattern of potential student numbers derived from national and provincial vital statistics adjusted for inter- and intra provincial mobility. We are well aware of the various existing projections of student numbers, and of the complexities and uncertainties that give rise to the disparities that they exhibit. These are referred to in the Introduction to the OCUA report for 1975.

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* Queen's University, 1975.

Recent experiences in the universities with rapid changes in student enrolment and the assessment of post-graduate programs in Ontario are forcing attention on the planning needed to gauge the number of faculty positions to be staffed in Ontario universities. The policy of constrained financial support adopted by the provincial government has caused a careful review of internal patterns of expenditure, and the rediscovery that the salaries and benefits of the teaching and research staff comprise the largest single item of continuing expense.

It is on the demography of the teaching and research staff, which has been neglected and even ignored, that we wish to focus attention. For teaching and research staff must be in existence and in place before a university may function - and to a large extent, therefore, must be determined in advance. Student numbers, on the other hand - as we have pointed out - cannot be known until the students have enrolled. It is the prime thesis of this report that an analysis of past patterns and an investigation of future possibilities for producing changes in the demography of the academic staff should become a major consideration in the forward planning of universities and the government that deals with them.

To establish the central role of such demographic patterns, the Committee has considered such data on the recent past as are available, to determine the manner in which universities handled the well documented increase in the number of students

during the past decade. At the same time, we have attempted to identify the processes that lead to changes in the number of faculty members across the universities. We emphasize that all these exercises have been done for the aggregate of Ontario universities and for full-time academic staff only. The latter point is important; we were startled to find that while there is general agreement that the use of part-time appointments has considerably increased, few universities could readily provide information about the extent or nature of the increase. We were therefore unable to take account of such appointments.

Alternative Models of Staffing Patterns

Four models have been developed to illustrate possible staffing patterns and their implications for Ontario universities for the next twenty-five years. The results for each model have been determined at five-year intervals up to 1998-99. These models and their analyses proceed from the following assumptions:

Assumption 1) Inflationary Factors

The Committee decided that it would be futile to attempt to include the effect of inflation in its analysis. None of the projections or calculations in these four models take account of inflationary factors. All dollar figures presented in the text and in the tables are in terms of 1973-74 dollars.

Assumption 2) Base Year Data

The age and salary distribution of faculty for 1973-74 was used as the basis for the development of twenty-five year projections. These data for 1973-74, compiled by Statistics Canada, were the most recent actual data available to the Committee. A plot of the age group distribution for 1973-74 is contained in Table 2, presented earlier in this report.

Assumption 3) Career Progress Factors

Changes in faculty salaries occur as illustrated in Table 3. The Career Progress Factors in Table 3 were derived from a three-slope curve of 3% per annum increase applying for the first twenty-five years, 1.7% for the next ten years and 0% for the last five years. Thus, for example, a faculty member in the <30 age group in 1973-74 with a salary of $13,017 will move to the 30-34 age group in 1978-79 and a salary of $15,090, as a result of career progress of 3% per annum exclusive of any cost of living adjustment. Similarly, a faculty member in the 50-54 age group in 1973-74 with a salary of $24,185 will move to the 55-59 age group in 1978-79 and a salary of $26,312 because of career progress of 1.7% per annum. The Career Progress Factor represents a real increase in salary beyond the "across-the-board" increase for cost of living adjustment.

Assumption 4) Faculty Retirement

The number of faculty who retire in each five-year period is assumed to be the number in the 60+ age category at the start of each five-year period. From Table 2, for example, the

Table 3

Salary Changes as a Result of Career Progress

Age Group	Average Salary (1973-74 Dollars) 1973-74	C.P. Factor	1978-79	C.P. Factor	1983-84
<30	13,017	3.0	13,017	3.0	13,017
30 - 34	15,303	3.0	15,090	3.0	15,090
35 - 39	18,125	3.0	17,740	3.0	17,495
40 - 44	20,692	3.0	21,012	3.0	20,567
45 - 49	22,841	3.0	23,988	3.0	24,360
50 - 54	24,185	1.7	26,479	1.7	27,809
55 - 59	25,088	1.7	26,312	1.7	28,808
60+	24,701	0	27,296	0	28,627

Note: The Career Progress Factors indicated above would result in a final salary after a 35 year career of approximately 2.47 times the entering salary.

number of faculty retiring in the five-year period from 1973-74 to 1978-79 will be 360. In the following five-year period 480 faculty will retire. It is assumed for all four models that replacement of retirees occurs at the salary level of the < 30 age group.

Assumption 5) Faculty Attrition

Faculty attrition refers to the loss of faculty as a result of resignation, termination or death. In model 1, the effect of attrition is ignored while models 2, 3 and 4 take account of attrition. The table in Appendix A presents some relevant data that were collected in conjunction with the study for the years 1972-73 and 1973-74. The data indicate that an attrition of about 5% per annum occurred in this period. However, this is only an approximation, since not all universities were able to provide data. For models 2, 3 and 4, it is assumed that attrition occurred at the rate of 5% per annum for the two lowest age groups (i.e., < 30 and 30-34) and 1% per annum for the remaining age groups. This assumption approximates the experience over the past four years of two universities that were able to provide detailed information on attrition. Half of faculty replacements for attrition are assumed to take place at the < 30 age group, and half at the 30-34 age group.

Assumption 6) Increase in Number of Faculty

Models 3 and 4 project increases in the total number of faculty during particular five-year intervals. Half of the new faculty positions (excluding replacements for retirements and attrition) are filled at the salary level of the < 30 age group and half at the salary level of the 30-34 age group.

Assumption 7) Student Enrolment

The Committee decided to use the projected fluctuations in student enrolment as a corrective rather than a driving factor in the analysis of staffing patterns. As will be noted, models 1 and 2 do not address themselves specifically to changes in student enrolment, while models 3 and 4 represent two possible responses to enrolment fluctuations.

The Four Alternative Models

1) Model 1

Model 1 assumes no changes in the total number of faculty from the 1973-74 level of 10,038. Also, as indicated earlier, Model 1 does not take account of attrition. While these assumptions are unrealistic, Model 1 does illustrate in the simplest form the effect of faculty retirement on the age profile for Ontario universities and the effect of the Career Progress Factors on Average Faculty Salary and Total Faculty Salary. As the faculty progress through the age groups in the model, those faculty in the 60+ age

group retire in the subsequent five-year interval and are replaced by an equivalent number in the <30 age group. The age-salary profiles for Model 1 for each five-year interval are presented in Table 4. The movement of the 'baby professor wave' is clearly evident in Table 4, starting from the 30-39 age group positions in 1973 and moving to the 55-64 age group positions in 1998-99. The very substantial number of retirements in the decade 1988-98 can be noted in Table 4. The considerable strains imposed on university pension plans during this period have been documented previously by a joint COU/OCUFA committee.

The figures below the bar charts on Table 4 show Total Faculty Salaries, exclusive of benefits, at each five-year interval in 1973-74 dollars. As indicated, even with no increase in the total number of faculty, the ratio of Total Faculty Salaries to Total Funding increases from 0.367 in 1973-74 to a high of .481 in 1993-94. If there were no increase in funding beyond the 1973-74 level in 1973-74 dollars, the reallocation within operating budgets (from other expenditures to faculty salaries) would be massive.

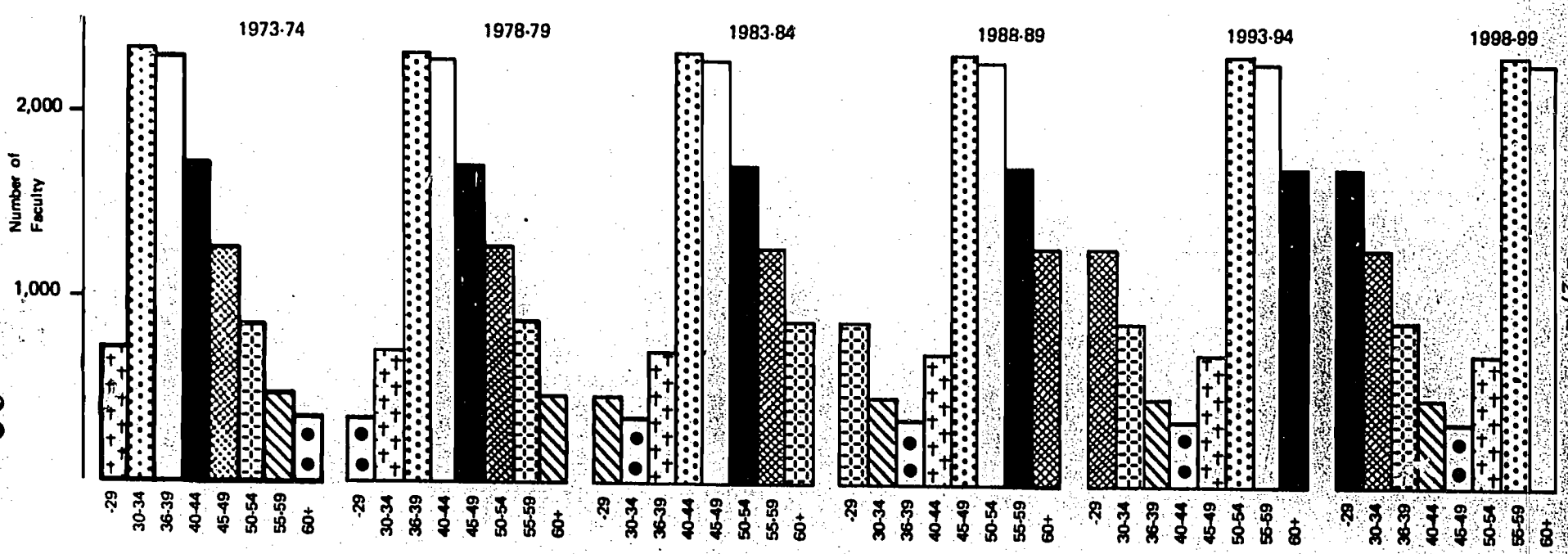
2) Model 2

Model 2 also assumes no change in total number of faculty over the twenty-five year period. However, it does include the effect of attrition. As noted earlier under the

Age-Salary Profile of Faculty in Ontario Universities

(No Change in Total Number of Faculty — Replacement for Retirement only)

MODEL NO. 1



	1973-74	1978-79	1983-84	1988-89	1993-94	1998-99
	N=10,038	N=10,038	N=10,038	N=10,038	N=10,038	N=10,038
No. of Faculty	10,038	10,038	10,038	10,038	10,038	10,038
Avg. Salary	19,235	21,502	23,635	25,046	25,253	24,027
Total Salaries	193.1	215.8	237.2	251.4	253.5	241.2
Student/Faculty Ratio	15.4	17.1	18.9	17.5	16.2	18.4
Total Salaries/ 1973-74 Funding	.367	.410	.450	.477	.481	.457

assumptions, it is assumed that attrition occurs at the rate of 5% per annum for the <30 and 30-34 age groups and 1% per annum for the remaining age groups. These factors represent faculty who leave the Ontario university system as a result of resignation, termination or death. Replacement of faculty because of retirement occurs in the <30 age group; half of replacement because of attrition occurs in the <30 age group and half in the 30-34 age group.

The age-salary profiles for Model 2 are displayed in Table 5 for each five-year interval from 1973-74 to 1998-99. Two effects of including attrition are clearly discernible: 1) the age distribution stabilizes to a more uniform pattern without the deep trough that is evident in Model 1 in 1993-94 and 1998-99; 2) the cost of career progress is markedly lower. As noted in the figures below the bar charts on Table 5, the ratio of Total Salaries to 1973-74 Total Funding rises to a high of 0.454 in 1993-94. This is lower than the ratio of 0.481 produced in Model 1 but still represents a reallocation of internal budgets that is probably unachievable.

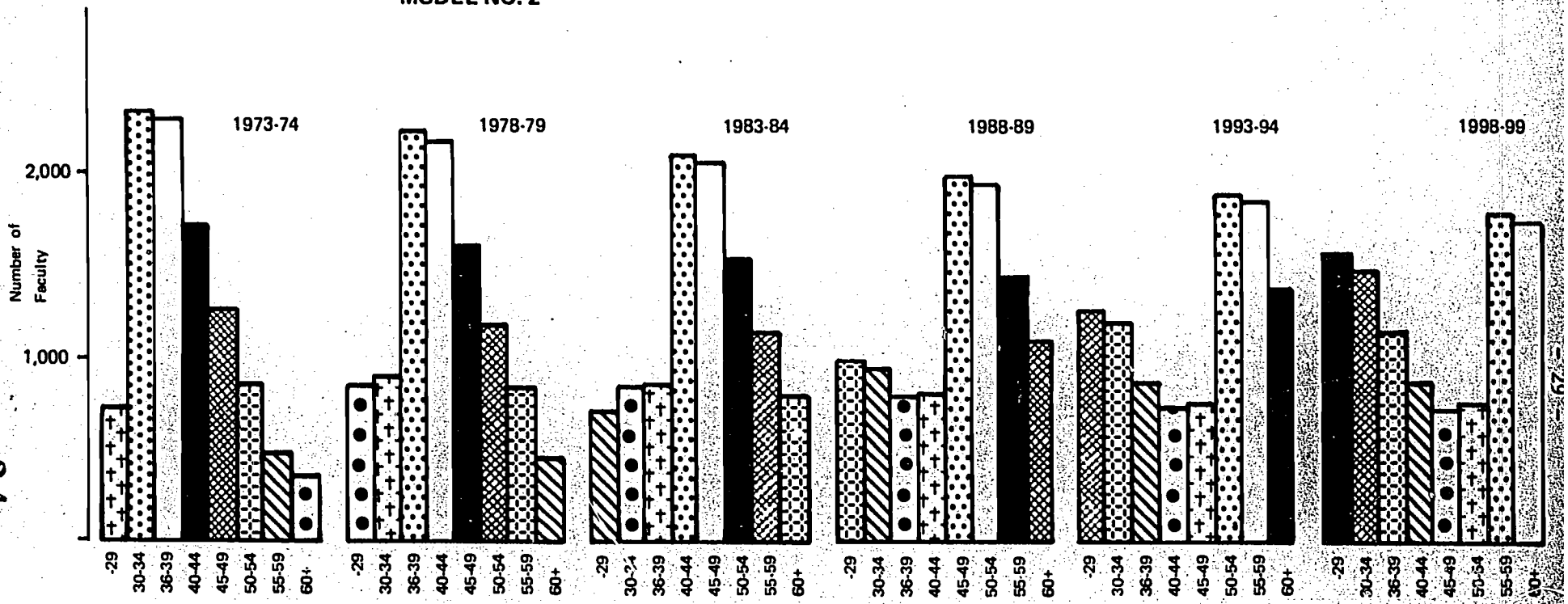
3) Model 3

In order to focus clearly on concerns related to faculty, we have made the assumption, in developing these first two models, that the total number of faculty members is kept constant by appropriate hiring. In practice, of

Age-Salary Profile of Faculty in Ontario Universities

(No Change in Total Number of Faculty – Replacement for Retirement & Attrition Only)

MODEL NO. 2



	N=10,038	N=10,038	N=10,038	N=10,038	N=10,038	N=10,038
No. of Faculty	10038	10038	10038	10038	10038	10038
Avg. Salary	19,235	21,111	22,773	23,758	23,794	22,874
Total Salaries	193.1	211.9	228.5	238.5	238.8	229.1
Student/Faculty Ratio	15.4	17.1	18.9	17.5	16.2	18.4
Total Salaries/ 1973-74 Funding	.367	.402	.434	.452	.454	.435

* MODEL No.2 – Attrition (excl. retirements) occurs in all periods at rate of 5%/annum in two lowest age groups and 1%/annum in all other age groups.

course, such an assumption would mean either that student numbers must also be kept constant or that student/faculty ratios must be allowed to fluctuate. We proceed next to examine the basic data on student demography and to take the relevant projections into account in relation to the faculty data already examined.

We arrive at a projection of university enrolment by:

(a) beginning with the actual 1973-74 enrolment;

(b) increasing the enrolment number by 2% per annum until 1983;

(c) decreasing the enrolment number by 1.5% per annum from 1984 to 1993;

(d) increasing the enrolment number by 2.5% per annum from 1993 to 1998.

By this method, changes in university enrolment have been assumed to match projected changes in the 18-24 age group. These changes are illustrated in Table 6, taken from Impact of Projected Population Trends on Post-Secondary Education (Zoltan Zsigmond in Statistics Canada, 1961:2001).

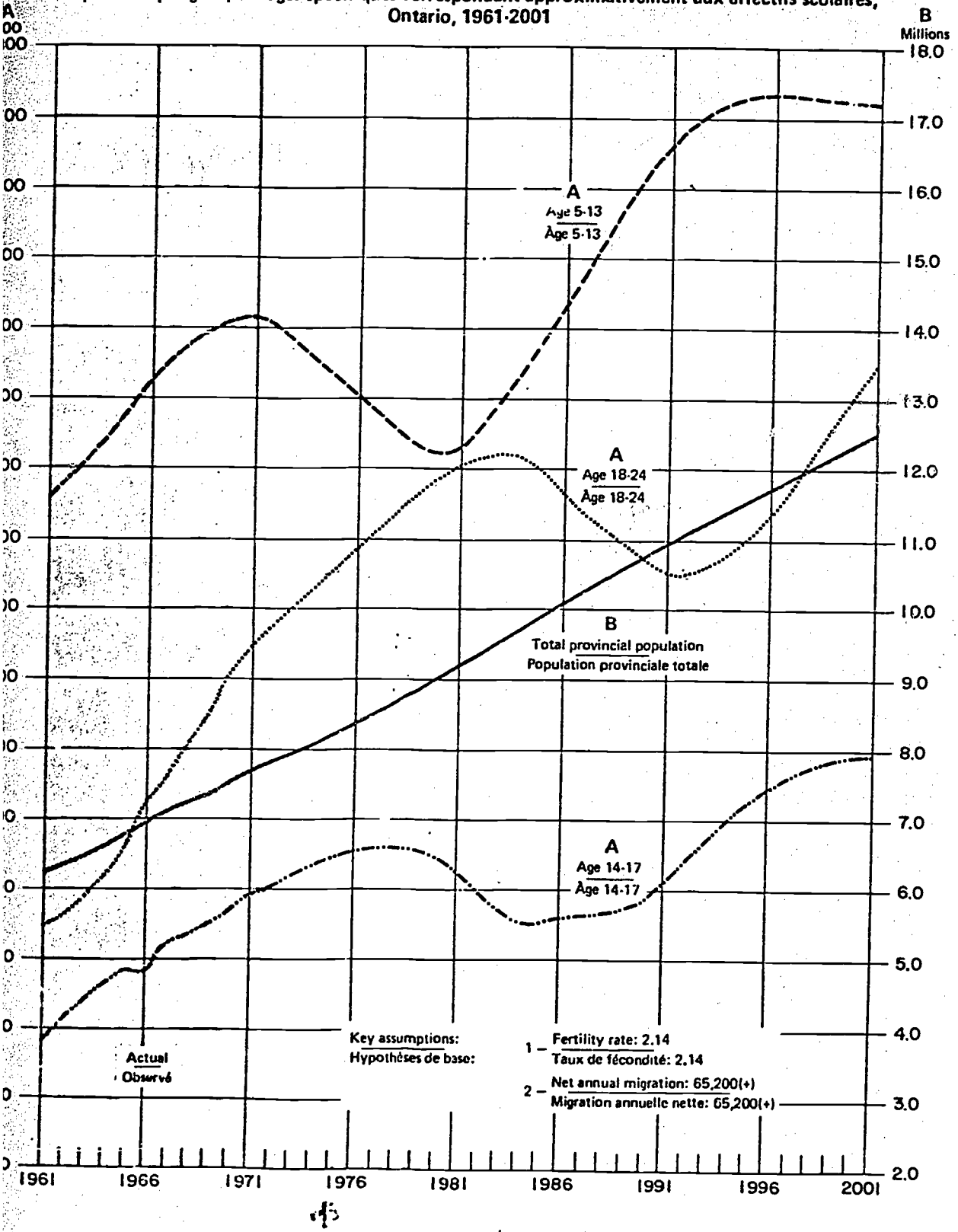
The data from Models 1 and 2 make it clear that under the assumption of constant faculty numbers the student/faculty ratio fluctuates widely - so much as to be quite unrealistic. The Committee has therefore considered ways of modifying the fluctuations by varying the hiring rates assumed in the model while maintaining the financial parameters of the career plan.

Table 6

Graphique – 6

Selected Age Group Population Approximately Relevant to School Enrolment, Ontario, 1961-2001

Population par groupe d'âges spécifiques correspondant approximativement aux effectifs scolaires, Ontario, 1961-2001



For changes in faculty numbers to achieve any reasonable relation to changes in student numbers, some net growth in faculty numbers until 1983-84 must occur. At that time, as student numbers begin to decline, the number of persons retiring will have increased so that a policy of replacing 70% of the vacancies created by retirement will have the effect of reducing the total number of faculty and partially offsetting the continuing increase in Total Faculty Salaries required for Career Progress.

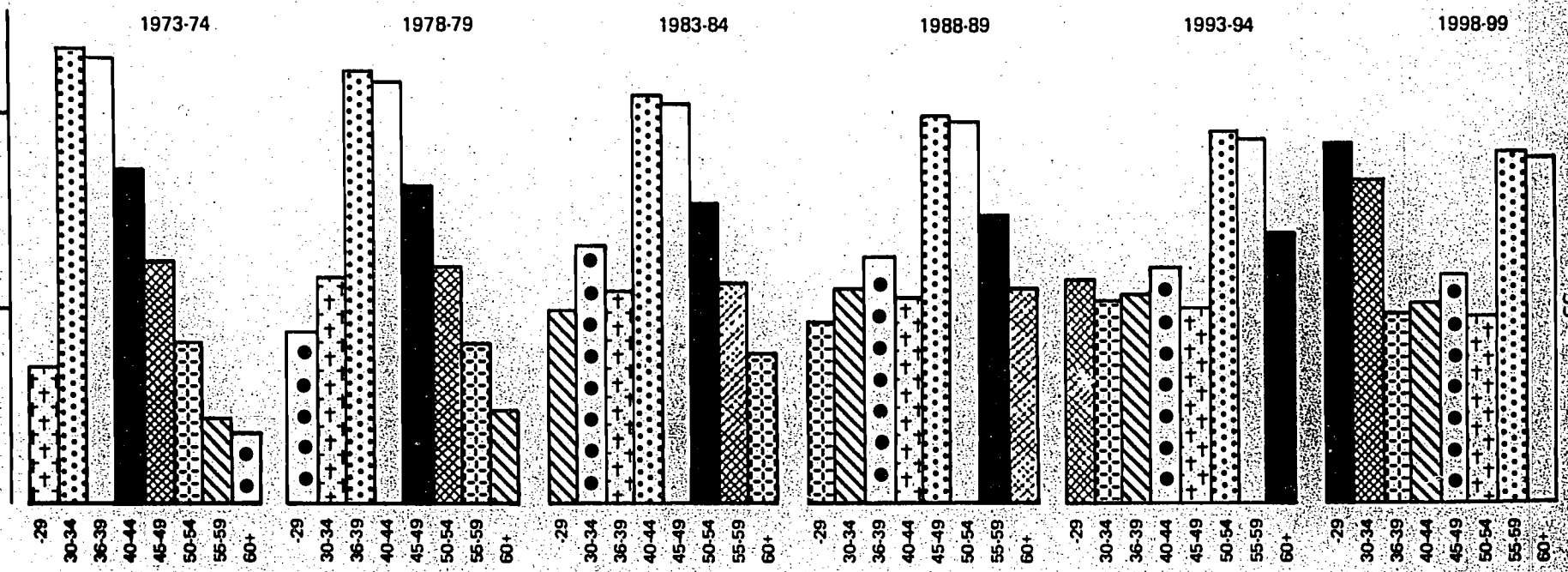
Model 3, in a partial response to changes in student enrolment, assumes a net increase in the total number of faculty between 1973-74 and 1983-84 of 1% per annum; a replacement of 70% of retirees in the period 1983-84 to 1993-94 (rather than 100% replacement); and resumption of a net increase in total faculty of 1% per annum in the final five-year period. The replacement of only 70% of retirees between 1983-84 to 1993-94 has the effect of reducing the total number of faculty at the rate of 0.5% per annum during that period. Model 3 makes the same assumptions for attrition as Model 2.

The results of Model 3 are presented in Table 7. Because of the increase in faculty numbers in the first ten years, the ratio of Total Salaries to 1973-74 Funding increases to 0.481 in 1988-89, a higher value than is produced in Model 2. However, the student/faculty ratio for Model 3 as outlined in Table 7 is kept within a range that has a less harmful effect on

Table 7

Age-Salary Profile of Faculty in Ontario Universities

MODEL NO. 3*



	1973-74	1978-79	1983-84	1988-89	1993-94	1998-99
	N=10,038	N=10,038	N=10,038	N=10,038	N=10,038	N=10,038
No. of Faculty	10,038	10,549	11,088	10,857	10,524	11,092
Aug. Salary	19,235	20,770	22,039	23,330	23,852	22,646
Total Salaries	193.1	219.1	244.4	253.3	251.0	251.2
Student/Faculty Ratio	15.4	16.2	17.0	16.1	15.4	16.6
Total Salaries/ 1973-74 Funding	.367	.416	.464	.481	.477	.477

* MODEL No.3 — Number of Faculty increases at rate of 1%/annum in periods 1973–74 to 1983–84 and 1993–94 to 1998–99. During period 1983–84 to 1993–94, Number of Faculty decreases as a result of replacing only 70% of retirees.
— Attrition (excl. retirements) occurs in all periods at rate of 5%/annum in two lowest age groups and 1%/annum in all other age groups.

academic quality. Model 3 also has the effect of producing a more uniform age distribution than either of Models 1 and 2. In addition, while there is a real cost incurred because the incremental hiring of the first decade starts a number of long careers, the costs are partially recovered by the replacement policy of the period from 1984 to 1993.

4) Model 4

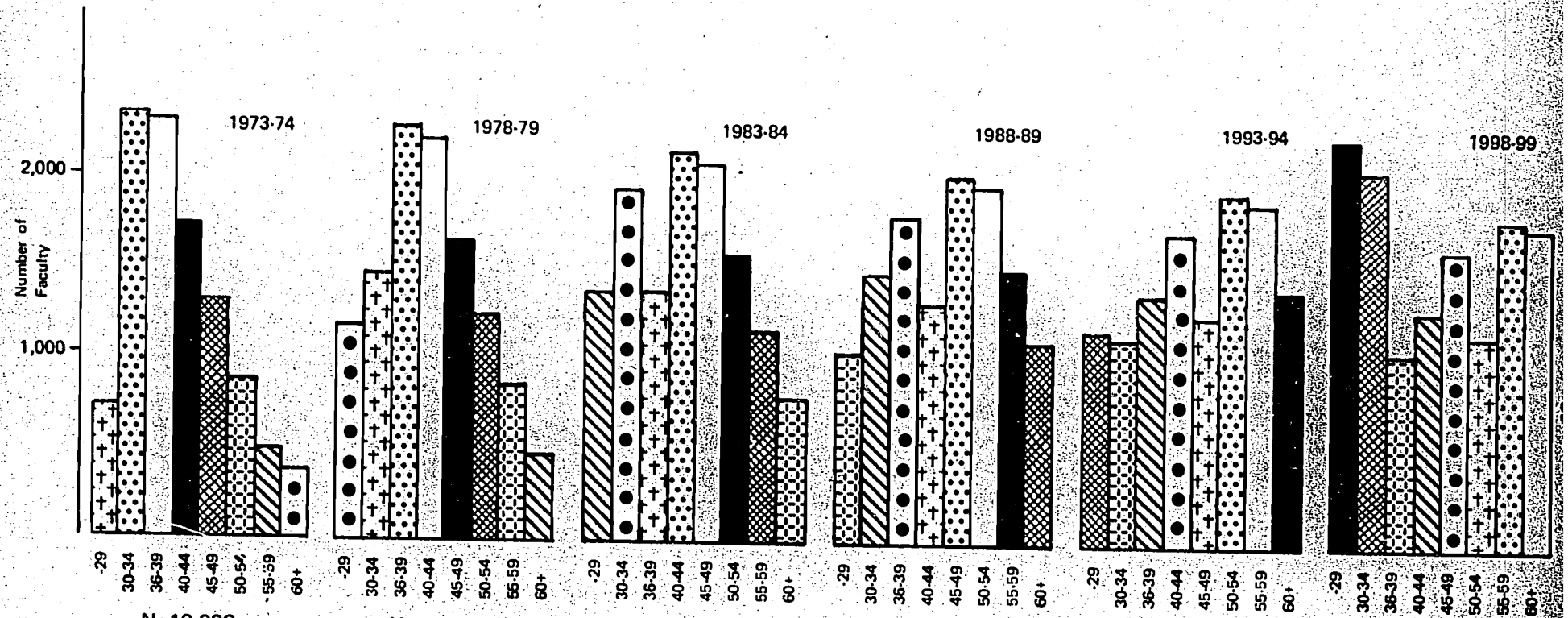
As a final model, the Committee has considered one that more closely tracks the increase in student enrolment in the first ten years and the final five-year period. Changes in the total number of faculty in Model 4 occur as follows: a 2% per annum increase in total faculty numbers between 1973-74 and 1983-84; a 0.5% decrease in faculty numbers between 1983-84 and 1993-94 (achieved by the policy of replacing only 70% of retirees); and a 2% increase in faculty between 1993-94 and 1998-99. The assumptions on faculty attrition are the same as those for Models 2 and 3.

The age-salary profiles for Model 4 are presented in Table 8. The effect of the greater amount of hiring in the first decade and in the final five years is evident in the larger number of faculty portrayed by the increased height of the bars for the <30 and 30-34 age groups in 1983-84 and in 1998-99. The increased amount of hiring also has a significant effect on Total Salaries, which continue to increase, although with a flattening out between 1988-89 and 1993-99, to a high of 285.9 million in 1998-99. This represents a ratio of Total

Table 8

Age Salary Profile of Faculty in Ontario Universities

MODEL NO. 4*



	1973-74	1978-79	1983-84	1988-89	1993-94	1998-99
No. of Faculty	10,038	11,084	12,235	12,001	11,677	12,897
Avg. Salary	19,235	20,445	21,378	22,740	23,423	22,169
Total Salaries	193.1	226.6	261.6	272.9	273.5	285.9
Student/Faculty Ratio	15.4	15.4	15.4	14.6	13.9	14.2
Total Salaries/ 1973-74 Funding	.367	.430	.496	.518	.519	.543

* MODEL No.4 — Number of Faculty increases at rate of 2%/annum in periods 1973–74 to 1983–84 and 1993–94 to 1998–99. During period 1983–84 to 1993–94 Number of Faculty decreased as a result of replacing only 70% of retirees.
— Attrition (excl. retirements) occurs in all periods at rate of 5%/annum in two lower age groups and 1%/annum in all other age groups.

Salaries to 1973-74 Total Funding of .543.

In summary, all four models indicate an increase in Total Faculty Salaries in 1973-74 dollars until at least 1988-89. Model 3 shows a small drop in Total Salaries between 1988-89 and 1993-94. Model 2 (constant 1973-74 faculty numbers with a 5% per annum attrition in the two lowest age groups and 1% per annum in the others) has the lowest Total Salaries but has student/faculty ratios that are likely to be too high. The outcomes for all four models are summarized in Table 9.

In presenting these models the committee does not choose one in particular as representing the optimal strategy. We hope to have shown that if the effect of easily defined aspects of hiring and remuneration policy for the academic staff are taken into account, effective and economic planning with regard to faculty can be much facilitated.

CONCLUSION

The committee again emphasizes that the models used to illustrate the need for, and effects of, careful planning of academic careers have been derived within two limitations:

1) Only full-time faculty positions have been considered since no aggregate data are available on other teaching and research positions in Ontario universities. Indeed, the work of the committee was decidedly hampered by the inability of some

Table 9

Summary of Model Outcomes

		1973-74	1978-79	1983-84	1988-89	1993-94	1998-99
umber of Students		154,800	170,900	188,700	175,000	162,200	183,500
umber of Faculty							
Model	1	10,038	10,038	10,038	10,038	10,038	10,038
	2	10,038	10,038	10,038	10,038	10,038	10,038
	3	10,038	10,549	11,088	10,857	10,524	11,092
	4	10,038	11,084	12,235	12,001	11,677	12,897
tudent/Faculty Ratio							
Model	1	15.4	17.1	18.9	17.5	16.2	18.4
	2	15.4	17.1	18.9	17.5	16.2	18.4
	3	15.4	16.2	17.0	16.1	15.4	16.6
	4	15.4	15.4	15.4	14.6	13.9	14.2
verage Faculty Salaries							
Model	1	19,235	21,502	23,634	25,046	25,253	24,027
	2	19,235	21,111	22,773	23,758	23,794	22,874
	3	19,235	20,770	22,039	23,330	23,852	22,646
	4	19,235	20,445	21,378	22,740	23,423	22,169
otal Faculty Salaries ($ Millions)							
Model	1	193.1	215.8	237.2	251.4	253.5	241.2
	2	193.1	211.9	228.6	238.5	238.8	229.1
	3	193.1	219.1	244.4	253.3	251.0	251.2
	4	193.1	226.6	261.6	272.9	273.5	285.9
tio of Total Faculty Salaries 1973-74 Total Funding							
Model	1	.367	.410	.450	.477	.481	.457
	2	.367	.402	.434	.452	.454	.435
	3	.367	.416	.464	.481	.477	.477
	4	.367	.430	.496	.518	.519	.543

universities to provide readily information about faculty numbers, age distribution, and so on.

2) The aggregate of all positions has been used so that a provincial picture has been developed, which may not closely resemble the picture at any one institution.

Despite these limitations the committee believes that the models, coupled with the previous work of OCUFA-COU committees on Pensions and Early Retirement, show clearly that careful planning of hiring and remuneration in the universities, coupled with adequate financial support on a long-term basis, would enable them to meet the objectives, which they share with government, of providing high quality university education through a period of fluctuating student enrolment while responsibly controlling the costs of providing such services.

In showing the effects of attrition, hiring, and career development plans on faculty demography and salaries, the committee has concentrated on factors directly under institutional control. Noting that enrolment is only partly amenable to such control (universities being able to establish upper limits but not to ensure the meeting of lower ones), the committee believes that it would be unwise to continue funding universities on a basis that is:

1) short term, i.e., year-to-year; and

2) entirely dependent on enrolment, and therefore independent of institutional investment in resources both human and physical.

Accordingly, the committee recommends that every effort be expended to develop a mechanism for operating grant determination and distribution that:

1) will provide for funding on at least a five-year rolling basis;

2) will employ changes in actual or projected enrolment as a minor adjusting factor within the five-year periods;

3) will depend significantly on the long-term costs of operating universities.

RECOMMENDATIONS

The Committee recommends as follows:

1) *That COU and OCUFA jointly urge, with all the authority they can muster, that OCUA propose to the Minister of Colleges and Universities the development of a scheme of university financing that will make it possible for the universities and OCUA to engage in effective long-term planning.*

2) *That COU and OCUFA press for a system of financing that will not involve the use of year-by-year student numbers as the principal base.*

3) *That each individual university study carefully the models developed in this report, examine its own faculty numbers, distribution, policies, and procedures, and arrive at a*

a plan for faculty career development that will suit its own institutional objectives, taking account of the appropriate local variations in the basic assumptions used in this report and of relevant additional parameters.

The Committee feels that the results of such exercises should be widely discussed on each campus with faculty and Faculty Associations, so that the effects of staffing policies can be understood as fully by those affected by them as by those responsible for administering them. The Committee feels also that the circulation of such individual university reports among the universities would be useful.

4) *That the Council of Ontario Universities initiate some action with respect to the university pension situation, on the basis of the various studies already made.*

APPENDIX A

COMMENTS ON ASSUMPTION OF ATTRITION RATE

Some of the scenarios incorporate the effects of attrition. Table A indicates that an attrition of about 5% occurred in the years 1972-73 and 1973-74. However, this is only an approximation, since not all universities were able to provide data. In addition, the data provided did not identify flows internal to the Ontario system. For example, a terminee in one year at one institution may have been appointed the following year at another university. The data in Table A also shows the increasing use of contractually limited term appointments in relation to probationary and tenured appointments. Over the two-year period there was an increase of 212 contractually-limited term appointments and a net decrease in probationary and tenured appointments of 4*. Universities will probably continue to consider very carefully the option of renewing or terminating contractually limited appointments as they lapse. It is likely that the total number of contractually limited appointments will not diminish; in fact, in the face of the need for flexibility, universities may be expected to continue to use this category as a form of highly qualified casual labour.

* It should be noted that such actions by universities are decidedly not neutral in their effects. Universities should expect much more militance and interest in collective bargaining as the career prospects and job security of young faculty become more threatened.

Table A

INFLOWS AND OUTFLOWS OF ACADEMIC STAFF - ONTARIO UNIVERSITIES

(Excluding University of Toronto)

Category	1972-73 Attrition Retired	1972-73 Attrition Other	1973-74 Hired	1973-74 Net Change	1973-74 Attrition Retired	1973-74 Attrition Other	1974-75 Hired	1974-75 Net Change
Full-Time - Contractually Limited	9	250	352	+ 93	10	218	347	+119
Full-Time - Probationary	8	208	311	+ 95	7	235	334	+ 92
Full-Time - Tenured	38	71	35	- 74	32	114	29	-117
Total Full-Time	55	529	698	+114	49	567	710	+ 94
Net Full-Time - Contractually-Limited				+ 93				+119
Net Full-Time - Probationary and Tenured				+ 21				- 25

Note: These are only approximations since some universities were unable to provide complete data. Also U. of T. data were not available; the hiring and attrition results for the system may be understated by as much as 20%.

:tk
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