LIAISON WITH Ph.D. EMPLOYMENT SURVEY
OF RECENT GRADUATES

TERMINATION REPORT
FOR
PROJECT U.P. 23/106

LIAISON WITH Ph.D. EMPLOYMENT SURVEY OF RECENT GRADUATES

(SURVEY OF 1976 DOCTORAL DEGREE RECIPIENTS, STATISTICS CANADA, SEPTEMBER 1979)

UNIVERSITY BRANCH
MOSST
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SUMMARY OF FINDINGS

1. This survey of 1976 Ph.D. graduates was conducted by mail by Statistics Canada in December 1978 under contract with seven provinces, (British Columbia, Alberta, Saskatchewan, Ontario, New Brunswick, Nova Scotia and Newfoundland). Graduates from these provinces represent 82 per cent of Ph.D.s granted in Canada in 1976. The survey achieved a response rate of 66 per cent and received 906 completed questionnaires.

2. The survey had a limited scope, focussing on the employment condition of the class of 1976 as at December 1978, some two years after graduation. In addition, information was gathered on attitudes towards the educational experience and sources of financial support.

3. The Ontario Ministry of Colleges and Universities initiated proposals for this survey and assumed a major share in the cost of conducting it. University Branch, MOSST, participated in the development of the questionnaire and assumed a liaison role with the survey and the analysis of the results.

4. The survey results show a relatively high level of employment (95.5 per cent of those in Canada at the time of the survey were employed), but the level of part-time employment was significant (6.5 per cent),

as was involuntary employment (3 per cent). Part-time jobs and involuntary employment combined was particularly acute in the humanities, ranging as high as 36 per cent for philosophy graduates and averaging 23 per cent for this group as a whole.

5. It was determined that most doctorates (69 per cent), found jobs in the traditional areas of employment - education and government. The job outlook in these sectors is not promising and future Ph.D. graduates will need to look to other sectors for greater opportunities.

SURVEY OF 1976 DOCTORAL DEGREE RECIPIENTS

PREFACE

The Ph.D. survey was restricted to graduates of 1976 and was conducted in December 1978, approximately two years after graduation. The survey results do not refer to graduates of 1977, 1978 or 1979. Graduates of these more recent years probably have encountered greater employment problems than the 1976 graduates. This point should be kept in mind when reviewing the Ph.D. survey results presented in this report.

BACKGROUND AND ORIGIN OF SURVEY

The need for a survey of recent doctoral recipients, which would cover their employment and observations on the educational experience, has been needed for some years now. Until this present survey, the most recent detailed information available on Ph.D. employment was the 1973 Post-Censal survey which referred to the entire population of doctorates in the year 1971. It was thought by many, however, that this information may have become outdated due to the large number of doctorates granted since 1971, the sharp slow-down in government and university employment opportunities (where most Ph.D.'s traditionally found jobs), and the proliferation in the number and duplication of Ph.D. programs available in many universities across Canada. As well, little was known about the attitudes of recent Ph.D.'s towards their current jobs,

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the relevance of their education to their jobs, the incidence of unemployment among graduates by field of study, and some basic facts on why students seek doctoral degrees and how satisfied they were with the resulting educational experience.

At a time when provincial governments are increasingly taking a hard look at post-secondary education, particularly its cost, relevance to the labour market and the need to rationalize facilities and programs in the face of declining enrolments, it seemed timely to gather specific data on the class of 1976, a year which is recent enough to be directly relevant to the current labour market, yet allows sufficient time that the graduates of that year (1976) should have found their place in the working world and have launched their careers. The Ontario Ministry of Colleges and Universities took the initiative in developing the survey, arranged for provincial support and funding and contracted with Statistics Canada to conduct the survey. The University Branch, MOSST, was involved in the initial discussions with MCU, provided specific advice and recommendations at the questionnaire design stage and has maintained a liaison role with the survey and the analysis of the results.

In a sense, this survey represents a good example of provincial co-operation, using the facilities and advice of federal agencies and departments, such as Statistics Canada and MOSST, to pursue a direct response to a problem all the provinces share. Ontario has borne the largest share of the costs of the survey, in the expectation that the development costs could be spread over future surveys of doctoral graduates to give periodic readings on the employment condition of graduates. Provinces which did not join in the survey were Quebec, which plans a separate, but similar survey, and Manitoba and Prince Edward Island. Graduates of Manitoba were surveyed and included in the total tabulations,

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but the province declined to join in the funding late in the execution of the survey and for this reason will not receive tabulations specific to Manitoba.

THE SAMPLE AND RESPONSE RATES

The survey contacted by mail in December, 1978, the doctoral graduates of 1976 of the provinces of British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick, Nova Scotia and Newfoundland. Doctoral graduates from these provinces account for 1,380 (82%) of the 1,693 Ph.D.'s awarded in 1976. Of the 1,380 Ph.D.'s, 906 responded to the survey for a response rate of 65.6 per cent. A summary of response rates by university is provided in Appendix A. In general, these rates are considered to be good for a mail survey, which is likely a reflection of the select group to which it was directed.

RELEASE OF INFORMATION AND SPECIAL TABULATIONS

Because the survey was paid for by the sponsoring provinces, and Statistics Canada was under contract to perform the survey and produce a specific set of tables for a price, the release of the survey results was co-ordinated with the provinces to occur on September 10, 1979 with an agreed "summary of results" and set of tables. This report is based on these published results, which are separately available, although it would be possible at a later date for MOSST to request specific tabulations from Statistics Canada, if such tabulations are required. The survey was conducted by Statistics Canada under the provisions of Section 11 of the Statistics Act, which allows the respondent the opportunity to specifically authorize the release of micro data to specified organisations.

The organizations listed in this survey were the Medical Research Council, Natural Science and Engineering Research Council and the Social Sciences and Humanities Research Council. These Councils, therefore, may receive detailed questionnaire responses at a later date. In developing the survey, it was agreed within University Branch that micro data would not be of significant value to the Ministry. Consequently, the Ministry will have access to tabulations in which there are sufficient observations to exclude the possibility of identifying any particular respondent.

MAJOR FINDINGS

Employment

The survey shows that 95.4 per cent of the Ph.D's of the class 1976 resident in Canada at the time of the survey, were employed in December 1978. This figure includes 6.5 per cent who were employed part-time. Some 3 per cent of those in Canada were involuntarily unemployed and 2 per cent were voluntarily unemployed.

By field of study, involuntary unemployment was highest in the humanities and fine arts (6.8 per cent or 8 persons for the group as a whole) and in chemical engineering (19 per cent or 3 persons). Part-time employment was prevalent in the humanites and fine arts (16 per cent or 19 persons), psychology (11 per cent or 10 persons, and in zoology (9 per cent or 2 persons).

It is worth stressing that these results pertain to a group of highly educated persons, two or more years after graduation. Since 1976, the number of doctorates granted has not changed substantially (about 1,700 per year) nor has the level of full-time enrolments declined significantly

from the levels prevailing in the mid-1970's. Only in 1977-78 is there beginning evidence that full-time Ph.D. enrolments were declining, and then just marginally, in the humanities, for example. It remains a question, therefore, to what extent the results of the 1976 graduates survey are representative of the labour market experience of graduates of more recent years.

MOBILITY

In addition to the above figures which refer to Ph.D.'s resident in Canada, some 19 per cent of the graduates had moved abroad, about half to the United States (most of these were foreign students). With regard to legal status and location, some three-quarters of the total sample of respondents were Canadian citizens and one-quarter non Canadians. Most of the Canadians stayed in Canada (94 per cent), while 4 per cent went to the United States, 1.5 per cent to other Commonwealth Countries and 1 per cent to other countries. Some 46 per cent of non-Canadians remained in Canada as landed immigrants.

Within Canada, doctorates are highly mobile. Only 51 per cent remained in the province where they graduated.

OCCUPATIONS AND INDUSTRY OF EMPLOYMENT

The survey shows that graduates continue to seek employment in the traditional sectors of education and government. Of those graduates who remained in Canada, 69 per cent found jobs in these sectors.

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By occupation, 44 per cent of the respondents found employment as university teachers and the majority of the balance found work in their specialty. For example, chemistry graduates as chemists (57 per cent), geology graduates as geologists (64 per cent), biology graduates as biologists (77 per cent).

With the prospect of declining university enrolments during the 1980's, and consequently fewer academic openings, and the constraints in government hiring currently in place, one is left with the impression that the doctorate graduates of recent and future years will face a substantially changed labour market environment in which they must find alternative employment.

In this regard, a paper presented by Lewis Soloman to the 1979 National Conference on Higher Education (United States)[1], outlined the same problem of declining academic employment prospects for Ph.D.'s in the United States as exists in Canada. As in Canada, the U.S. employment problem is particularly acute for the humanists, while the prospects for science graduates depends largely on the level of R&D funding in industry and governments. Soloman concludes his analysis by pointing out that Ph.D.'s in the humanities, and other fields for that matter, have a number of skills (such as research, writing, critical thinking, and analytical skills) necessary to advanced study and equally valuable and rewarding in non-academic occupations. He recommends that current students should receive balanced information on employment prospects in their chosen disciplines and, if they decide to continue their studies, should be open-minded about career options. Clearly, the Canadian situation is not unique in an international context.

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[1] Sponsored by the American Association for Higher Education, April 17, 1979.

WORK ACTIVITIES

In total, the major work activity in current employment was teaching which was reported by 42 per cent of the sample. A further 27 per cent reported research as their major activity and five per cent reported development. By field of study, graduates in education, humanities, and social science were largely engaged in teaching. As might be expected, most of the life sciences, engineering and physical science graduates performed research (and development in the case of engineering and physical science graduates) as their major work activity. In general, these data confirm initial suppositions regarding work function by field of study. In particular, it confirms that the applied sciences and engineering doctorates are primarily engaged in development and form the core of any national effort to raise the level of R&D.

SUITABILITY OF CURRENT EMPLOYMENT

Respondents were asked to indicate the degree of suitability of their current employment to their education. This question provides some measure of the extent of under-employment among Ph.D.'s. In total, 68 per cent of the respondents rated their current job as definitely suitable and a further 28 per cent as suitable in some respects. Five per cent thought their job was definitely not suitable. The rate of "definitely suitable" was much higher than average in those fields of study which had a higher rate of employment as university teachers. Conversely, graduates in chemistry and English had a greater than average number who considered their job less suitable in some respects or definitely not suitable. The percentage of chemists holding full-time teaching jobs was low and part-time employment in English was high. About 11 per cent of humanities graduates thought their employment was definitely not suitable.

UNIVERSITY TEACHING

Of those graduates resident in Canada, 37 per cent held full-time university teaching jobs. The rate for education, humanities and social sciences was 49 per cent, but in the natural sciences it was 22 per cent. Tabulations indicate that 85 per cent of those with university teaching-jobs (full and part-time) had obtained these jobs prior to receiving their doctorate.

In addition there was a sizeable group (18 per cent of Ph.D.'s resident in Canada) who aspired to a university teaching job, but did not find one. Of the graduates in Canada, 61 who did not hold a teaching position were still looking for one at the time of the survey and a further 70 who originally aspired to teach had revised their aspirations in view of the scarcity of jobs.

SOURCE OF FINANCIAL SUPPORT

The survey showed that graduates received financial support from two main sources - non-university scholarships and fellowships (e.g. MRC, NSERC and SSHRC) and academic employment. Non-university support was the main source of income for 37 per cent of the respondents while academic employment was the largest source for 22 per cent. Other sources of financial support included university fellowships and scholarships and "spouse's earnings".

Respondents receiving non-university scholarships or fellowships at any time during their doctoral studies were asked to identify the agencies providing this support. Table 1 shows the survey responses tabulated by field of study and granting council for those who indicated that non-university scholarships and fellowships were the largest source of financial support.

In total, the granting Councils were the main sources of financial support for about one-third of the Ph.D.'s surveyed. The Canada Council provided the main source of income for about one-quarter of the education, humanities and fine arts and social science graduates. The Medical Research Council was the main source for about 36 per cent of the health profession graduates. The National Research Council provided major financial support to about one-third of the graduates in the life and natural sciences and engineering programs.

TABLE 1

LARGEST SOURCE OF FINANCIAL SUPPORT DURING DOCTORAL STUDIES
(1976 DOCTORAL GRADUATES)

FIELD OF STUDY	NUMBER OF RESPONDENTS	LARGEST SOURCE				
		CANADA COUNCIL	MEDICAL RESEARCH COUNCIL	NRC	OTHER (1)	TOTAL
EDUCATION	98	17	-	-	8	25
HUMANITIES AND FINE ARTS	144	41	-	-	21	62
SOCIAL SCIENCES	237	61	-	11	52	124
AGRICULTURE AND BIOLOGICAL SCIENCES	104	-	5	30	17	52
ENGINEERING	97	2	2	31	17	52
HEALTH PROFESSIONS	44	-	16	1	12	29
NATURAL SCIENCES AND MATHEMATICS	182	1	-	62	22	85
TOTAL	906	122	23	135	149	429

SOURCE: STATISTICS CANADA, SURVEY OF 1976 DOCTORAL DEGREE RECIPIENTS FRAM CANADIAN UNIVERSITIES, SEPTEMBER 1979.

(1) INCLUDES PROVINCIAL GOVERNMENT AWARDS, AWARDS RECEIVED FROM CIDA, AND AWARDS RECEIVED FROM OTHERS.

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MOTIVATION FOR DOCTORAL STUDY

The survey questioned respondents as to why they sought a Ph.D. degree. The most important factor, cited by 26 per cent, was "strong interest in the discipline". This was followed by a further 5 per cent who believed that a Ph.D. was "essential to employment aspirations". Most respondents, however, were unable to provide a single factor which led to their decision.

SATISFACTION WITH DOCTORAL PROGRAM

In general, most (89 per cent) of the doctorates were satisfied with their programs, "considering all aspects". However, when questioned regarding the length of time it took, the level of dissatisfaction was high (32 per cent). Understandably, persons in programs with longer than average completion times (e.g. anthropology, physics and chemical engineering) registered higher levels of dissatisfaction with the time element.

RELATED SURVEY INFORMATION

Statistics Canada also conducted a telephone survey on employment of 1976 college and university graduates in June 1978 with funding provided by the federal government through the Federal Labour-Intensive Projects (FLIP) program. This survey included Ph.D.'s along with bachelor and masters graduates and community college graduates. The sample included all provinces except Quebec and had a reference population of 97,000 graduates. A sample of 43,698 was drawn and 29,609 persons responded for a response rate of 68 per cent. The survey included 825 Ph.D. graduates who were advised that a detailed follow-up survey would be taken later in 1978.

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The June survey was limited in its content, restricted largely to matters of employment, satisfaction with this employment and the extent to which educational programs were related to jobs.

SUMMARY OF JUNE 1978 POST-SECONDARY GRADUATES SURVEY

In general, the survey demonstrated that the full-time employment rate for university graduates increased from 78 per cent one month after graduation (in 1976) to 82 per cent by October 1977 and 89 per cent in June 1978. By degree level, Ph.D.'s achieved a higher rate of employment in June 1978 (93.3 per cent) than masters (90.6) and bachelors (88.8). By field of study, all doctorates in business, fine and applied arts, engineering and health found full-time employment. The full-time employment rate in humanities for Ph.D.'s was 80 per cent. Of the Ph.D.'s surveyed in June 1978, 55 per cent thought their job was related to their education and 39 per cent thought it was partly related. Only 6 per cent believed their jobs to be not related to their education.

In summary, therefore, the June 1978 survey results pertaining to Ph.D. graduates is in broad agreement with the more detailed mail survey of Ph.D.'s taken in December 1978.

APPENDIX - A - APPENDICE

Response Rates - Taux de réponse

I. Response Rate by Province and University of Graduation

I. Taux de réponse selon la province et l'université de l'obtention du diplôme

Province	Institution	Universe	Number of Responses - Nombre de réponse	Response Rate - Taux de réponse
Newfoundland - Terre Neuve	Memorial University	8	7	87.5
Nova Scotia - Nouvelle-Écosse	Dalhousie University	35	20	57.1
	Nova Scotia Technical College	2	1	50.0
	Total	37	21	56.8
New Brunswick - Nouveau-Brunswick	New Brunswick, University of	24	12	50.0
Ontario	Carleton University	27	22	81.5
	Guelph, University of	34	21	61.8
	McMaster University	89	56	62.9
	Ottawa, Université d'	63	55	87.3
	Queen's University	57	42	73.7
	Toronto, Univeristy of	347	220	63.4
	Waterloo, University of	88	61	69.3
	Western Ontario, University of	74	60	81.1
	Windsor, University of	24	11	45.8
	York University	56	39	69.6
	Total	859	587	68.3
Manitoba	Manitoba, University of	62	36	58.1
Saskatchewan	Saskatchewan, University of	24	17	70.8
	Regina, University of	2	-	-
	Total	26	17	65.4
Alberta	Alberta, University of	140	104	74.3
	Calgary, University of	41	28	68.3
	Total	181	132	72.9
British-Columbia - Colombie-Britannique	British Columbia, University of	123	79	64.2
	Simon Fraser University	20	9	45.0
	Victoria University	8	6	75.0
	Total	151	94	62.2
Sub-total		1,348	906	67.2
Out-of-frame responses[1] - Réponse hors base de sondage[1]		32		
T o t a l		1,380	906	65.6

(1) Respondents who were included in the survey but who provided information which indicated they should not have been included.

(1) Certaines informations fournies par ces répondants ont déterminé qu'ils devraient être exclus du sondage.