PROCEEDINGS

1980 ANNUAL CONFERENCE
THE CANADIAN ACADEMIC ACCOUNTING ASSOCIATION

May 1980

Université du Québec à Montréal

Montréal, Québec

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Dalhousie University · Halifax · Nova Scotia · Canada B3H 4H8
School of Business Administration

August 1, 1980

The Members

The Canadian Academic Accounting Association

The 1980 Annual Meeting of the Canadian Academic Accounting Association was held in Montreal at the University of Quebec. The program and papers presented at this meeting are enclosed for your convenience and the information of others.

The local arrangements chairman for this meeting was Léo Paul Lauzon of the University of Quebec at Montreal. His assistance and that of numerous other volunteers in the arrangements for this meeting is gratefully acknowledged.

Publication of the proceedings was made possible by the generosity of Peat Marwick Mitchell and Co., Chartered Accountants. Their assistance is most appreciated.

Any papers not appearing in this volume were deleted at the author's request.

Sincerely,

D. C. Chesley
Program Chairman

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J. Dewhurst, "FASB Objectives; A Critical Evaluation and Implications for CICA"

C. T. Lau and M. Nelson, "Total Wage Compensation: A Survey"

P. R. Newsted, "Modified Guided Design for the Teaching of Structured Analysis and Design"

I. Benbasat and A. S. Dexter, " Pilot Survey of Demand and Supply Conditions for Canadian Information Processing Professionals"

N. Dressel, "Internationalizing the Accounting Curriculum: The Georgia State University Experience"

P. Creighton, "Farmers Savings and Loan: An Early Atlantic Acceptance"

C. Schandl, "On the Theory of Control and Fraud"

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ASSOCIATION CANADIENNE DES PROFESSEURS DE COMPTABILITE
CONGRÈS ANNUEL DES SOCIETES SAVANTES
Université du Québec à Montréal

PROGRAMME

le 25 mai	DIMANCHE
	Réception
19h à 21h	Endroit: Hôtel Méridien, Grand Salon C
	Hôte: L'Ordre des Comptables Agréés du Québec
le 26 mai	LUNDI
8h45 à 10h	Séance plénière I
	Recherche sur l'établissement des normes et répercussions sur l'enseignement de la comptabilité
	Endroit: Pavillon Judith-Jasmin, Salle 2930
	Président: Léo-Paul Lauzon, Ph.D., C.A., R.I.A. Université de Québec à Montréal
	Conférenciers:
	1. Morley P. Carscallen, F.C.A., président du Comité spécial sur la révision des processus d'établissement des normes de l'I.C.C.A.
	2. John Brennan, Ph.D., C.A., University of Saskatchewan. Répercussion de l'établissement des normes sur l'enseignement et la recherche pour les étudiants de premier et de deuxième cycles.
10h à 10h30	Pause-café
10h30 à 12h30	Séance plénière I (suite)
	Endroit: Pavillon Judith-Jasmin, Salle 2930
	3. Alex Milburn, Ph.D., C. A., Associé de Clarkson Gordon & Cie. Travaux de recherche, sujets abordés et méthodes adoptées par les cabinets d'experts-comptables.
	4. John Boersema, Ph.D., Groupe de la recherche et de l'établissement des principes comptables, La Compagnie Shell Canada. Problèmes et procédés de recherche dans l'industrie.
	5. Robert Crandall, Ph.D., F.C.A., Méthodes d'élaboration des programmes d'études et philosophie sous-tendant les préparatifs de recherche à Queen's University

Programme

12h à 14h	Déjeûner Endroit: Pavillon Judith-Jasmin, Salle M100 Hôte: La Corporation professionelle des comptables généraux licenciés Conférencier: George Sorter, Ph.D., C.P.A., New York University, gagnant du prix "Educator of the Year" de l'A.A.A. en 1979.
14h à 15h30	Séance plénière II Performance des étudiants: Ce que les données révèlant à propos de l'enseignement et de la recherche - répercussions sur l'enseignement, le recrutement, la gestion du personnel et la recherche. Président: Tom Beechy, D.B.A., C.P.A., York University Endroit: Pavillon Judith-Jasmin, Salle 2930 Conférenciers: 1. Jim Henderson, C.A., Directeur, Education Institute of Chartered Accountants of Alberta. 2. John Ross, M.B.A., F.S.M.A., Directeur exécutif de la Société des comptables en management du Canada.
15h30 à 16h	Pause-café
16h à 17h30	Séance plénière II (suite) 3. Gérard Gareau, C.A., Directeur de la formation professionnelle de l'Ordre comptables agréés du Québec. 4. David Hope, M.B.A., C.A., Saint Mary's University.
17h30 à 19h	Réception Hôte: Prentice-Hall of Canada Ltd. Endroit: Pavillon Judith-Jasmin, Salle M100
le 27 mai	MARDI
8h45 à 10h30	Assemblée annuelle de l'A.C.P.C. Endroit: Pavillon Judith-Jasmin, Salle 2930
10h30 à 11h	Pause-café
11h à 12h30	Présentations Endroit: Pavillon Judith-Jasmin, Salle 2930

Programme

Président: Réal LaBelle, Université du Québec à Montréal

Conférenciers:

1. Peter Chant, Ph.D., Université McGill; Time series analysis and analytical auditing

2. Ross Archibald, Ph.D., C.A., University of Western Ontario; Pensions

12h30 à 14h — Déjeûner
Endroit: Pavillon Hubert-Aquin, Salle 440
Hôte: Société des comptables en management du Canada

14h à 15h30 — Présentations, séances simultanées

Séance 1A
Endroit: Pavillon Judith-Jasmin, Salle 2950
Président: Gilles Poirier, Université du Québec à Montréal

Conférenciers:

1. Chew, M. C., Saint Mary's University, et Dirksen, C., Dalhousie University; Deferred Taxes - Changes Over Time

2. Raval, V. H. et Tsang, K. Y., University of Windsor; Relationship Between Method of Accounting for Prediscovery Costs in the Petroleum Industry and Certain Other Variables

3. Dewhurst, J., York University; FASB Objectives: A Critical Evaluation and Implications for CICA

Séance 1B
Endroit: Pavillon Judith-Jasmin, Salle 2930
Président: Réal LaBelle, Université du Québec à Montréal

Conférenciers:

1. Lau, C. T. et Nelson, M.; University of Windsor; Total Wage Compensation: A Survey

2. Newsted, P. R., The University of Calgary; Modified Guided Design for the Teaching of Structured Analysis and Design

3. Benbasat, I. et Dexter, A. S., University of British Columbia; Pilot Survey of Demand and Supply Conditions for Canadian Information Processing Professionals

15h à 16h — Pause-café

Programme

16h à 17h30 — Présentations, séances simultanées

Séance 2A
Endroit: Pavillon Judith-Jasmin, Salle 2950
Président: Gilles Poirier, Université du Québec à Montréal
Conférenciers:

1. Zeghal, M., Université d'Ottawa; The Effect of Firm Size on the Information Value of Financial Statements

2. Siddik, A. F., Price Waterhouse, et Draimin, C., Université Concordia; Accounting, Economic Development and Cultural Change

3. Dressel, N., Georgia State University; Internationalizing the Accounting Curriculum: The Georgia State University Experience

Séance 2B
Endroit: Pavillon Judith-Jasmin, Salle 2930
Président: Réal LaBelle, Université du Québec à Montréal
Conférenciers:

1. Schandl, C., Dalhousie University; An Introduction to the Theory of Control

2. Creighton, P., York University; Farmers Savings and Loan: An Early Atlantic Acceptance

CANADIAN ACADEMIC ACCOUNTING ASSOCIATION
ANNUAL CONFERENCE OF THE LEARNED SOCIETIES
Université du Québec à Montréal

PROGRAM

May 25 SUNDAY

7:00-9:00 Reception
Location - Meridian Hotel, Grand Salon C
Host - Ordre des Comptables Agréés du Québec

May 26 MONDAY

8:45-10:00 a.m. Plenary Session I

Standard Setting Research, Firm Research and Educational Implications
Location- Pavillon, Judith-Jasmin Room 2930
Chairman - Léo-Paul Lauzon, Ph.D. C.A., R.I.A., Université du Québec à Montréal
Speakers -

1. Morley P. Carscallen, F.C.A., Chairman, Special Committee on Standard Setting, CICA

2. John Brennan, Ph.D., C.A.,University of Saskatchewan
Implications of standard setting and promulgations for instruction and research of undergraduates and masters students.

10:00-10:30 Coffee

10:30-12:30 Plenary Session I (continued)
Location - Pavillon, Judith-Jasmin Room 2930

3. Alex Milburn, Ph.D., C.A., Partner, Clarkson Gordon
Research activities, topics and approaches within public accounting firms.

4. John Boersema, Ph.D., Accounting Research and Policy Group, Shell Canada Limited, Research problems and practices in industry.

5. Robert Crandall, Ph.D., F.C.A., Queen's University
Curriculum design approaches and philosophy to prepare for research.

12:30-2:00 Lunch

Location - Pavillon, Judith-Jasmin Room M 100
Host - The Canadian Certified General Accountant's Association
Speaker - George Sorter, Ph.D., C.P.A., New York University, A.A.A. Educator of the Year, 1979.

2:00-3:30 Plenary Session II -

Student Performance:
What the Data tells About Education and Research - Implications for Education, Recruiting, Personnel Practices, and Research.

Location - Pavillon, Judith-Jasmin Room, 2930
Chairman - Tom Beechy, D.B.A., C.P.A., York University
Speakers -

1. Jim Henderson, C.A., Director of Education
   Institute of Chartered Accountants of Alberta

2. John Ross, M.B.A., F.S.M.A., Executive Director,
   Society of Management Accountants of Canada

3:30-4:00 Coffee

4:00-5:30 Plenary Session II (continued)

3. Gerard Gareau, C.A., Director of Education,
   Ordre des Comptables Agrees du Quebec

4. David Hope, M.B.A., C.A.
   Saint Mary's University

5:30-7:00 Reception
Host - Prentice-Hall of Canada Ltd.
Location - Pavillon, Judith-Jasmin Room M 100

May 27 TUESDAY 9-12:30

8:45-10:30 a.m. Annual Meeting of CAAA
Location - Pavillon, Judith-Jasmin Room, 2930

10:30-11:00 Coffee

11:00-12:30 Major Research Papers

Location - Pavillon, Judith-Jasmin Room, 2930
Chairman - Réal LaBelle, Université du Québec à Montréal
Speakers -

1. Peter Chant, Ph.D.,McGill University
   "Time series analysis and analytical auditing"

2. Ross Archibald, Ph.D., C.A.,University of Western Ontario, "Pensions"

12:30-2:00 Informal Lunch
Location - Pavillon Hubert - Aquin Room M 440
Host - Society of Management Accountants of Canada

2:00-3:30 Research Papers - Concurrent Sessions

Session 1A
Location - Pavillon, Judith-Jasmin Room 2950
Chairman - Gilles Poirier, Université du Québec à Montréal

Chew, M. C., Saint Mary's University and Dirksen, C., Dalhousie University. "Deferred Taxes - Changes over Time"

Raval, V. H. and Tsang, K. Y., University of Windsor, "Relationship Between Method of Accounting for Prediscovery Costs in the Petroleum Industry and Certain Other Variables"

Dewhurst, J., York University, "FASB Objectives; A Critical Evaluation and Implications for CICA"

Session 1B
Location- Pavillon, Judith-Jasmin, Room 2930
Chairman- Réal LaBelle, Université du Québec à Montréal

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Benbasat, I. and Dexter, A. S., University of British Columbia, "Pilot Survey of Demand and Supply Conditions for Canadian Information Processing Professionals"

3:30-4:00 Coffee

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Location- Pavillon Judith-Jasmin Room 2950
Chairman- Réal LaBelle, Université du Québec à Montréal

Zeghal, M., University of Ottawa, "The Effect of Firm Size on the Information Value of Financial Statements"

Siddik, A. F., Price Waterhouse and Draimin, C., Concordia University, "Accounting, Economic Development and Cultural Change"

Dressel, N., Georgia State University, "Internationalizing the Accounting Curriculum: The Georgia State University Experience"

Session 2B

Location - Pavillon Judith-Jasmin Room 2930
Chairman - Réal LaBelle, Université du Québec à Montréal

Schandl, C., Dalhousie University, "An Introduction to the Theory of Control"

Creighton, P., York University, "Farmers Savings and Loan: An Early Atlantic Acceptance"

CAAA 1980 Conference
Université du Québec à Montréal

Morley P. Carscallen
Cooper & Lybrand

ACCOUNTING STANDARDS RESEARCH IN CANADA

The Special Committee on Standards Setting is an internally generated review of the standard setting process. It fits logically into a pattern of reviewing this process every five to ten years. The Special Committee is not a reaction to external pressure and we do not regard ourselves as charged with the responsibility of initiating significant changes. Neither do we feel any obligation to defend the status quo.

The decision to have this review undertaken was made about the beginning of 1979. The objective was to have a report completed by mid-1980. For various reasons, the Committee's work did not begin until June 1979.

Our work so far has been to ask for comments from interested parties both by general advertisement and by specific request. We have met with professional, standard-setting and regulatory bodies in other countries and with a number of interested organizations in Canada, such as The Financial Executives Institute, The Canadian Certified General Accountants Association and the Society of Management Accountants. For the past few months we have been engaged primarily in internal discussion and we have now produced our first draft report and tentative conclusions. Our plan now is to try out our tentative conclusions on a number of interested and knowledgeable parties. These will include internal groups, such as the Joint Research Steering Committee at the CICA and outside parties such as other interested organizations and selected respondents to our requests for comments.

When asked when we are expecting to report, I usually reply that I hope we will do so by the end of 1980. There are a number of things which could prevent meeting this schedule but it would be very satisfying to complete our deliberations and report within the original 18 month span envisaged when the Committee was created.

The Committee's terms of reference are very broad and I have had to make a choice as to what aspects I would talk about. Also, there are some areas where we would prefer not to talk publicly about our view until we have had a chance to do a bit of brushing and polishing. I thought it might be appropriate to talk to this audience about research underlying standard setting and about the degree of openness or secrecy that may be appropriate in the standard-setting function in Canada. Some of the remarks that I am going to make will be personal and some will represent the views of the Committee. I will not always distinguish these views. Further, I may put forward some points that actually contradict the Committee's tentative conclusion with the hope of generating livelier discussion.

One of our first decisions was that we were not charged with reviewing the state of accounting research in Canada in general, but only that research that was directly related to the formulation of the standards. This automatically eliminated from our discussions the bulk of Canadian accounting research, properly defined. I should also emphasize that the title "Accounting Research Committee" is a misnomer and we will be recommending that another name be found.

You will note that this contemplates that there will be very little research as you would understand it within the standard setting process. The process may use the existing products of research but, in my view, a topic that requires basic research for the production of a useful standard is not yet ready to be the subject of a standard. Accounting and auditing standards have never been the result of a rigorous research and logical process that depend for their acceptance on the rigour of their logic and their conceptual purity. They are more akin to recorded consensus. The ultimate test of an accounting and auditing standard is whether it works. I am therefore not concerned if the standard setting process now and in the future does not involve a large amount of pure research.

This may raise in your minds the question of a conceptual framework. This is not strictly speaking within our terms of reference but rather those of the task force on financial reporting. As you might expect, several groups, including the Canadian Academic Accounting Association, suggested that we should address this question as a necessary part of the standard-setting process. No one has suggested that a conceptual framework (provided that it worked) would be a bad thing but a number of people have expressed scepticism as to whether one is in fact achievable. I have strong doubts on that question myself. In any event, we have had to conclude that a conceptual framework is at least some distance in the future and that the standard-setting process must continue on in the meantime. Our recommendations will assume that no conceptual framework will exist.

The reseach underlying standards presently consist substantially of literature search plus arguing around a table. This is an over statement as a generality and is unfair to the research activity of the CICA but I suspect is a fair description of the situation on a number of past projects. When we look at the research activities involved in standard setting we conclude that:

1. We would like the presently stated policy of conducting a research study into a topic before preparing a standard to continue. This appears now to be honoured more in the breach than the observance because the Institute, in common we believe with all other standard setting bodies, spends a great deal of its time fighting fires. We also acknowledge that this sequence is more appropriate for some topics than others. Accounting for pension costs in the financial statement of employers is a more worthy subject for a research study preceding a standard then some mere disclosure standard would be.
2. We would like to see more cost/benefit studies. Since the benefits of most standards are intangible, these will essentially be cost studies. Even though these studies cannot lead to any concrete conclusion, i.e. whether or not the standard is "worth

it", we would like to see more investigation into the costs of compliance with proposed standards. It is too easy to presume that accounting systems have an almost unlimited capacity for the production of information at little or no additional cost.

3. We would like to see more research into the economic consequences of proposed standards. This is not because we believe that standards should attempt to achieve some specified economic goal - our views are actually to the contrary. Standards should be neutral; that is, the reaction of the market place to the resulting information should flow from the underlying "economic reality" and not from an intentional influencing of that reaction through the medium of the standard. As long as our standards have a high pragmatic content and make some sacrifice of logical precision for reliability and ease of calculation, there is a danger that the economic reality perceived by the market as a result of the standard will be different than that the standard setter set out to present. The only way to be satisfied that no untoward economic consequences will occur is to do appropriate research into the expected reactions in the market place. You will note that I am not suggesting that standards have no economic consequences. I am rather suggesting that, to the greatest extent possible, those consequences should be consistent with the standard-setters view of "truth".
4. We would like to see more "research" into the appropriate scope of a proposed standard. We detect some tendency at the present time to start out on a project under some broad general name and decide only as the process proceeds what the natural boundries of the topic are and what matters are subsumed within it. If the topic is later narrowed previous work is wasted and if it is later broadened there is delay and a scramble to fill in the belatedly identified gaps.
5. We would like to see some form of formally organized monitoring of standards after they have become effective. Again, the ultimate test of a standard is whether it works. Problems will develop despite the best efforts before publication, especially if the process is one of consensus and pragmatism rather than of reseach and logic. You do not need a formal mechanism to identify acute problems but less significant problems can too easily be left undealt with in the pressure of matters.

One of the problems facing the Institute in the standard-setting field is a lack of experience and training in research methodology among the staff. As one commentor put it, "they are all ex-auditors doing their best". We recognize that there is a shortage of this expertise in Canada generally. One of the greatest contributions that academic accountants in general could make to the standard-setting process is to assist those involved in using proper research methods. The logical way to achieve this is to involve academics in the research underlying standard-setting either through secondment to the Institute for a period of time or by involving them in the research for a specific project. We think this should be explored but we see some problems:

1. Individual projects can take a considerable time to come to completion. It would not be possible, for example, for an academic to see a project through within a sabbatical year. There

would have to be a longer term time commitment by the academic that might be difficult to obtain.

2. As to secondment for a specific period, I have some doubts as to how satisfying this might be for the academic. He would have to be prepared to play a support role in connection with a number of projects without having the opportunity to oversee a particular project completely or to get deeply involved on any specific topic.

I mention these difficulties not to indicate that we will give up on this idea but rather to indicate that we are probably not the first to come up with this sort of proposal and that what is needed is not the idea but a practical way of implementing it.

The other area that I plan to talk about was the question of the appropriate degree of openness, or of secrecy, within the standard-setting process. A number of comments received suggested that there was an excessive degree of secrecy in the present process.

Much of the criticism is unfair, particularly when it imputes unacceptable motives on the part of the Institute, e.g. a desire to limit input to the process while putting a sufficient veneer of openness on it to make the product saleable. The Institute's problem has in fact been to generate outside input rather than to find plausible excuses for ignoring it.

In my view, a certain amount of confidentiality is absolutely necessary in the standard-setting process. If personal views and votes, for example, are not kept confidential, the independence of the individual standard-setter is in danger. An individual should not have to justify to his employer or his client why he has taken a position with which the employer or client might disagree. The Institute has also believed in the past that a certain degree of confidentiality was necessary lest a tentative position taken in the course of developing a standard be taken as a fixed position, thus discouraging further comment. I do not question the motive behind this latter view, but I think that things may have gone too far.

Specifically, the following is a list of things that we will be recommending be done, or be recommending not be done. Generally, when we recommend that something not be done we are not saying that it should never be done but rather that it should not always have to be done. It would be foolish to prohibit standard-setters from doing a particular thing if the particular circumstances warranted it. Our recommendations will be:

1. Issuing discussion papers as an early step in the standard-setting process is probably not cost-effective. However, there is no reason why papers setting out the issues, without trying to develop all the various arguments one way or another, should not be issued early in the game to encourage participation.
2. We will not be recommending public hearings. These are costly, cause delays and don't add anything to the quality of the resulting standard. The U.S. experience is that it is very rare for anything to come out in a public hearing that has not already surfaced in written comment.
3. Conversely, we believe that comments received on exposure drafts

should be placed on public file, unless the commentors specifically request otherwise. The availability of comments to outsiders serves much the same purpose as having a public hearing, i.e. makes it clear publicly that particular matters have come forward for consideration.

4. We are not in favour of a "sunshine" rule, whereby all committee meetings are held in public. To do so would be to violate our conclusion that individual votes and views within the process should be kept confidential.
5. We would like to see the arguments for and against positions taken in standards published at the conclusion of the process. For practical reasons, these arguments should not be presented in detail in the standard itself but rather published separately in some way. This should not be taken to mean that the standard should not contain sufficient background explanation and reasoning to make it capable of being applied. We have in mind only that the fuller discussions that may be desirable not be included with the standard itself. We have concerns as to cost of publishing these arguments in full. We are also concerned as to whether delays in issuing standards may result if all the arguments are to be published simultaneously. It might be necessary to publish the standard and let the arguments follow later.
6. We are opposed to the publication of dissenting opinions. To do so indirectly discloses the individual votes within the standard-setting group.
7. Finally, we will be recommending wider publicity generally, in the form of newsletters and so forth, for the standard-setting process.

My remarks this morning have covered two particular areas of the standard-setting process. There are a number of areas that I have not covered and on which I would be pleased to answer question - with suitably evasive answers in some cases. You might, for example, wish to talk about the format in which standards will be published, the structure of the standard-setting process or the scope and authority of accounting and auditing standards.

As a final point, let me give you one other conclusion of the committee. The CICA has done a good job in setting standards. I have mentioned today a number of recommendations that we propose to make. There will be many more recommendations in our final report. It is easy to construe a volume of recommendations as being a severe criticism of the previous process. In fact, the general media will probably so construe our report no matter what I say. However, let me emphasize that we believe the Canadian standard-setting process to be second to none in the world, and no comments that we make should be taken to be a criticism of the ability or dedication of the people presently and previously involved in the standard-setting process.

CAAA 1980 Conference
Université du Québec à Montréal

W. John Brennan
Professor of Accounting
College of Commerce
University of Saskatchewan
Saskatoon, Saskatchewan

RESEARCH: AN IMPORTANT ASPECT OF ANY CRISIS IN ACCOUNTING EDUCATION

Two events and the papers presented at those events were the stepping stones for my presentation this morning.

The two events were the CAAA Conference held last year at this time in Saskatoon and the CICA Symposium on Education and the Professional Accountant held in November last. Both of these events were evidence of a deep concern, at least in some minds, of what had been referred to earlier as a "crisis in accounting education". Indeed the papers presented and the majority of the discussion dealt with problems and possible solutions of those problems from the vantage point of teachers -- and students of professional accounting material. Those of you who attended one or the other or both of these conferences can remember concerns about the quality of the student, the scarcity of accounting faculty, professional schools of accountancy, what industry and the practicing profession expects of university accounting graduates, studies to examine entrance requirements to the accountancy profession and many more.

I will admit to some exaggeration but it was my general impression that for many the flow of concern was how can we more efficiently produce effective and productive new recruits to our professional accounting firms. This was evidenced by comments such as: we must reduce the "waste" of high failure rates and reduce reliance on the time consuming circuitous education routes to professional memberships the graduates of accounting programs cannot even do bank reconciliations; accounting education should be more professional.

There most certainly could be a different view of these proceedings and of the impact of the discussions and suggestions. It is my wish to take that different view today under the topic:

Research: An Important Aspect of Any Crisis in Education

John Waterhouse in his remarks which concluded the CICA Symposium suggested that the role of the universities might be seen as that "of producing human capital" (p. 1). He continued with the feeling that this "human capital" is used by

> "the accounting profession in providing service to the public;
> the universities in producing educators who can produce more human capital;
> and individuals in academic and practice to prevent the

> deterioration or depreciation of the capital they previously acquired."

A major presumption underlying this view of the university is that a professional group such as that of accountancy reinvests with the resulting net impact on society of an increase in this human capital -- perhaps and hopefully even an increase that goes far beyond the frontiers of the profession's own discipline to that of overall social capital. The reinvestment is expected in exchange for the special privileges and responsibilities society accords to the profession. In the absence of this reinvestment one group benefits at the expense of others -- equivalent to one group benefiting directly through the consumption of the environment that society pays to maintain. Professions, including accountancy, use the human capital created by society's institutions but are expected to replace it as well.

Society has created its universities to be concerned with the creation and maintenance of human and social capital. These roles might change from time to time but in our democratic free market economy, gradual change is still the order of the day. The immediate pressures of the economy for certain skills cannot be responded to as effectively as would be the case in an independent business enterprise. Institutions which do much to define the fabric of our society are protected from the ruthlessness of the market and with that protection and because of that protection they are expected to continue pursuing the ideals ascribed to them despite the market pressures brought to bear.

There is no question that we (ie., society) have asked the universities to change from being humanities centered to now devoting considerably greater resources to professional studies. This change is occurring and relatively quickly. It is my impression that John Waterhouse's comment recognized this fact. Yet he set the warning that we cannot go too far too fast. Despite the fact that the subject matter is professional in orientation the student remains in an environment in which very basic questions of social and economic relevance are being examined. It is that questioning attitude which pervades the educational activity and which continues to be protected by it.

Evidence of this questioning attitude sometimes leads critics of academe to discount the sincerity of fellow professionals and indeed, as Waterhouse says, "(their qualifications) to teach aspiring professionals". However, it is my view and, I believe, the view of many academics that instilling in the student the questioning attitude and then equipping him or her with the skills to discover answers is the essential part of a university education.

The questioning attitude and ability to undertake rigorous investigation is what distinguishes an educated professional. The ability to instill that condition in students is what distinguishes an excellent teacher and not incidentally an excellent academic program.

It is certainly a matter of opinion, but not one shared by only a few, that an essential ingredient in that excellence is the ability of the teacher himself or herself to carry out and report upon the rigorous

analysis. In contrast to the standard statement about teachers, my view is "in order to teach you must be able to do" --in order to instill enquiry and insistence on rigorous investigation and analysis, you must practice that rigor particularly in the classroom situation but also outside the classroom.

It is this view which demands that university faculty perform both as a teacher and as a researcher. The CAUT Handbook states as follows: the first responsibility of university teachers is the pursuit and dissemination of knowledge and understanding through teaching and research. The two are intertwined and both essential. Both should be evaluated and indeed demanded of every faculty member in a university.

Research and scholarly work is the hallmark of this enquiring attitude that educators are attempting to instill in their students. This statement could be challenged on many fronts but the most basic of these is a specification of just what constitutes research and scholarly work -- too limiting a definition will bring almost violent protests; too loose a definition would bring derision from fellow academics.

What is Research?

The definition of research and scholarly work may differ from discipline to discipline. To some extent it depends on the stage of development of the discipline, on the traditions and nature of the discipline and on the depth of manpower resources committed to the activity. In some cases one sometimes feels that the index of productivity is the size of the research funding obtained and in other cases it is the number of pages written. In all cases, the important breakthrough is highly valued and rewarded but the continued effort is likewise praised. All research provided it is subjected to the accepted standards of performance has some value if only to reject the appropriateness of one view of one part of reality.

Research as understood by those involved in the disciplines represented by a business school has a very broad coverage. A standard text on business research methods (Emory, p. 8) defines research as

> "any organized inquiry designed and carried out to provide information for solving a problem".

This definition is extremely broad. This author goes on to specifically include "simple reporting as well as descriptive, predictive, and explanatory studies" as research. The rigor and scholarly content of any such work depends on what has been demanded of the researcher. In some cases there may be few demands, in other cases the scientific method may be the expectation. To be accorded credibility it is generally held that at least the following should be evidenced:

(a) the research should have a goal which has been clearly set out,

(b) the procedures used to pursue the goal should also be set

out and be subject to replication,

(c) the researcher should demonstrate objectivity,

(d) only analytical tools appropriate to the situation should be used,

(e) conclusions should be limited to those appropriate within the constraints of (a) to (d) above.

With that definition it would be well to review who should be engaging in this activity. It seems to me that it goes, almost without saying, that everyone, at least everyone in a profession will be involved either directly or indirectly in the activity of research. Perhaps not everyone will actually conduct a research endeavor but those who don't will certainly be consumers or evaluators of such efforts and certainly have to make or confirm decisions that are based on the conclusions of such work. In light of this it seems reasonable to presume that all members of a profession should be at least aware of the research process and ideally have some firsthand knowledge of its practice.

There are rewards for research. In our market economy, the fruits of new knowledge acquired through investigation can be marketed for a return -- sometimes of very great proportions. Because of this basic fact or premise of our economy there are no barriers constraining potential researchers entry to the activity. It is open to all.

Institutional structures can however change either by accident or design the inclination and opportunities for various categories of individuals to engage in research. These structures may also cause a subdividing of the research activity -- with one subgroup encouraged by the system to carry out one form of research and another subgroup a very different form.

My thesis is that society in concept has envisaged for its universities a significant role in the carrying out of research -- particularly, society has expected universities to be involved, indeed, leaders in basic research -- ie., research without an immediate prospect of commercial return. Society hasn't done this with the expectation of no commercial return -- ie., not knowledge for knowledge sake. However, neither has it in aggregate demanded immediate return on the research investment. Applied-development type research occurs in the university and elsewhere. However, this type of research is not in concept what is protected by the nature of the institution.

Tradition has had the university pursuing its goals with the resources received directly from its granting agency, with its operating policies and with the support of external funding agencies. In the days of considerable growth in the size and number of the universities and of the numbers of students enrolled it has been relatively easy to shift the allocation of resources to the area of greatest need and to be supporting extensive research while at the same time serving more students.

This growth period has resulted in a muddying of the waters with

respect to the research role of the university. The muddying occurred as the leads and lags of student population changes were used to achieve reallocations. The muddying is even more obvious in these days of constraint. Reduced resources are often linked directly to the reduced number of students with little or no consideration given to the importance of research. Units in the university who are attracting students are being asked to bear increased student population with few, if any, increased faculty resources. The implication is that research has less importance but should we allow that change to occur?

Has this concept (ie., universities carrying out research at a basic level) been seen to exist in Canadian business schools and in particular accounting faculties? What has been our performance? Gary Sundem at last year's conference had something to say and a relatively recent report of the social sciences and humanities research council also dealt with this matter.

Gary Sundem gave Canadian researchers some cautious praise when he referred to output being in a "healthy state". He added some concerns about changes necessary to sustain this level of output in the face of a "possible lessening of the direct stimulation (by U.S. Ph.D. programs).

(a) Canadian universities (must) create the necessary internal stimulus and reward for research

(b) (they must) continue to make research time available to those faculty with the ability to do good research

(c) they (must) continue to attract the highly talented young faculty they have been attracting.

The SSHRC focused on funding and cited a number of organizations as supporting the view that Canadian based research into management questions is sadly lacking. The accounting subset of this conclusion would in my view be even worse.

Why Are We In This State?

The Canadian accounting academic scene has been subjected to significant forces. The most significant in my view has been the university degree requirement by the CA Institute and Ordre. The impact has been increased pressure on university faculties to develop programs aimed at satisfying the educational requirements of one professional body and, further, excessive demand for accounting courses of study by students attracted to the opportunities available within the accounting profession.

These pressures have been applied without the parallel support for research by accounting faculty. There has been insufficient support both within the universities and by the profession at large. Universities have asked their accounting faculties to teach proportionally more than other faculties. They have asked the Departments of Accounting to rely far more on part time instructors than do the other faculties, eg., physics, chemistry, law, behavioral sciences, etc.

The profession's support of the research activity has been considerably less than might be expected. Perhaps a strong argument can be made for having society (via government support) cover the cost of this aspect of education. There are those far more qualified than I that might wish to comment, but my perspective indicates that persuading society of that view will require considerable argument, a considerable change in the actual role and perceived role of this accountancy profession within society and without any question -- considerable time -- more than we have available. Past conferences have appeared to be directed to the profession. Increased resources -- human and financial -- have been proposed. However, now even without more resources, can educators do anything?

My answer to this question is a resounding yes! We have at least effective control and certainly significant influence on which students succeed in obtaining a degree and on what those students receive as their university education. We must exercise this control and live up to the ideal that society is asking of us as university faculty.

The first step is to express clear understandings that all faculty members are expected to be involved in scholarly work. Not all will be published in our leading journals but all can be expected to give clear evidence that they have been applying their skills as rigorous investigators of issues. The evidence may in most cases be expected to have sufficient worth so as to be published but in every case should be such as to have at least met the test of being seen and/or heard by colleagues and fellow professionals, ie., the test of some form of market.

To achieve this it will be necessary to reallocate the total demands made on faculty so as to devote an increased portion of their time to research and perhaps somewhat less to teaching and/or public service. With this shift might come some significant productivity gains as the highest ranked unsatisfied need by Canadian business school faculty in a recent study was the need for adequate time to do good research (Hurka, 1979). Give them that time and we may get more research, better research and better teaching as a result of the overall morale of faculty.

As the greatest proportion of a faculty member's time currently is spent on teaching under my proposal it is likely that this will be accorded a lesser amount of his or her time. The implications of this in the absence of any new investment in resources are declining quality of education and/or declining number of students. It is well to note that the demand that research activity be required of all faculty should serve to greatly reduce the reliance on sessionals and therefore this cannot be seen as the out in any reduction of class places. The inevitable result will be a clearer identification of the cost of educating a student at the university.

Another aspect of this reduced time allocated to teaching will be the implications on the various professional programs. The reduced availability of teachers from universities for these programs may shift the requirement to others to carry the teaching load. The reduced number of regular student places in Canadian university programs might create an increased demand for professional institute or privately offered classes. Those new students who were unable to acquire entry to classes they or the Institute considered necessary will be looking for these courses from the professional

body.

An aside here is that this shift may also affect the number of academics in the universities. Many faculty now involved in professional teaching might leave academe. There is little doubt that teaching in these programs is being used extensively by academics to raise their total income to a level commensurate with their education and training. Without that income the disparity between faculty salaries and salaries in industry for equivalent qualification would be so great as to cause many to leave. With respect to the pool of researchers there would be relatively little impact as those who are doing alot of professional teaching (ie., those likely to depart under a new regime) are not on the whole significant contributors to the pool of scholarly work. Nevertheless my proposal would force a more explicit identification of the cost of university education and by virtue of potentially reduced student numbers there may be concrete steps taken to adjust the market differential between industry and academe.

The second step is to inject into academic programs in our universities the vehicles designed to achieve the intellectual rigor I began by citing as the role of this education process. These changes should affect the entire curriculum. As with the recent effort to internationalize the curriculum of AACSB schools, we might pursue the intellectualizing of our curricula.

This process has many aspects:

(a) Each faculty member should have his or her attitudes in tune with these objectives. Faculty attitudes are fundamental to achievement of this goal so that the whole educational process can be conducted within that environment of enquiry and analysis. Workshops and seminars are necessary to stimulate research awareness and teaching and learning workshops are necessary to develop the skills in this form of teaching. Required professional and academic continuing education should be established. Productive sabbaticals should be virtually a required experience.

(b) Course curricula should be altered to include frequent and intensive contact with the fruits of research endeavor. Most curricula have a course now which deals with current issues facing the profession's rule makers. Are there courses which deal with issues that leading researchers are now reporting upon?

(c) Programs should be developed such that even undergraduate students get involved firsthand in the rigor of research. Such a program would involve considerable faculty student contact on a project of mutual interest. It cannot be done with student faculty ratios of 45 and 50 to 1.

(d) Students should be encouraged to undertake graduate study at the M.Sc. and Ph.D. level. We do all of us a service

by supporting Canadian programs at the doctoral and masters level. Are we aware of the programs and are we inclined to lead our students to consider them?

Conclusion

There is a crisis in accounting education in Canada. In my view it is an essential part of the crisis in accounting education. Research as an activity and as a subject matter is integrally linked with education -- ie., integrally linked with the development of human and social capital.

My suggestions for action by academics are as follows:

(a) All Departments of Accounting in universities in Canada should clarify their priorities with respect to research and scholarly work and teaching. Universities must be involved in research and scholarly work and should recognize that in setting out how much teaching they are able to do. We must set limits on the number of students we can educate with the full time, fully productive faculty.

(b) Accounting faculties should strive to achieve the balanced activity over a specified time schedule:

  (1) by increasing faculty resources and allocating the increase to the weakly supported areas, ie., generally research and scholarly work.

  (2) by improving the quality of teaching by increased entrance standards of performance for accounting students and carefully defined teaching standards as to subject coverage, nature of teaching activities and number of students via controlled class sizes.

(c) Establish clear and stiff standards of performance on all aspects of the academic activities. A form of MBO may be appropriate. Emphasis on research and scholarly work is necessary.

(d) Establish a commitment by faculty to incorporate the practice and appreciation of research and scholarly work in the teaching activity.

  (1) in each course by faculty attitude and nature of assignments and activities.

  (2) by establishing and requiring courses and/or programs specifically designed to accomplish this end.

  (3) supporting Canadian research masters and Ph.D. programs by encouraging students to consider and prepare for these programs.

What Can The Profession Do?

Both conferences mentioned before and several articles before and since have suggested ways and means for the profession to at least approach a solution to the research crisis and to the education crisis. Most of these suggestions request financial support and there is little doubt that a significant investment is needed even to stay still in terms of numbers and quality of graduates.

I have proposed that the university Departments of Accounting put their activities in line with the goals of a university and adjust the numbers and qualities of their graduates to meet their abilities to satisfy research as well as teaching goals.

The immediate impact of this step will be a reduced number of graduates in accounting and a decreased number of class spaces in universities for CA, RIA and CGA students. Increased resources both from within universities and from without will be necessary for the profession to continue to have the same level of accounting university educational input to its ranks.

The Institute/Ordre have adopted the university degree as a prerequisite of entry to the profession. If they are to be honest with themselves and to society the profession must accept or at least make explicit the goals of the university education process.

If it wishes not to support and encourage the attitude of enquiry that is an essential part of such an education, then perhaps it should move to diminish its demand for a university degree and settle on some more technical qualifications. If on the other hand the profession sees its role as a contributor to that previously described social capital perhaps the whole profession should demand university qualification for entry. In either case the profession will have to devote considerable resources either to support the university and encourage society to support these programs or to establish and/or expand the technical finishing schools that we now have in so many jurisdictions.

Solving the crisis, be it described as one of accounting education or of accounting research, requires everyone's effort. Without co-operation there is little chance of success. Without effort by each and every member of university faculties and the practicing professional firms and with support by accountants in general we will not solve the overall problem. My plea and my belief is that significant progress can be made but perhaps first we need some pain or some threat. Perhaps we need our form of a referendum. The question I would propose to ask of university faculty and professionals alike would be: Do we want a solution to the education and research crises that are at the expense of the ideal of a university? My answer is a definite NO!

CAAA 1980 Conference
Université du Québec à Montréal

J. Alex. Milburn
Clarkson Gordon

RESEARCH ACTIVITIES AND APPROACHES WITHIN CANADIAN PUBLIC ACCOUNTING FIRMS

My task today is to talk about research within Canadian professional accounting firms, the types of problems which are addressed and the research approaches taken. The idea is that this will provide a setting for helping to understand the potential role of research education at the university level and that it may provide the basis for some insights with respect to the relationships between practitioners and academics on research problems.

My remarks will concentrate on accounting. There are some significant differences with respect to auditing research.

First we might begin with a definition of "research". To me research may be defined very generally as simply the basis for problem solving in accounting. Academics may tend to want to define the term more narrowly and they might well exclude from their definition of research much of what I will be talking about. We might identify two basic levels of problems in accounting:

1. Solving problems within the basic "generally accepted accounting principles" (GAAP) model or system.
2. Problems relating to possible modifications or changes in GAAP - that is, research to support the standard-setting activity.

1. Within the GAAP model

A public accountant must deal with countless questions relating to preparing and assessing the fairness of specific financial statements within GAAP. For example, is a particular business transaction a purchase or a pooling for accounting purposes? Can a company exclude overheads from inventories? A company has had an actuarial revaluation of its pension plan and finds it has a surplus - can it use this surplus to wipe out past service costs which are being amortized over 15 years? The questions are many and varied. What is the correct or preferable treatment of such matters under "generally accepted accounting principles"? At the extreme, must the auditor qualify his audit opinion if the client persists in a particular treatment?

Some observations on approaching these problems:

(a) The first thing to realize is that these problems are being addressed in terms of the GAAP model. The accounting profession might be viewed as providing a product (financial statements prepared in accordance with a historical cost matching system summed up by the words "generally accepted accounting principles"). There may be other systems or models, or types of information which may be more useful to users, but at this level of analysis and research the professional accountant is simply

trying to apply, in a reasonable way, this one GAAP system.

(b) To be able to "solve" problems within the GAAP framework or model, the system needs to be reasonably coherent and internally consistent in its principles and rules. In other words, the professional accountant needs a basis for determining what is right or wrong in terms of GAAP. Some may argue that there should be alternatives and flexibility in order to enable the public accountant to help a client present its situation in the best way in their particular circumstances. But too much flexibility can be a problem. We want reasonable assurance that similar factual situations will result in similar accounting. The danger is that, unless there are clear principles from which we can derive GAAP answers, accounting principles may tend to erode to the lowest common denominator treatment in practice. Two examples: (1) some years ago in business combinations in the United States the pooling concept came to be used in situations in which it was entirely inappropriate, because the rules were not strong enough and practice eroded. Another example is pension accounting in Canada, where many of the CICA Handbook recommendations have eroded under pressure because the underlying principles were not clearly or fully established. There is then, a perceived need by the profession for some laid-down standardization of accounting practices.

(c) We must also take into account time and dollar constraints in solving problems within GAAP. We simply do not have all the time we might like to develop the answers.

In solving problems within GAAP, there is (1) a heavy reference to authorities (such as the CICA Handbook). Where the answer is not there or is incomplete or doesn't seem to fit - there is a heavy emphasis on (2) logical analysis from "first principles" and reasoning by analogy from similar situations, and on (3) precedents (because the system is ultimately based on "general acceptance" - that is, on the basis that other reasonably informed professional accountants would agree that the particular treatment is within the range of GAAP).

What does this mean for research approach and resources within professional accounting firms?

If one was a sole practitioner and the GAAP system was simple, and the environment in which it was being applied was unchanging, then perhaps all the profession would have to do would be to educate the individual as to the system. But none of this is the case. Instead the environment is complex and changing, and the system contains logical inconsistencies and alternatives, and there are pressures upon it (management interests, etc.).

It is natural for the profession to try to codify key aspects of the system (the CICA Handbook). Further, as professional accounting firms get bigger, the need for consistency requires co-ordination, resources, communication and quality control systems, within the firms. Larger firms will have certain mechanisms to help ensure that they are applying GAAP within their firms in reasonable and consistent ways.

As the environment becomes more complex and the rules more voluminous

and difficult, the audit partner (sometimes now called "the client handling" partner)

- may begin to doubt his judgment and knowledge of accounting (who can keep track of it all? - and he or she will have major responsibilities and concerns in other areas besides accounting, including tax, management advice, and auditing, etc.)
- may tend then to refer (and defer?) to expert specialists within the firm who specialize in GAAP problems. Of course a good client handling partner will always want a clear explanation of the in-house expert's opinions, and will not simply abdicate to the "expert." But to do this he needs a good basis for analysis and an understanding of the problems in the context of the GAAP system - and this is a vital link in the application of GAAP.

There will be a need to systematically organize the GAAP rules, interpretations and precedents in order to enable a timely, efficient and reasonably comprehensive investigation of relevant material underlying a particular problem. With time and dollar pressures, the public accountant must have an efficient way of being sure that he has seen all the salient material on a problem.

In summary, the information bases and research analysis will be based on

(1) The CICA Handbook and supporting professional rules and authoritative literature.

(2) Files of precedents including
- subject files or equivalent organization of internal memoranda dealing with problems handled in the past (to ensure that the public accounting firm is not solving the same thing over and over again in different ways), and
- external precedents, including treatments in public company financial statements.
- firm policy direction on contentious issues - which may attempt to fill in the gaps in GAAP - a good example is the lease accounting Handbook Section.

All this leads to at least some centralization of the research resource within particular firms. Accounting specialists should be more efficient, and more familiar with the files and recurring issues, etc. than client handling partners - although the ultimate decisions and whether to refer problems, etc. rests with the client handling partners. I think in Canada at the present time there is an evolution in this direction within larger accounting firms, with some firms being much more centralized than others.

There is also a trend towards quality control reviews within the firms - that is, statement reviews and comments by the centralized research resource. We may expect that this will intensify, if peer reviews become an established thing.

The extent of the evolution towards centralization, quality control reviews, and expert specialization, will depend in part on how important it is that the financial statement product be clearly defensible in terms of GAAP to the user public - that is, how critical users are of a poor product.

It might also be emphasized that within the GAAP system judgments and interpretations may be very narrow (a literal translation of what the Handbook says.) Alternatively, and more desirably, the research and analysis will be done by reasoning forward from basic principles and the intent of rules. Here we run into some trouble with the CICA Handbook, because the reasoning process underlying its recommendations is not always clear - and the ability of the public accountant to reason by analogy is, therefore, inhibited. There is clearly a danger in the application of the GAAP system that it will become a thing in itself - that it will become a closed system. Then, when confronted by a changing environment (and inflation is the prime example at the present time) or management pressures, etc. the principles may become blurred, distorted and perhaps lost. Signs of this might be evident if we begin to accept ridiculous results simply because this is the product of the established system.

It is to be noted that research at this level really makes no reference to users - because the public accountant is basically applying a system of principles, rules and precedents. Of course, where a public accountant has a client company that is genuinely interested in communicating to his financial statement users in the best possible way, flexibility within GAAP may be used productively to develop more useful accounting information.

2. Research towards improving GAAP - that is, research underlying the standard-setting activity itself

Here the profession is attempting to codify, modify or change GAAP or develop new accounting information (for example, supplementary information on current cost accounting). Here problems and their priorities may be developed from

- logical problems in trying to apply GAAP. An example, pension costs and capital leases are calculated at discounted amounts, while deferred income taxes is a non-discounted figure. This bothers the logical accountant who would like to have both on the same basis.
- new circumstances or inadequately considered areas - the public accountant might like to see more standard uniform approaches for handling, for example, changes in tax law which have accounting implications, or for handling increasingly complex phenomena such as leases, pensions, foreign exchange transactions, etc.
- challenges from outside the profession - for example, securities commissions have in the past pressed the profession to develop standards for association with earnings forecast material.
- developments in other jurisdictions - in particular, we tend to want to react to initiatives taken by the FASB in the United States.

Of course, the professional standard-setting body will first try to deal with problems within the GAAP model - but it seems clear that some major challenges are not capable of resolution within the traditional model. Two key examples of this at present are inflation and forecasts. The profession seems likely to try to deal with these as supplementary financial information outside the financial statements, per se.

What is going on within public accounting firms with respect to research into improving or modifying GAAP, or expanding beyond GAAP information?

A firm's approach might be basically

(i) reactive - that is, a firm may be content simply to react on the basis of its experience and "gut" feel to the initiatives of the CICA. In other words, a firm may simply comment as best it can in the time available, without any fundamental research, on CICA Exposure Drafts and "associates" material.

(ii) Initiating - that is, public accounting firm may establish task forces or a research centre and attempt to carry out more fundamental investigations of major issues. Some may take the initiative by pointing up and analyzing problems before they appear in the CICA Accounting Research Committee's Agenda. One example of this is our own firm's study on pensions.

Some observations in this regard:

There is in Canada not too much going on within public accounting firms at the initiating level above, although one or two firms in Canada have carried out some significant projects in recent years. Initiating indepth research to aid in improving accounting principles is not immediately essential to the ongoing activities of a public accounting firm. Some of the larger firms have been willing to set aside some research resources for this purpose, but such firms will naturally want these resources to justify themselves in terms of, at least, demonstrating the firm's image to clients, etc. The demonstration of the tangible value of such research is difficult to accomplish because managements of many clients are really not very interested in improving accounting (except where it hurts). In fact there is a danger that in setting out particular public positions on controversial issues that some clients may be antagonized.

But in a more farsighted way, of course, public accounting firms realize that such research may be essential to the overall image and credibility of the public accounting profession and its financial statement product. It seems to me that, in the Canadian environment, public accounting firms have much more responsibility for doing indepth research to assist the standard-setting process, and the Accounting Research Committee, than in the United States. In the United States the firms and industry have paid their dollars to the FASB to do the bulk of the research and determination of standards. Thus they operate for the most part at Level (i) and Level (ii) "reactive". But in Canada we are dependent on a voluntary standard-setting committee and minimal CICA research staff. It seems to me then that for the Canadian standard-setting system to be viable as an independent force from that in the United States, its indepth thinking must be done in larger part within the public accounting firms.

There is a real problem within accounting firms, in determining how much resources to spend on what problems. The problems are, of course, open ended and could absorb a lot of time and resources. This is, as noted before, made more difficult because the benefit to the firms themselves is, at best, intangible.

For the most part the researchers themselves within the firms will tend to be auditing professionals by training. They will have little training or experience into research methodology. There are a few PhD's now in public accounting firms research centres, but their backgrounds also tend to be ultimately in public accounting.

The research itself may again tend to be mostly logical analysis influenced by the education in the GAAP system with particular concern for objectivity and auditability. At the initiating level, there will be studies of the literature, but this will vary with the time availability and expertise of the researchers. There may be only a limited review of academic literature, and perhaps a limited ability to understand it. I might say though that there are exceptions, and that I detect a trend towards more in depth research of developing issues by competent researchers. But the resource is still very small in relation to the problem.

Some educational implications

I have spent most of my allotted time setting the scene in a very summarized and sketchy way. But I think it is very important for us to understand something of the practice, objectives, resources and pressures - that is, how it works - before we can begin to analyze implication. Some very tentative observations:

- The complexity of the environment and the multiplication of rules and precedents, dictates much more emphasis on assembling, assessing and communicating research evidence than it has in the past. Major firms are probably pretty good at researching and developing answers based on applying the GAAP system. However, there are definitely limitations in the ability of the public accounting firms and their people in doing research at the level of support for the standard-setting activity - and in particular in doing initiating type research. But perhaps pressures from users (securities commissions and others) may tend to force firms to upgrade their research efforts - and the research capabilities of the people doing the work. There are some signs of improvement over the last five or ten years in this regard.
- Attributes of researchers. It seems to me that the research activities within public accounting firms, particularly at the level (ii) above, is a discipline in itself which is quite different in significant ways from the responsibilities for which the normal professional accountant/auditor is prepared (or interested). Ideally the researcher needs a sound knowledge of the overall GAAP system and its principles and objectives (otherwise he may tend to become system bound and very narrow in his application). He also needs to have a professional skepticism and a very sound reasoning ability and knowledge of developing areas and theories. It would also be very helpful if the researchers had a better knowledge of research methodology, although the methodologies for formal research by academics may need some major modifications in order to be useful given the time/cost/problem solving environment faced by the public accounting firms.

- The profession does not seem to attract very many people of this bent and ability. To some extent this may be a problem of the rewards structure - but this may also in part be the result of the selection process and what teachers say accounting is all about. At the same time it would seem to me that most academics in universities (with PhD credentials) would not fit well within this research environment either, because they are likely to be lacking in "hands on" experience, and in knowledge of the GAAP system. Thus there would seem to be a need for some sort of blending of the talents and backgrounds of the professional accountant and those of the trained academic researcher.
- I think it also worth stressing that all professional accountants with public accounting firms are problem solving in accounting in this general environment. It is usually the client partners who first identify the problem, and it is they who are signing off the financial statements. It is they who must explain and sell accounting and disclosures to reluctant (or even hostile) clients. If they do not understand the conceptual basis of the solutions, or if they try to explain them only in terms of the Handbook rules, then the credibility of accounting and the image of accountants may not be enhanced.

Thus we may address education at several levels:

- Those entering the profession (students at the university level) clearly need to have an appreciation of the larger aspects of the GAAP system and its objectives. Also, they need to know something about doing research - that is, problem solving in accounting. In other words, something of the sources and approaches to problem solving in accounting. But this is much more than simply an introduction to academic research, and I suspect that most university faculty members are somewhat limited in their ability to visualize accounting problems in their professional perspective.
- There is also a lack of understanding (and perhaps some lack of interest) in research among senior practicing public accountants. There is therefore some need for education in this regard as well.
- Finally, there is a need for better directed and more in depth research and theoretical education for those who may wish to specialize in financial accounting research.

I believe there are some very important considerations relating to research within the public accounting firms in Canada - what is being done, how the function is evolving, and the role that it should be playing in the development of accounting standards - that need to be clearly thought through. If is certainly an activity which is not very visible - we rarely see the product of it in published articles but may be indirectly in the financial statement product. The research activity within public accounting firms is even less visible than that of the CICA, which Morley Carscallen has described as being one of too low a profile.

CAAA 1980 Conference
Université du Québec à Montréal

Dr. John M. Boersema
Accounting Research and Policy
Shell Canada Limited

ACCOUNTING RESEARCH IN INDUSTRY

Whatever your view on accounting research, I expect that, before you came here, all of you were ready to concede that a certain amount of it was being done in academia, in the public accounting profession and at the CICA and the SMA. That accounting research is also done in industry is something that you may never have given much thought to - I certainly didn't until I joined Shell. To fill this probable void in your thinking, I intend, based on my vast personal experience in industry - all of 2½ years - to show you that accounting research is being undertaken in industry — although, probably not nearly to the degree necessary. In doing so, I hope to give you some insight into the scope of our activities. As such, my presentation will be a "backgrounder" similar to that of Alex Milburn.

Before doing so, I must state that anything I say must not be taken as representing the views of Shell Canada but, like all academics, I speak only for myself.

Organization

Accounting research in industry may be carried out by separate departments or subsumed under other positions. At Shell Canada where I have been since January of this year, we have had for about 5 years, separate four-man department entitled Accounting Research and Policy; at the Royal Dutch/Shell Group, where I spent the last two years, we had an Accounting Research Department of four men in London and one in The Hague. Of those, two, my Dutch Colleague Johan van Helleman, who came from Erasmus University in Rotterdam, and myself, were ex-academics. I understand that Shell is one of only a small number of companies that has given Accounting Research as much prominence; in many organizations the necessary activities have to be carried out by those who are also burdened with day to day operating activities. Significant conceptual thinking and discussion, thus, often goes by the boards.

For instance, about a year ago my then boss, Henry Gold, and myself made a presentation at a public hearing held by the Oil and Gas Task Force set up by the US Financial Accounting Standards Board to look at Accounting for Changing Prices. Although two days had been set aside, only slightly more than half a day was required since only five presentations were made and one of those by an academic. Nevertheless, several representatives of other companies indicated to us afterwards that they shared our concerns but had not had the time to analyze the Task Force's Report in detail and prepare a presentation.

Nature of Activities

I would not, of course, insist that everything we do should be classed as research. A lot of our task consists of "informing" and "educating" management and others such as, for example, the C.I.C.A. through responses to Exposure Drafts. However, a lot of "research" activity even at universities also is, and rightly should be, the "dissemination of research results." While the research we do is not usually of the frontier variety, our activities are both conceptual (theoretical) and empirical (practical). The purists among you will no doubt question my use of the word empirical. However, my dictionary defines empiric as "based, acting, on observation and experiment" and our research (which, by the way, means only "careful search and enquiry") is certainly based on observation and experiment -- although these observations are frequently only one-company based. We, among other things, simulate or model (that's the in buzz-word isn't it?) the effects of a proposed accounting change on the financial results of our company.

Peter Standish, at the time visiting professor at the London Business School, in the August 1979 issue of Accountancy characterized accounting research as concerned with,

1. specifying financial measurement objectives.
2. the design of information gathering and producing systems for attaining these objectives.
3. communicating the information to users, and
4. evaluating its usefulness.

Our work in industry is concerned with all four of these aspects.

Responding to Exposure Drafts

To illustrate this, let me focus on what we see as our primary function: to respond to pronouncements from authoritative bodies which will affect accounting practices. Shell Canada's financial reporting is affected by the C.I.C.A., the Canada Business Corporations Act, the Securities Acts of Ontario, Quebec and B.C., and the requirements of the Toronto, Montreal and Vancouver stock exchanges.

We also follow very closely the dictums of the FASB and SEC -- given their impact on many companies in our industry and upon international accounting practices. At Shell, we attempt to monitor possible developments even before the exposure draft stage so that we are in a position to react when an exposure draft comes out.

My impression is that such is not the case for the bulk of Canadian companies -- as it was not for the bulk of British companies. Doug Thomas, in the October 1979 issue of CA Magazine, reported that the average number of responses to an ED is 70; most replies are from business, with the public accounting firms running a close second. Thus, the average business response is likely to be in the neighbourhood of 30. I would guess that many companies have barely become aware of an issue by the time their auditors raise the matter with them -- usually when a standard has been

issued. Thus, they become aware of any implementation problems only when they are forced to apply it. It is no wonder, then, that on rare occasions a standard has had to be suspended. An exposure draft does not, I think, get the attention that it deserves.

Price Variation Accounting

What should be done, and what is done to a certain extent now, may become clearer if I describe my own experiences with one particular topic - Accounting for Changing Prices. When I got to London in January of 1978, the Group Controller very optimistically gave me the task of devising Shell International's preferred option for dealing with this problem. At the time, Shell was in its fourth year of publishing Supplementary General Price Level Statements -- which made me feel as home since, with my academic hat on, I had been advocating those as a starting point for some years. Shell was also providing replacement cost data in its filings with the SEC but qualified these heavily and did not put the data in its annual report to shareholders.

The SEC's were the only requirements at the time. The UK's ED 18 mandating current cost in the main financial statements had just been defeated by a grassroots effort; the voluntary Hyde guidelines had just come out. At the time there were no Dutch requirements, although exposure drafts had been issued and a significant minority of large companies were publishing current cost statements. The FASB's proposal on General Price-Level Accounting was in limbo.

I approached the task by extending and updating the literature review on the topic that I had been doing during my time at Western. At the same time, I met with a number of functional and regional managers to attempt to discover what benefits they would expect to derive if Shell were to implement a "Price Variation Accounting" approach. Thus, I concerned myself with Standish's first element "the specifying of financial measurement objectives." Unfortunately, I found no clear answers to the search for objectives of Price Variation Accounting - either for in-house use, or for external reporting, — which is not surprising since certainly at that time only the beginnings of the conceptual framework for financial reporting in general were being discussed. Even now, however, the objectives of the current proposals or requirements, i.e., the FASB's, the CICA's and the UK ASC's are not totally clear and certainly not unequivocally acceptable. Nevertheless, I looked at the existing proposals in terms of Standish's other elements: the information system necessary to gather the data, their ability to communicate information to users, and the utility of the final information. The result was a series of papers prepared for circulation in-house and later bundled for external distribution.

The result of the exercise was a lot of discussion and airing of issues which, while it did not come up with a favoured Shell approach, did attune management to many of the problems involved so that they realized that no simple solution was available. It also got us well prepared for responding to specific proposals that would subsequently be published.

As an aside, I might mention that as a spin-off from this in-house research, I published a number of articles one of which, "Will CCA yield deprival value?" which was published in the Scottish journal The Accountant's Magazine, is being reprinted in a forthcoming collection of Inflation Accounting articles. I mention this only to point out that there is opportunity and need for industry people to get involved in the ongoing public debate about accounting issues. Even those students, therefore, who are preparing to go into industry need to be prepared to be able to evaluate accounting issues from a conceptual basis as well as the more common practical basis.

The second year of my stay in London my efforts on Price Variation Accounting were more specific. I drafted and coordinated the Group's response to the FASB's exposure draft which subsequently became a standard as FASB 33, a response to the FASB's Oil and Gas task force's Preliminary and Interim Reports as well as a presentation at the public hearing. Similarly, I analyzed and drafted a response to the UK's ED 24 and a presentation to a public hearing there. I was also involved with a response to the UK Department of Trade concerning the Price Variation provisions of the EEC 4th directive and an interim draft of an IASC ED 24 and a presentation to a public hearing there. I was also involved with a response to the UK Department of Trade concerning the Price Variation provisions of the EEC 4th directive and an interim draft of an IASC ED on the same subject.

I should say that while I drew up the first draft for all these responses, that was only the first step. We had in the Group our own Controller's Accounting Standards Committee of about ten people which reviewed and advised on all responses. The last draft sometimes bore only faint resemblance to the first! In the final analysis, however, in industry, unlike in academia, someone is in charge and the Group Controller decided on and signed letters. The overall process, however, requires extensive analysis of the provisions of an exposure draft requirement, including in many cases, a review of related literature, consideration of impact upon the company itself, extensive discussion eventually resulting in a considered response to the topic. All this takes time.

My final task in London, as far as CCA was concerned, was to serve on a committee with representatives from the central offices and two operating companies, Shell Netherland and Shell UK. This committee addressed itself to more detailed implementation problems. Given FASB 33, ED 24 (which has just now come out as SSAP 16) and Dutch requirements which are presently partially in "standard" and still partially in Exposure Draft form, the committees' task was to attempt to reconcile the differences where possible and decide what data would eventually need to be collected from all operating companies in order to meet, as far as possible, the requirements of all these jurisdictions.

On return to Canada in January, I was just in time to start all over again with the recent CICA ED on current cost. As part of the analysis here, we were able, on the basis of some rough data which had been gathered during ongoing experimentation with specific indexing, to put together an approximation of Shell Canada's statements as they might look under the exposure draft -- you may have seen a reference to this approximation in

the Financial Post a few months ago. Of course, our analysis here will result also in a weighty submission to the CICA.

While Price Variation Accounting is, of course, a somewhat special case, I hope this will give some indication of the process that is carried out or ought to be carried out by companies concerning topics of current interest. One cannot respond to an exposure draft in a vacuum!

As a further illustration of the type of work that needs to be done, let me list a few other exposure drafts that I was involved with to some extent.

1. The U.S. Conceptual Framework Process dealt with

- Exposure drafts on objectives and elements (we organized two in-house seminars to acquaint various financial managers with this ongoing work)

- also sent in a response to the FASB on this as well as:
  - ED on Qualitative Characteristics
  - Discussion Memorandum on the Earning Report

- while specifically U.S., this work is also very important for Canada -- not only when the CICA unveils its own objectives study but also in its ongoing work. Underlying conceptual work from such an authoritative professional source cannot be ignored. However, it must be recognized that it is very difficult to interest managers in what appears to be remote discussions.

2. Foreign Currency Translation

- The UK draft - my boss was a member of the working party established by the UK ASC to draw up a revised ED.

- we made representations to FASB to have them revise FAS 8. Our controller subsequently was a member of the Task Force to advise on successor to FAS 8.

3. Interim or Quarterly Reporting

4. Capitalization of Interest

5. Reserve Recognition Accounting (more about that later).

Other Companies

I recognize fully that Shell has devoted, and is able to devote, more resources to this activity than many other companies. Nevertheless, this is the type of process that most companies must carry out, at least to some extent, if they are to avoid unwelcome surprises.

Companies are naturally interested in the effects of an ED upon their financial statements; they are concerned about the costs involved in

compliance, i.e., the system that needs to be set up to gather the extra data, to review it and present it in such a way that it will not mislead users; they are also concerned about the utility of the proposed information and its conceptual validity. They are obviously reluctant to embark upon a costly major change in accounting practices that can not be seen to give a benefit to their shareholders or that will not stand the test of time. In this connection, it should be recognized that the costs involved in an accounting change exceed the direct cost of collecting and aggregating the data. A lot of time is often involved in educating the operating personnel involved. This cost must be offset by clearly apparent benefits; the efforts of our geological engineers are more likely to generate a return to shareholders when devoted to exploration and production than to, for instance, Reserve Recognition Accounting.

As an aside, the cost of publishing the pros and cons of an accounting recommendation about which Morley Carscallen expressed some reservations must be infinitesimal as compared with the total cost of complying with such recommendations.

Company Input as to Utility

Reserve Recognition Accounting, by the way, has provided us with an interesting opportunity to do some very limited empirical testing. RA RA Accounting, as some people call it, which was devised by the SEC, requires oil companies to report the value of their reserves on a specified discounted cash flow basis. We have experimented with the information mandated by the SEC for those companies filing with it and have serious reservations about it.

Nevertheless, we prepared a separate booklet with such data and put a note in our annual report that it was available to shareholders who cared to write in. To date, only six persons have done so. We also sent 16 out unsolicited to financial analysts who regularly follow our shares and received no comment from them either. While the situtation may yet change as the information from other companies becomes available, this response does generate a little bit of evidence as to the perceived utility of the data!

Of course we are not usually in a position to experiment as to utility in this way. However, companies do receive a certain amount of input from statement users. Most meet regularly with financial analysts and do get occasional letters from shareholders. Thus, when companies question the utility of certain accounting provisions, they do have some evidence on which to base their stand. While it is not rigorously derived, it is probably the only evidence of utility that can be brought to bear on most issues since little rigorous research has been carried out as to users' needs.

Tenor of Responses

It must be recognized that not all industry responses go to great lengths to deal with conceptual issues. I haven't seen too many from other

companies but have been surprised at the superficial and apparent self-serving nature of some responses - "our profits will be less" - although not usually expressed quite as openly; "it is impossible for us to collect the data," etc. However, such responses are not all that surprising. Frequently, certainly in the past, exposure drafts have been quite sparse in providing adequate justification for positions taken and have been very pragmatic in their nature. A pragmatic exposure draft is bound to generate pragmatic responses and eventually encourage better responses. In this context, I see significant merits in a discussion, as wide as possible, of a Conceptual Framework Project such as that being undertaken by the FASB. When people realize that such work underlies the FASB's pronouncements, they must, of necessity, relate to these underlying conceptual isssues.

Industry responses are also not always conceptually oriented because many of those preparing the response have the time only to focus on those issues that affect them immediately.

Moreover, they may not be trained to deal with more conceptual issues. Accounting education has for many years emphasized the "how to" over the "why." Such education does not well prepare one to deal with the new environment in which increasing emphasis is and will be put on utility and objectives and where one accounting change after the other rolls from the presses of the standard-setting authorities.

Hopefully, as today's students come into positions in which they have an input into a company's "accounting research," more companies will be able to respond on current issues and do a better job of it. Of course, more resources will also have to be devoted to the job. It is probable, and I speculate, that as accounting standard setting becomes more open and more a process in which it is recognized that there are no simple solutions but that extensive study, research and open debate is required, that companies will become motivated to devote more resources to the necessary task. For example, Price Waterhouse has, as a departure from "normal practice," just published its response to the CICA's CCA exposure draft. If publication of responses rather than being unique became "normal practice" in Canada, as is becoming more and more the trend in the US and UK, accounting research would receive a higher profile and more companies might become involved. As such, I agree wholeheartedly with Morley's suggestion that these responses be put on a public file.

Communicating Information to Users

Up to this point, I have only tangentially dealt with Standish's third point: "communicating the information to users." While I have personally not been very much involved in preparation of the annual report, a significant effort is devoted to deciding how best to communicate the desired information. You would be surprised how much agonizing goes into each paragraph that goes in.

For instance, the Reserve Recognition Accounting booklet we prepared underwent so much discussion from Accounting Research right up to the Audit Committee of the Board that I hardly recognize the final draft. While of

course everyone likes to have some input, I have been struck by the genuine desire of most participants to a) get it technically correct and b) to present it in such a way that it will not be misleading. Unfortunately, this frequently creates a trade-off with comprehension as far as the lay reader is concerned so that compromise may be required. Nevertheless, those concerned are receptive to efforts to make the reports understandable. Unfortunately, all accountants are immersed in their own jargon and are often not aware how unintelligent this is to non-accountants. While my recent experience has shown me that I can be quite adept at pointing a finger at the engineers for using unfamiliar technical jargon, I am not so confident that we accountants do much better.

Other Work

While I have focussed so far on financial accounting matters of direct current interest, Accounting Research in industry is not totally restricted to these matters. Involvement in other activities depends on the interests and experience of the people involved. As such, I have personally been involved with such diverse topics as Inflation Adjusted Charges for Cost of Capital in internal management reports, the possible use of cash flow accounting, the purchasing-power parity theory and theoretical valuation models of the firm.

Generally, such involvement consists of literature review directed at fairly specific company problems. However, in England I almost got involved with some honest to goodness, frontier style, empirical research. I developed a proposal to join with David Tweedie of the University of Lancaster and the Institute of Chartered Accountants of Scotland, to undertake some interview research of shareholders to focus on their intuitive understanding of accounting valuation concepts. Tweedie had reported on some previous pilot research on students which indicated that a significant communications gap existed between accountants and laymen. While a certain amount of interest existed within Shell to do this research, it was essentially shelved because of the possibility that some shareholders might get upset at being asked to participate in such research.

Implications

Having thus given you a brief glimpse, coloured by my personal biases, of what goes on in accounting research in industry, or perhaps to some extent of what <u>should</u> go on in industry, let me present a few personal gratuitous observations drawn from this experience.

1. Students must recognize that not all accounting research is statistical, mathematical. Most research in accounting is still very much conceptual in nature. Nevertheless, students who become involved with accounting research in industry should be able to at least partially understand and evaluate the statistical, empirical, material although a healthy degree of scepticism should be ingrained. Any student devoid of such scepticism will find himself continually under attack from the practical men he will be dealing with.

2. Students must recognize that accounting is changing. The "how to" is only the beginning of his kit of tools. He should be flexible and develop an ability to analyze new accounting proposals. An understanding of the ongoing conceptual discussion is important. The student should be motivated to accept that the "why and wherefores" of accounting are of ongoing importance -- not only for academics and doctoral students.

3. Academics, at least many of you, must get out of the ivory tower and deal with current issues in a format which the busy managers can understand. Certainly, it is up to academics to do the empirical work that is necessary to derive information as to utility and understandability of various accounting proposals -- and a lot must yet be done here. However, if such work is to have any bearing at all, it must be communicated to the decision makers. While the ultimate decision maker for financial accounting is the ARC, the members of this committee are responsive to input from industry and practice and it is these latter respondents you must reach. This is not an easy task — very few of these people read the Accounting Review -- but it is a necessary one.

4. The CICA must open up its standard-setting process to encourage more discussion. Exposure Drafts and Handbook Recommendations must provide greater, convincing justification. As such I endorse Morley's suggestion as to publishing pros and cons concerning handbook recommendations but have doubts as to the advisability of a separate publication.

   I endorse also his suggestion for reviews at the end of one and five years since the existing standards are not generally of such a calibre that they deserve an indefinite life. However, I must express the reservation that companies will face great practical difficulties if new recommendations are issued frequently.

These changes will not immediately create a great rush of new participants in the necessary discussion concerning accounting changes. However, I believe that in the long run these suggestions would improve the level of accounting discussion and maintain credibility and relevance for the accountant's product. After all, if the accounting that we teach, that we research, that we audit and that we set standards for, is not relevant, we really will look upon our current age as the "twilight of accounting."

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R. H. Crandall
School of Business
Queen's University

CURRICULUM DESIGN APPROACHES AND PHILOSOPHY TO PREPARE FOR RESEARCH

It seems to me that there is a hopeful assumption built into this topic, and that is the following: the profession is facing some important problems, and insight can be gained into the nature of these problems, and help possibly offered, if good research can be done on them. Professional accountants have a role to play in identifying those problems and dealing with those parts that can be dealt with on a professional level. Academic accountants have a two-part role to play: (1) we can directly tackle some of these problems with the tools that are available to us as academics, and (2) we can help indirectly by encouraging our students to do several things: to become aware of the role of research in dealing with accounting issues - its strengths as well as its limitations; to understand how the research process works in the profession and academia; and with a subset of the small bright minority, to persuade them to pursue research as a major part of their academic or professional career. It is this second part - how we can offer indirect help by influencing our students to support the accounting research function - that we are addressing here.

This assumes, of course, that as academics we can do something to influence our students to support research. I happen to believe (Crandall, 1979) that there are things to be learned from the experience of other professions, and I would like to begin by looking at the experience of two other professions: medicine and engineering. My information comes from talking to people from these professions on my own campus and from research I will cite.

The profession of Medicine is always a satisfying place to start because the profession in its present form is reasonably old (sixty years?), and it happens to provide a neat illustration of how some of us think the world ought to work. To start with, the disciplines that nourish medicine can be found in such basic areas as, say, molecular biology. This, then, shades into the slightly more applied subjects such as Biochemistry, which blend into Physiology, then into Internal Medicine on the clinical (practitioner) side, and finally to the general practitioner. At its best the practitioner end of the spectrum helps identify problems worth doing research on, and the disciplines end of the spectrum provides new tools and insights into how these problems might be mastered. In brief, they complement each other to get good research done.

For all its imperfections, the system does work reasonably well. But it's worth noting some of the features of it so we can later compare it with the other professions:

1. There is a lot that is not known about living biological systems, but a lot that is known as well, so there are some powerful

theories that help both practitioner and researcher to order their thoughts and communicate with each other.

2. The reward system on both the theoretical and applied sides fit together reasonably well. The theoretician (academic) gets rewarded for research good enough to be published, and the practitioner, who is highly thought of by his peers, gets status through professional deference and more tangible rewards through referral of patients. The system is far from perfect, but the outstanding practitioner often knows a lot about theoretical issues in his field - because he is current in it through being aware of recent research developments. It is no accident that most of our high prestige hospitals have a close university connection.

Engineering provides interesting similarities and contrasts to Medicine. I picked chemical engineering as the specific area to make my enquiries, but I think it is reasonably representative. Engineering is similar to Medicine in having a nice progression from the basic disciplines (in their case, such disciplines as physics and chemistry) through to the applied academic areas such as Chemical Engineering.

However, the differences from Medicine are significant. Engineering is mostly practiced in real world settings that are removed from the campus, so the flow of engineering problems from the real world back to the campus tends to be rather thin, I am told. It may sound like a refrain you have heard before if I tell you that practitioners tend to be reluctant to tell academics about their interesting, potentially researchable, problems because (1) they don't want to give away information of a private nature, or (2) they don't want to be thought stupid for not being able to solve their own problems. For their part, many of the academics are reluctant to get too involved with practitioners because they have gone directly from undergraduate programs to doctoral programs, and have little applied experience. This too may sound familiar.

There are other behavioral factors. The young graduating engineer usually goes to work for a large organization, so the values of that organization get mixed in with his own values as a professional. In chemical engineering "getting to the top" does not, therefore, necessarily mean being at the forefront of chemical engineering, with the latest knowledge of what is new in the field. Usually it means becoming well thought of in the organizational hierarchy for a perceived ability to be a good manager. Our Chemical Engineering department used to ask third year students what their career goals were, initially expecting to be told what branch of their profession the student was interested in. They stopped this questionnaire several years ago because the same answer kept coming back. Their students' ambition was to become, not some kind of specialist engineer, but a manager. I suspect those teaching accounting students would get a similar answer, but I will come to that later.

The typical progression of your bright young engineering graduate is that he goes to work for a large organization, is spotted as having good management potential, and it is made clear to him what organizational rewards are open to him if he becomes a manager. By contrast, the research department within the same organization is usually respected - especially

if it is good at helping out with crises - but is clearly "different." The major organizational rewards go to the bright young engineer who heads for line management, not research. By the age of thirty, he is usually locked into the management in the organization. He has absorbed its values and is being rewarded too well to gamble on something as risky as an ill defined career like a researcher.

Given this unpromising scenario in engineering, how does good research in that field get done? There doesn't seem to be a satisfactory answer except for the perverseness of human nature that says some people like to do it despite the rewards offered.

Before I leave engineering, let me point out an important similarity between engineering and medicine: they both have well developed bodies of explanatory theory to substantiate the applied work that forms the core of the professional activity. It has been suggested that one of the problems faced by accountants is that accounting lacks an exciting and well developed body of concept to attract the attention and admiration of the bright young student, but they nevertheless seem to have problems similar to ours in keeping the graduates' interest in the conceptual side of the profession.

I have now set the stage for discussing the accounting profession. It is time to address the question directly whether there is much we can do in the classroom to achieve something that we would all like to see in our students - a better sympathy for the objectives of research and some idea of the role it can play. My conclusion is that there probably are a few things we can do, but it is probably not cost effective to invest too much in trying to interest the bulk of students in the class. I think the probability is high that the bulk of the students in the class have self selected accounting careers for reasons that are unfriendly to developing a research attitude.

I have no direct evidence on this, but I think what I am going to assert is a very researchable proposition. That is: accounting majors will demonstrate personality characteristics that are very similar to those of engineers and dentists. And the research (Heist, 1960) done on the latter two groups indicates that their main motivation is "one of advancement ... in a socially upward direction to a perceived better way of life;" "the motivation (to study for a dental career) is utilitarian and practical." The author of this research concluded: " ... the very best (professional and preprofessional) education could not make provocative teachers and contribute researchers out of the vast majority of these entrants to dental schools..." He had previously studied engineering students, and had concluded the same thing. Interestingly enough, he concluded from a similar study of medical students that the latter were considerably more interested in theoretical issues.

If you are willing to accept my assertion that accountants are more likely to be like dentists and engineers, then it seems to me that for the present at least changes in accounting curricula are not likely to have much direct effect. Changes may have an indirect effect in signalling students who might not otherwise have been interested that accounting is not always as utilitarian as it seems, but it is not likely to affect the

great mass of the students because they have self-selected into a career that they see as a means to some other end. This seems to me to have the following implications:

1. One of the most important accounting courses designed to help accounting research may be the beginning accounting course. If we can give it interesting intellectual content, we may just succeed in attracting more of the intellectually curious students to stay on in accounting.

2. It may be more productive to identify and encourage the occasional bright and intellectually curious student than to spend the equivalent time working up "research" oriented courses for the bulk of accounting students.

For the longer run, it seems to me we will attract people who have lively minds and are willing to be intellectually curious if we try to get such people to self select into accounting careers for non utilitarian reasons - because it is intellectually interesting, for instance.

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J. S. Henderson, MBA CA
Deputy Executive Director
Inst. of Chartered Accountants of Alberta

ANALYSIS OF PERFORMANCE OF ALBERTA CANDIDATES ON THE UNIFORM FINAL EXAMINATION OF THE CA PROFESSION

I Introduction

(a) Environment of CA Education in Alberta

The increasing demands of the Alberta economy have had a dramatic impact on the scope and nature of public accounting practices, the volume and nature of recruitment and training of CA firms practices, the delivery systems for business education and the Institute programs.

At present, approximately 150 practicing offices are certified to train about 1,000 students who are actively involved in studying towards the CA designation. These firms range in size from the sole practitioner to larger offices and the scope and nature of individual practices vary substantially with the structure of the firms, the geographic location of the offices and the areas of specialization within the field of public accounting. Accounting, auditing, taxation and financial services to the oil and gas industry for example, often occupy a substantial volume of a student's term of service.

Three business programs are offered through Alberta universities, with two of the faculties having restricted enrollments due to resource pressures while the third program is still in its infancy in terms of the number of graduates. The graduating classes of these university business programs provide only 60 per cent of the student intake of CA firms while the remaining students must come from most other universities in Canada and some foreign educational institutions.

All students entering the CA program must complete prescribed university subject area course and examination requirements and Institute courses and examinations in auditing, taxation and financial accounting prior to attempting the Uniform Final Examination. The examinations for the Institute courses and the Uniform Final Examination are under the complete control of an independent Professional Examiners Board in Chartered Accountancy which exists under provincial legislation and has the authority to determine what shall be examined, the passing grades and other matters relating to examinations. The minimum term of service requirements until 1980 have been a minimum of two years, although generally students have completed anywhere from one to three years of service prior to their first attempt at the Uniform Final Examination.

(b) Limitations for Research Purposes

Like any research conducted in an open-ended environment, the analysis of the results of candidates on the Uniform Final Examination has been open

to some degree of interpretation because of the many variables which could not be neutralized or standardized for the cause of research. Some of the variables which were dealt with were:

(i) variation in degrees of students - 70 per cent of the student intake consisted of accounting majors from at least twenty different business programs while the remaining 30 per cent came from such disciplines as arts, science, education, engineering, agriculture, home economics and others.

(ii) the variation in length and composition of undergraduate degrees - Canadian undergraduate business degrees have varied from three to five years in length and the studies required for graduation in business or accounting varied significantly.

(iii) the grading scales - grade point, percentages, stanine plus a few scales which do not assign specific numeric or alphabetic grades.

(iv) the relative quality and grading standards of various universities.

(v) the environment in which a student received his practical training included national, regional, provincial and local firms ranging in size, and in nature of internal training programs.

Confronted by the above variables, the analysis of the results of Uniform Final Examination candidates, through trial and error, provided standard classifications for potential indicators and then determined which were most indicative of performance. In most cases the classification of indicators were productive; however, in other cases, a review of the data could only provided impressions. The primary indicators developed and still in use will be reflected in this presentation.

(c) Objectives of Analysis

In analysing the performance of Alberta candidates on the Uniform Final Examination, the objectives were to determine, with reasonable evidence, the indicators of success or failure on the Uniform Final Examination, to influence these indicators in a constructive manner and to provide a mechanism for the ongoing monitoring and quality control of the student program. The specific areas investigated were:

(i) the role of the universities - the impact of the scope of programs and grading standards, subject area coverage and approach to education.

(ii) the role of the Institute - the effect of course and examination requirements, voluntary finalist preparation courses, the grading standards and the service requirements.

(iii) the role of CA firms - the quality of experience and training, recruiting policies, effect of size, type and location of firm.

The findings of the analysis, resultant changes in the program in Alberta and an assessment of the outcome, where possible, are now provided

in conjunction with some of the data generated. Certain data and findings have not been included because of its confidential nature - its use as a "lever" in confidence has proven to be very positive.

II The Role of Universities

(a) Source and Nature of University Degree Related to Success on the Uniform Fina Examination

The statistics in Table I below pointed out that until 1977, accounting majors from business programs did not compare well with the success rate of university graduates with other degrees or with senior matriculants. While difficult to portray in the analysis, the impression of many employers was that the accounting majors were not performing well simply because they did not have as much at stake as did those with other degrees or senior matriculants. During the early 1970s, for example, the majority of accounting majors in the CA program in Alberta had to complete only one Institute course and usually wrote the Uniform Final Examination within one year of entering the program. Individuals with other degrees or senior matriculants usually had much more experience, were more mature, and had taken more courses while registered in the program, either from the universities or from the Institute.

From 1977 to 1979 this ranking was reversed somewhat and it has been suggested that this performance by accounting majors was due to the addition of course and examination requirements by the Institute, and the decline in the general quality of other degree graduates entering the program. Several employers suggested than many of the students holding other degrees entered the CA program due to lack of employment opportunities elsewhere.

Table 1

Pass Percentages on Uniform Final Examination

	1972	1973	1974	1975	1976	1977	1978	1979
B. Comm. - Accounting:								
- first attempt	67.1%	56.0%	55.5%	44.8%	44.0%	50.2%	61.9%	61.0%
- all attempts	64.2%	58.6%	55.9%	41.6%	47.3%	55.0%	72.8%	67.4%
Other Degrees:								
- first attempt	67.3%	56.9%	60.0%	50.0%	43.5%	45.0%	51.0%	58.6%
- all attempts	78.9%	64.4%	61.2%	50.9%	47.5%	43.2%	57.6%	68.8%
Senior Matriculants:								
- first attempt	63.1%	58.9%	60.5%	46.3%	40.0%	-	-	-
- all attempts	69.7%	69.7%	67.9%	52.0%	31.0%	16.7%	33.3%	14.3%

Table II

The Institute of Chartered Accountants of Alberta Summary of Performance of Alberta Candidates on the UFE by Academic Standing in Final Year of Degree for 1976 to 1979

Average in Final Year	1976			1977			1978			1979			Total		
	P	F	P%	P	F	P%	P	F	P%	P	F	P%	P	F	P%
3.5 to 4.0, 80%+, 8.0 or more	12	3	80%	24	5	82%	17	6	74%	35	3	92%	88	17	84%
3.0 to 3.4, 75% to 79%, 7.5 to 7.9	26	16	62%	28	12	70%	33	12	73%	47	22	68%	134	62	68%
2.5 to 2.9, 65% to 74%, 6.0 to 7.4	44	61	42%	56	72	43%	75	48	61%	63	57	53%	238	238	50%
2.0 to 2.4, 60% to 64%, 5.0 to 5.9	33	54	38%	26	44	37%	19	32	37%	10	20	33%	88	150	37%
Up to 1.9, up to 59%, up to 4.9	1	16	6%	1	6	14%	1	1	50%	-	1	0%	3	24	11%
	116	150	44%	135	139	49%	145	99	59%	155	103	60%	551	491	53%

The analysis by source of business degree in accounting provided statistics on the performance of any universities from which a significant number of Uniform Final Examination candidates graduated. While the above impressions may have been justified, the performance of accounting students by university of graduation pinpointed problems in particular business faculties. Furthermore, it pointed to problems with students with poor academic performance and to the recruitment practices of CA firms who hired such individuals. The assumption that anyone with a degree could pass the CA exams was proven to be false to the amazement of many employers. This information was used by the Institute, the firms and the universities for the common good and was considered to be confidential. Data specific to firms or universities has not been reproduced herein.

(b) Academic Standing Related to Success on the Uniform Final Examination

In order to identify appropriate indicators of potential UFE success among university graduates, the files of all candidates on the 1975 and 1976 Uniform Final Examination were reviewed and tabulated in detail. The academic standing of candidates during their complete university studies, during the last year of university and in specific university courses were reviewed in particular. Academic standing was found to be a good indicator of potential UFE success in most cases, however the most indicative was found to be the academic standing in the last year of a university degree. The Institute therefore developed a standardized classification of university grades in co-operation with the business faculties in Alberta. The following classification scheme was developed at that time and is still in use:

Categories

0	- 3.5 to 4 grade point, 80% plus or 8.0 or more stanine
1	- 3.0 to 3.4 grade point, 75% to 79% or 7.5 to 7.9 or stanine
2	- 2.5 to 2.9 grade point, 65% to 74% or 6.0 to 7.4 or stanine
3	- 2.0 to 2.4 grade point, 60% to 64% or 5.0 to 5.9 or stanine
4	- Up to 1.9 grade point, up to 59% or up to 4.9 stanine
5	- Not applicable (senior matriculant)

Table II statistics summarize performance of Alberta candidates on the Uniform Final Examination for the years 1976 to 1979. In 1976 this information clearly indicated to the Institute and to public accounting firms the likelihood of success of students based on their academic performance. The publicity given to these statistics had a dramatic effect on the recruiting policies of firms as the number of potential UFE candidates in the last two categories declined significantly. The disappearance of these "warm bodies" through the recruiting practices of firms and the courses and screens of the Institute enhanced the quality of UFE candidates in the ensuing years.

While somewhat less significant, the analyses also indicated that certain individual courses were indicative of potential success on the Uniform Final Examination. The first was the senior accounting theory course present in most accounting programs in Canada. Unfortunately, graduates of certain universities had not been exposed to accounting theory courses and we found that these students subsequently had difficulty with financial

accounting courses and exams in the CA program. Accordingly, the Alberta Institute implemented a senior accounting theory course requirement for all students regardless of the number of semester hours they have completed in other areas of financial accounting at university.

In reviewing the educational history of candidates on the Uniform Final Examination, it was noted that performance on intermediate financial accounting courses was usually indicative of subsequent performance on specialized financial accounting topics while performance on integrative or case-approach accounting courses were usually indicative of subsequent performance on multiple subject or comprehensive questions on the UFE.

III Role of the Institute

(a) Courses and Examinations

From 1970 to 1975, the Alberta Institute phased out its offerings of all courses with the exception of procedural auditing, in favor of having all courses taught at the universities. By 1975 it was apparent from the pass percentage performance of Alberta candidates that this arrangement was not working well and accordingly the Institute in 1976 commenced offerings of applied courses in taxation, financial accounting and auditing in order to supplement the more theoretical university education. The advent of these courses in 1976 produced exceptional results in 1978 and 1979 by substantially raising the technical knowledge of UFE candidates and screening out potential unsuccessful candidates who lacked the level of knowledge required. In 1977, the 19 candidates who had completed all four of the Institute course requirements has a pass rate of 95 per cent. In 1978, 75 candidates had a pass rate of 83% while in 1979, a still larger group had a pass percentage of approximately 75%. Table III also presents the 1979 UFE performance relative to performance on the Institute courses.

Table III

Summary of Mean Marks on 1979 UFE by Average Mark in Institute Courses

		Exam Paper Means		
Institute Course Average Mark	(# of Candidates)	Comprehensive	Non-Comprehensive	Total
70% or more	(104)	51.2	58.5	226.7
65% to 69%	(119)	49.5	53.8	210.9
55% to 64%	(40)	41.6	46.6	181.4
54% or less	(1)	48.5	47.7	191.6

As might be expected, the addition of the Institute course requirements improved the performance of Alberta candidates on auditing, financial accounting and taxation questions, with marks on the first two topics being

brought up to the national median and on the last topic being brought well above the national median. This performance has continued from 1977 through 1979.

It should be noted, however, that the Institute courses in specific subject areas generally had a positive influence on single subject and multiple subject questions in which the topic could easily be identified. The performance of students on the comprehensive questions improved very little due to the required courses and accordingly, the Institute will add a mandatory course on integration and analysis to its student education program in 1981.

(b) Examinations

In the review of the files of candidates for the Uniform Final Examination in 1975 and in 1976, it was apparent that a large number of the unsuccessful candidates had repeatedly failed Institute courses before finally obtaining a passing grade and permission to write the UFE. Very few students ever succeeded after their third attempt at any examination. Furthermore, a large percentage of the candidates had obtained the minimum passing mark of 60 per cent on the subject area examinations.

As a result of these findings, the number of attempts at individual subject area examinations was limited to three and the passing grade on Institute courses was raised to 65 per cent.

The effect of these two changes were twofold. First of all, students in the CA program identified the 65% standard required in Institute courses as being significantly higher than that required to pass courses in their undergraduate degree programs and the efforts of these students improved. Secondly, a small number of students who were incapable of mastering these subject areas in three attempts were "de-registered" and either substantially upgrading themselves before returning or pursued other occupations.

A growing phenomenon noted in reviewing the candidates in 1975 and 1976 was that of repeated attempts at the Uniform Final Examination, or a delaying of further attempts for a long time period. The Alberta Institute did not have a limitation on the number of attempts at the Uniform Final Examination or a time limit in which a student had to successfully complete the Uniform Final Examination. Close to five per cent of the total registered students consisted of individuals who had first attempted the Uniform Final Examination from five to fifteen years beforehand.

The Institute therefore amended its by-laws to permit a total of three attempts at the Uniform Final Examination within a five year time period from the date at which a student first became eligible to write. To date the net effect has been to de-register a total of thirteen candidates who were unsuccessful for the third time in 1979.

(c) Finalist Review Programs

The 1970s were a time period when the education process appeared to neglect such basic skills as written and verbal communications, much to the

Table V

The Institute of Chartered Accountants of Alberta Summary of Performance by Alberta Candidates by Year of Service and Academic Standing in Final Year of Degree for 1978 and 1979 UFEs

Term of Service	AVERAGE IN FINAL YEAR*																		Total		
	0			1			2			3			4			5					
	P	F	P%	P	F	P%	P	F	P%	P	F	P%	P	F	P%	P	F	P%	P	F	P%
Less than 2 years	18	3	86%	20	6	77%	16	7	70%	5	2	71%	-	-	-	-	-	-	59	18	77%
2 to 3 years	42	7	86%	47	11	81%	72	35	67%	12	6	67%	-	-	-	-	-	-	173	59	75%
3 to 4 years	4	5	44%	6	11	35%	30	32	48%	5	18	22%	1	1	50%	-	-	-	46	67	41%
4 to 5 years	4	-	100%	6	-	100%	10	18	36%	7	12	37%	-	-	-	-	-	-	27	30	47%
5 or more years	-	-	-	1	6	14%	10	13	43%	-	14	0%	-	1	0%	4	8	33%	15	42	26%
	68	15	82%	80	34	70%	138	105	57%	29	52	36%	1	2	33%	4	8	33%	320	216	59%

* Average in Final Year

0 - 3.5 to 4 grade point, 80% plus or 8.0 or more stanine
1 - 3.0 to 3.4 grade point, 75% to 79% or 7.5 to 7.9 stanine
2 - 2.5 to 2.9 grade point, 65% to 74% or 6.0 or 7.4 stanine
3 - 2.0 to 2.4 grade point, 60% to 64% or 5.0 to 5.9 stanine
4 - Up to 1.9 grade point, up to 59% or up to 4.9 stanine
5 - Not applicable

despair of UFE candidates. An exam writing technique course for single and multiple subject examinations was first introduced in the early 1970s to provide a vehicle for students to learn how to read questions, how to organize their answers and how to maximize the use of their time. With the advent of a comprehensive examination in 1973, a parallel program was added to deal specifically with that type of question.

The net effect of the writing technique courses initially provided Alberta students with somewhat of an edge on the UFE. While those students taking the courses still appear to out-perform those students not taking the courses, this relative advantage appears to have disappeared as most provincial Institutes and many of the large firms have now introduced similar programs which have tended to eliminate any advantage to any particular group.

The second phenomenon mentioned was that of the entrepreneurial courses in specific subject areas. Students generally felt that subject area review courses were needed and accordingly, the promotion by the entrepreneurs developed these perceived needs into demands. The Institute offered review courses in taxation and in management and cost accounting in 1978 and 1979. The results of students taking these courses have indicated a minimal, if any, advantage. Through two years, the performance of students taking the taxation review course has paralleled that of those students not taking the course. Those taking the management accounting course have had a small advantage over those not taking them. In general, it appears that the value of the review courses to the students was that of a time saving device in their study program.

(d) Term of Service

For many years the students entering the CA program were convinced that they had a greater chance of success if they wrote as soon as possible. This belief was borne out by a review of the 1976 and 1977 Uniform Final Examination results as shown in Table IV.

With a shift in emphasis on the Uniform Final Examination in 1978 and 1979 to better reflect attributes gained through practical experience, students with two to three years of practical experience did as well as those writing early (Table V). In fact, a further review of the success rate of students employed by firms with above average internal training programs showed that their success rate was much higher than those of other firms in the same year.

In the minds of the students at least, the advantage of writing early appeared to disappear and many students have consciously planned to obtain at least two to three years of practical experience before first attempting the Uniform Final Examination.

Table VI

The Institute of Chartered Accountants of Alberta
Summary of Performance by Alberta Candidates on UFE by Source of Experiment

	1976			1977			1978			1979			Total		
	P	F	P%	P	F	P%	P	F	P%	P	F	P%	P	F	P%
National firms	100	91	53%	98	89	52%	93	41	69%	96	52	65%	387	273	59%
Regional, provincial and local firms	26	65	29%	30	45	40%	45	46	49%	55	42	57%	156	198	44%
Not in public practice	1	14	7%	9	16	36%	10	15	40%	5	14	26%	25	59	30%
	126	170	43%	137	150	48%	148	102	59%	156	108	59%	568	530	52%

IV Role of CA Firms

(a) Firm Experience Related to Examination Success

The majority of students graduating from accounting programs at university were firmly committed to obtaining employment with a large CA firm because they firmly believe that the experience and UFE successful rate from the large firms exceeded that of any other potential employers. In the early to mid 1970s, this observation held true and the vast majority of students obtained employment with the large national firms while the smaller firms were generally unable to employ students. Traditionally, the prize winners in courses and the provincial gold medalist came from large national firms.

It can still be said that on average the large national firms have been providing better experience and have had the better UFE success rate, however many exceptions have arisen in recent years. Commencing in about 1976, the smaller and rural firms were able to attract students with high academic performance at university. This trend and the greater attention by some smaller firms to the practical experience to be given to students resulted in some exceptional performances by these individuals. In the last five years, many of the prize winners of individual courses have come from smaller and rural firms and the most recent gold medalist was from a small firm. The attitude among students now appears to be that a capable student can be successful regardless of the size of the firm and the student's ultimate career goals are playing a greater role in their choice of employer.

Table VI points out the relatively high pass percentages of students employed by the large national firms, compared to those in the smaller firms and for those employed outside of public practice. There were exceptions to the statistics, however, in that certain of the large national firms had serious difficulty in improving their pass statistics and certain of the small local or provincial firms had exceptional performance for many years. Traditionally students outside of public practice had a success rate far below that of the others.

(b) Recruitment Policies of Firms

In the first half of the 1970s, with the demand for students effectively exceeding the supply of qualified university graduates, many firms followed the "warm body" method of recruiting whereby any university graduate would suffice and they would worry about the ramifications later. Unfortunately this process backfired, the UFE pass rate declined and some of the better students from universities started to look to other career alternatives as they saw the likelihood of success on the Uniform Final Examination decline. In the absence of reliable indicators of student success, each firm determined its own method of recruiting students, some successfully and others rather poorly.

With the publication of the Institute report titled "Examination of the Causes for the Poor Performance of Alberta Students in the Uniform Final Examination," most large employers re-examined their recruitment policies and generally changed their recruiting to pursue students with

high academic standing at university. Those firms that failed to change recruitment policies at that time suffered subsequently in that their students failed to pass Institute courses and examinations.

Firms found academic excellence in both university and Institute courses to be the best indicator of potential of success by far and accordingly, some are now changing their internal policies to insist upon continued academic success on Institute courses while employed by the firm, in order to continue employment. One firm for example, has recently announced that the salary increments for the students will be geared very closely to their progress through the Institute program.

As a final observation, there are several students from local universities who no longer are able to obtain employment with CA firms because of their poor academic qualifications. On the other hand, many of the larger firms are now doing a very professional job of sending recruiting teams across Canada, to the British Isles and to other countries in order to locate the type of student that will not only perform well academically, but will have the potential to be a top professional once admitted to membership.

V Ongoing Monitoring of Educational Process

(a) Alberta

Having encountered good success with the changes brought about due to the analysis of the performance of candidates on the Uniform Final Examination, the Institute is continuing to monitor the performance on a regular basis. Through the facilities of the Canadian Institute of Chartered Accountants (CICA), a computer analysis is performed each year on all Alberta candidates. The analysis changes somewhat each year as different variables are introduced into the education system.

(b) Canada

The computerized UFE analysis program of CICA is available to all provincial Institutes in Canada. The input to the program is relatively simple (and free) and the results would provide an excellent data base for accounting education in Canada. Hopefully, through people like yourselves and the other gentlemen before you today, an attitude of education through research, however interpretive it may be, can be fostered across Canada. The days of decision by "gut feel" should be put to rest once and for all.

Table IV

The Institute of Chartered Accountants of Alberta Summary of Performance by Alberta Candidates by Year of Service and Academic Standing in Final Year of Degree for 1976 and 1977 UFEs

Term of Service	AVERAGE IN FINAL YEAR*																		Total		
	0			1			2			3			4			5					
	P	F	P%	P	F	P%	P	F	P%	P	F	P%	P	F	P%	P	F	P%	P	F	P%
Less than 2 years	23	3	88%	23	9	72%	26	23	53%	7	9	44%	1	3	25%	-	-	-	80	47	63%
2 to 3 years	12	5	71%	25	8	76%	44	53	45%	24	40	38%	-	7	0%	-	-	-	105	113	48%
3 to 4 years	1	-	100%	5	8	38%	18	37	33%	17	31	35%	1	6	14%	-	-	-	42	82	34%
4 to 5 years	-	-	-	-	1	0%	9	15	38%	5	11	31%	-	3	0%	-	-	-	14	30	32%
5 or more years	-	-	-	1	2	23%	3	5	38%	6	7	46%	-	3	0%	12	29	29%	22	46	32%
	36	8	82%	54	28	66%	100	133	43%	59	98	38%	2	22	4%	12	29	29%	263	318	45%

* Average in Final Year

0 - 3.5 to 4 grade point, 80% plus or 8.0 or more stanine
1 - 3.0 to 3.4 grade point, 75% to 79% or 7.5 to 7.9 stanine
2 - 2.5 to 2.9 grade point, 65% to 74% or 6.0 or 7.4 stanine
3 - 2.0 to 2.4 grade point, 60% to 64% or 5.0 to 5.9 stanine
4 - Up to 1.9 grade point, up to 59% or up to 4.9 stanine
5 - Not applicable

CAAA 1980 Conference
Université du Québec à Montréal
May 1980

John Ross*
Executive Director
Society of Management Accountants of Canada

RIA PROGRAM: A STUDY OF DROPOUTS

Introduction

The RIA program is a large program which has grown dramatically over the last fifteen years. Exhibit I provides a graph of this growth showing both students and RIA's. Table 1 reflects the educational background of the student and graduate population over this period. The increased trend away from high school entrants is evident. The major increase is in university graduates.

Given this limited introduction, I would like to explore the performance of our students during their program. After this, I will introduce an on-going study of our dropouts. Hopefully, this study will yield valuable information for the management of our program in the future.

Table 2 shows the time spent on the program, and again as one would expect, the university students are doing better and their performance is improving. However, one should note that these stats are not entirely accurate even though they are indicative of what is happening. It is interesting to note that those who graduated in 1976 spent more time on the program than those who graduated in 1979 even though those currently enrolled write more examinations. So this Table by itself would say that the students are doing quite well considering that they are on the program part time and have many other demands on their time.

Exhibit 2, new student adds and deletions, shows a much different picture. This shows that over the past 15 years, in each successive year we have taken in more students than in the previous year. - But the same is true for deletions. In the past 10 years, we have taken in 60,000 students, we have deleted 50,000 and graduated about 5,800 (see Exhibit 3).

One can be misled when looking at exam statistics and see that for the past 5 years, RIA students sat for about 22,000 exams each year, and about 60% of them passed. But when you related those 22,000 exams to the student body, it means that each year on average the student is writing less than 1.5 exams.

* Introduction and some revisions of text material were made by proceedings editor without author's review.

Exhibit 1
Total Population by Year

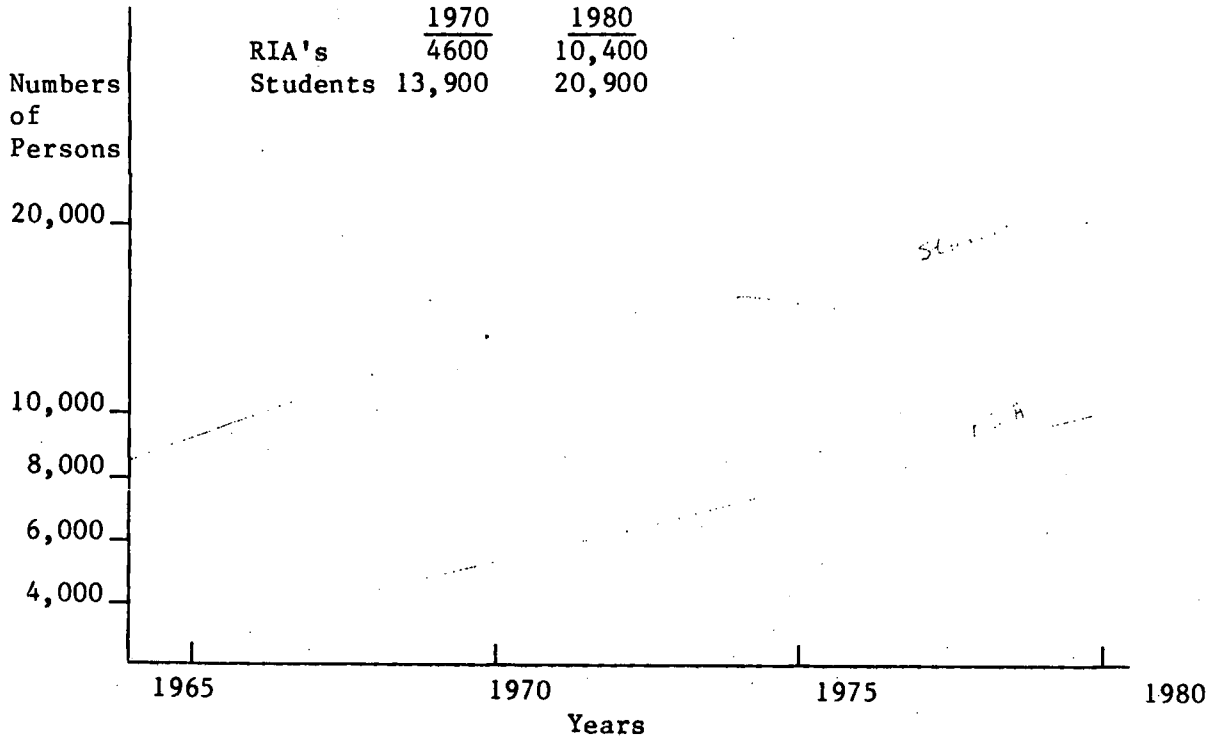


Table 1
Education - Background

	1979	1975	1960E
New Students			
High School	28.6%	33.4%	80%
College	18.6%	21.5	10%
University	39.3	35.3	
Non-Can P.S.	6.5	-	
Not Known	7.1	13.6	10
Deleted Students			
High School	35.9		
College	16.7		
University	28.8		
Non-Can P.S.	6.4		
Not KNown	12.2		
Graduates			
High School	16.1	33.1	
College	11.9	14.1	
University	54.4	25.2	
Non-Can P.S.	4.8	-	
Not Known	12.7	27.1	

Table 2
Performance in Program

Graduates	1979	1976
Total		
Ave - Years in program	3.6	5.4
- Exemptions in courses	10	3
- Passes in courses	8	9
- Failures in courses	2	4
University		
% Total students	54.1	27.5
Ave - Years in program	2.5	3.4
- Exemptions in courses	11	6
- Passes in courses	7	6
- Failures in courses	2	2
High School & Other		
% Total students	33.7	64.3
Ave - Years in program	5.3	6.4
- Exemptions in courses	7	3
- Passes in courses	11	9
- Failures in courses	3	5

Exhibit 2
Historical Distribution of Intake
and Deletions of Students

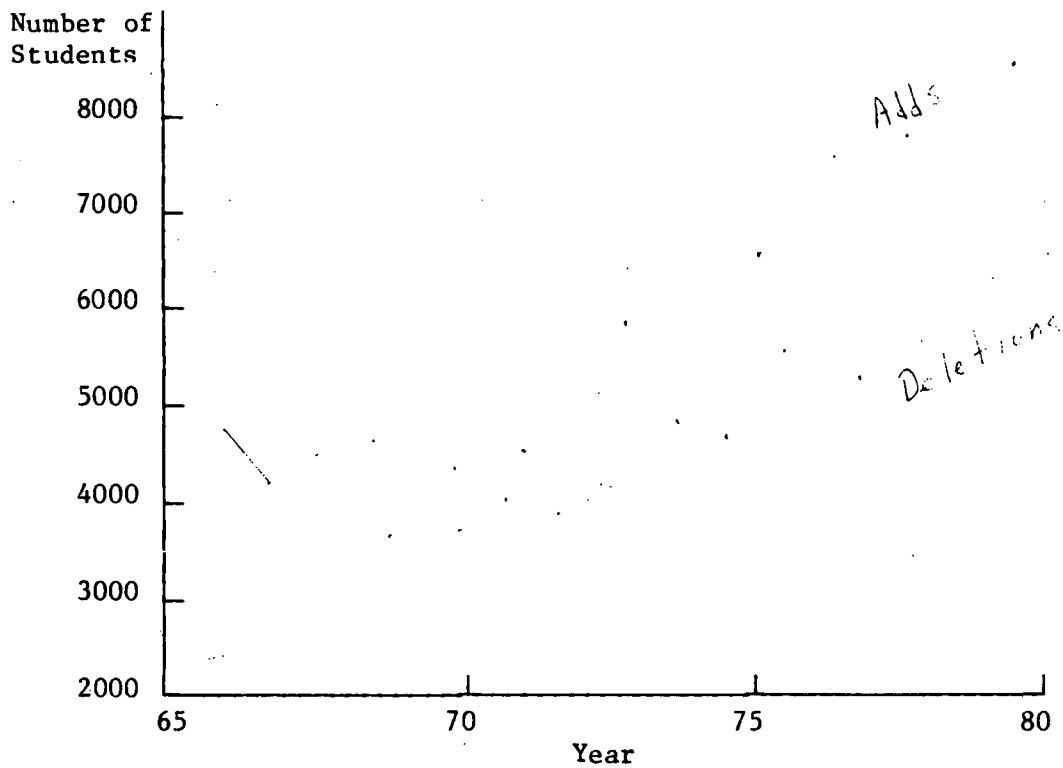
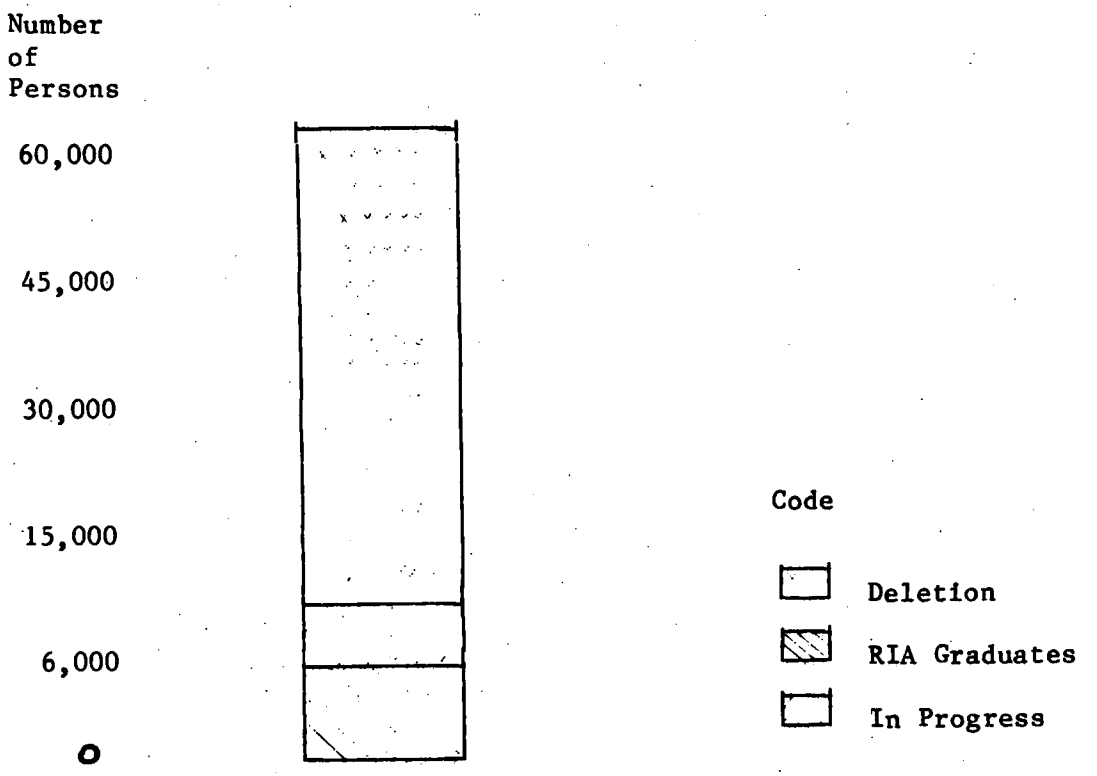


Exhibit 3
Total Persons Distribution of
Fifteen Years of Intake



Program Delivery

Let us look at the method by which the RIA program is delivered. The delivery has changed dramatically in the past 5 years. Let us look at the year just passed.

Table 4

28,000	enrollment	
16,000	lecture	47%
12,000	correspondence	43%
34,000	course exemptions	

You can see from this table that we are granting more course exemptions than the number of courses in which we enroll students. This has changed dramatically over the past 10 years. Only 5 years ago we granted less than 15,000 exemptions, so the number has more than doubled in 5 years. This reflects the large increase in students with post secondary education coming into the program.

Another factor to note is the decline in the % of students electing the correspondence method. 15 years ago about 75% of the students took the program by correspondence. This change reflects the large increase in students going through post secondary schools.

The much maligned correspondence program is not only becoming a smaller and smaller part of the delivery system, but it is also becoming decentralized. Last year the National Society gave the provinces the option of taking over their correspondence students and do the marking locally or leaving it at the National Head Quarters. Some took it over; others decided that perhaps the National Body was not doing such a bad job.

Rationale for decentralization was to reduce turn around time, to provide closer contact with students, to provide for combined methods of deliver, etc. However, it is more costly.

Despite its diminishing importance, the correspondence program is still a fairly large operation. In 1979 we used about 180 markers and processed about 75,000 students' assignments. To reduce problems for the student, a variety of controls are in place. Markers must return assignments in a specified time, Dicom couriers used, etc. Quality control, sampling the marked papers to determine the quality of marking, is undertaken.

The lecture program is really a mixed bag. Since the students are part time, almost all of them take the lecture program in the evenings through universities and colleges. In most cases the evening programs are relegated to the extension departments and the provincial Society must be ever vigilant that the program is not given the same attention as macrame or basket weaving classes. The quality of the lectures varies widely across Canada - some excellent, others a step short of disaster. Despite some obvious shortcomings on the correspondence program and also in the lecture arrangements, I believe that those students who have the fortitude

and determination to survive up to the examination do reasonably well - about a 60% pass rate - not bad for part time students.

Drop Out

As I indicated at the beginning of my remarks, we are more concerned with the drop outs than with the performance of those who remain on the course. It took me about 3 years to convince our Board that we should be more concerned with those students we have, than with recruiting new students. The simple arithmetic which says that for every 6 students we recruit, we lose 5, seemed to escape these accountants. I kept saying that for every drop out we can salvage, this is the same as going out and recruiting 6 new students.

And we are loosing good students. To convince the Board of the seriousness of the matter, we took a random sample of 481 student drop outs from across Canada, a little less than 10% of all drop outs. Table 5 shows the makeup of our student drop outs. In summary, we estimate that about 20% of the students dropping out are more than half way through the program. After digesting these facts, the Board of Directors approved the Drop Out study now being done by Dr. David Abbey of OISE. Simply, we are trying to find out why the students are dropping out and are the causative factors within our control and can we remedy the situation.

Table 5
Drop Out Survey

481	- Students	
1100	- Exemptions	- 2.3
634	- Passes	- 1.3
599	- Fails	- 1.3

89	- Students	
693	- Exemptions	- 7.8
226	- Passes	- 2.5
199	- Fails	- 2.2

About 20% of Dropouts have
10 credits toward RIA.
WHY DROP OUT?

1. Questionnaires designed and tested on 4 X 15 focus groups.
2. Refined questionnaires being used is statistically validated on three other groups.
3. Study is not a one shot picture of drop outs, rather it is a longitudinal study that will cover a 20 month period.
4. If you conduct a survey after a student has dropped out, you will likely get a rationalization of why he dropped out rather than the "real" reason.

5. By tracking the students over a two year period, it is hoped that we can identify the causative factors as the students arrive at the decision stage to quit.

About 10 years ago we conducted an extensive survey on 1,600 correspondence students on the RIA program. We could find little significant difference in the profile of those students who stayed and those who left the program, such factors as age, sex, education, marital status, salary, etc., were essentially the same for both groups. What was interesting was that we circulated the questionnaire at the very beginning of the semester - just after the student enrolled. About 500 students of the 1,660 never returned the questionnaire and only very few of these responded to a follow-up letter. The drop out on these 500 who did not answer was about 8 times as high as for those who responded. It has been a mystery to me why these 500 students enrolled in a program, paid their money and then simply quit without trying - they apparently dropped out as soon as they enrolled.

Perhaps I could talk a bit more about the study on drop outs: the design of the research and preliminary findings.

(1) As I said, we are not doing the research on those who have dropped out. We first used 4 focus groups located in 4 different centers on which we refined an extensive questionnaire. We then took the refined questionnaire and started to use it in telephone interviews on three other randomly drawn larger groups from across Canada. These three groups will be interviewed three times over a 20 month period. We know from experience that about 80% of the students drop out, so we want to trace the change in student attitude from the time he is active until he decides to pack it in or drop out.

(2) We are trying to identify both positive (that is, those factors that make a student stay on the program), and negative (those factors that contribute to his giving up).

(3) Now I shall simply read from the summary of the questionnaire some of the factors that stand out. (Not available)

To conclude my comments on this research project on drop outs, I would guess that we are not going to come up with dramatic relevations. The study still has a long way to go. But some simple facts are already evident. Those students have full time jobs, many have family commitments, also many people do not want to entirely give up their social life. So the student is operating under a normal load and he then takes on a difficult demanding program that increases the weight on him to the point that he has few options and little maneuverability.

It is obvious from the low course enrolment record or about 1.5 courses per student, that on average they are having difficulty coping. Given this sensitive balance under which the student operates, any additional jolt will threaten to knock them over, so in order to survive he/she will opt for the least painful short term solution: he/she will not give up his/her job or his/her family, the next big load is the course, so he/she drops it.

Who is responsible for giving the student the jolt that knocks him over - many are involved and it is not a single jolt, it is an intermittent number of small and not so small pulls and pushes on the student. They come under several headings. If we accept, as the student does, that the course and exam requirement should not be made easier, then the problems come under three headings:

(1) Administrative problems (enrolments, advice on lectures, no response to enquiries) leads to frustration and uses up valuable time.
(2) Pedagogical Problems - mixed bag of lecturers, not sufficient feedback.
(3) General problems of communication that frustrates, isolates alienates and simply wastes time.

We have no illusions that as a result of this research we will be able to salvage the 6000 or so students that go in one door and out the other. There are many reasons why a goal of complete student retention would be silly.

(1) I suspect that (based on previous research) about 25% of our students should never have joined the program - a poor career choice sometimes made by outside pressure (perhaps an employer).
(2) Many students have limited objectives - they do not join with the intention of completing the RIA course - these are often good students and they quit when they have achieved what they want from the program. Why not take a university course?
(3) There is a large group who perhaps are marginally capable of handling the program but are not prepared to spend the necessary effort required for them to succeed.
(4) However, there is that group (about 25%) of the drop outs who are capable of coping who are over half way through the program who are worth a real effort. So if we look again at Exhibit 3, I would be pleased if we could have saved half of them (or 10% of the total) and this would just about double our through put of RIA's.

CAAA 1980 Conference
Université du Québec à Montréal

Gérard Gareau, L. S. C., C. A.
Director of Education
Ordre des Comptables Agréés du Québec

DEVELOPPEMENT DE LA PROFESSION DE COMPTABLE AGREE AU QUEBEC

Monsieur le Président, mesdames, mesdemoiselles, messieurs. Ma présence ici, cet après-midi, implique un double changement. D'abord, contrairement à ce qu'indique le programme, ce n'est pas monsieur Gilles Chevalier qui va vous adresser la parole cet après-midi, puisque c'est moi qui ai accepté de répondre à l'invitation qui avait été faite à l'Ordre des comptables agréés du Québec de déléguer un représentant à votre congrès. Deuxième changement au programme: alors que je me proposais d'établir une corrélation entre le succès des études universaitaires de premier cycle et le succès à l'examen final uniforme, je me suis heurté à la Loi sur les droits de la personne et à la règle de la confidentialité touchant l'obtention et l'utilisation des résultats universitaires des candidats de l'Ordre.

Ceci dit, je tâcherai de démontrer que, à partir d'une situation alarmante, qui a incité l'Ordre des comptables agréés, le 30 novembre 1976, à commander une étude sur le processus académique menant au Québec à l'examen de C.A., nous pouvons tirer des conclusions, somme toute, satisfaisantes et rassurantes, malgré certaines réserves que nous formulerons en guise de conclusion.

Si nous jetons un coup d'oeil sur le tableau 1, vous constaterez que j'ai divesé les candidats à l'examen final uniforme en trois grand groupes d'importance à peu près équivalente, soit le Québec, l'Ontario et les autres provinces réunies. Nous verrons, au cours de cet exposé, comment le Québec se compare aux deux autres groupes, soit séparément, soit réunis, et alors identifiés sous la rubrique Hors Québec, et, enfin, par rapport à l'ensemble du Canada.

Si nous considérons la troisième partie du tableau 1, intitulée "Taux de succès," nous constatons que le Québec se classe bon dernier par rapport à l'Ontario et aux "Autres provinces," et que l'inclusion de Québec dans la moyenne nationale a pour effet d'entrainer un abaissement de la moyenne générale des autres provinces du Canada. Ceci est illustré par le graphique numéro I, que je vous présente maintenant à l'écran. On note, de prime abord, que l'année 1976 présente une chute appréciable des résultats déjà peu encourageants des candidats du Québec, et c'est précisément à la suite de la publication de ces résultats que le bureau de l'Ordre avait commandé l'étude sur le processus académique menant au Québec à l'examen du C.A. Alors qu'on observe une chute comparable des résultats des "Autres provinces," l'Ontario avait réussi, en 1976, à maintenir le même taux de succès que l'année précédente. Fait bizarre, alors que les candidats de l'Ontario et des autres provinces ont connu un pourcentage de réussite inférieur en 1977, on constate un léger redressement chez les candidats du Québec. Il n'est peut-être pas sans intérêt de souligner que ce redressement coincide avec l'introduction du Graduate Diploma in Public Accountancy à l'Université McGill.

Le 30 novembre 1976, le Bureau de l'Ordre créait un groupe de travail qui recevait pour mandat "de procéder à une étude critique pour déterminer si le processus académique menant au Québec à l'examen de C.A. est comparable à celui suivi en Ontario. Ce processus devra être étudié à partir des renseignements obtenus sur les établissements d'enseignement qui préparent les candidats soit, par exemple, les cours requis pour l'obtention du diplôme universitaire, les normes de réussite, les examens sanctionnant les cours etc."

La direction de ce groupe de travail fut confiée à M. Gilles Chevalier, qui fut assisté, plus particulièrement, par messieurs Jean-Jacques St-Pierre, de l'Université du Sherbrooke, et Calvin Potter, de l'Université Concordia, qui ont agi comme conseillers durant cette étude. Le rapport fut rédigé par M. Gilles Chevalier et soumis au Bureau de l'Ordre en Décembre 1977. C'est la raison pour laquelle il est mieux connu sous le nom de "Rapport Chevalier" et que nous y référerons sous ce nom par la suite.

Le Rapport Chevalier ne fait pas de recommandations mais se contente de constater certains faits, conformément au mandat confié et présente, par conséquent, ses conclusions sous forme de constatations. Parmi ces constatations, je me contenterai d'en tirer quelques-unes qui me serviront à introduire ou à illustrer mes propos.

Dés sa première constatation, le Rapport Chevalier établit que "Le contingentement exercé par la majorité des écoles d'administration en Ontario, comparé à l'inexistence, au cours des dernières années, d'un tel contingentement au Québec, semble lui avoir assuré, au départ, une qualité supérieure de candidats entrant dans un programme de premier cycle en administration."[1]

"Jusqu'à tout récemment, poursuit-il, aucun contingentement n'était exercé concernant l'acceptation des candidats aux diverses facultés ou écoles de commerce dans la province de Québec. Cependant, un certain contingentement a commencé, l'an dernier ou cette année, dans quelques écoles. En Ontario, par contre, une élimination importante se fait dans la plupart des grandes universités. C'est ainsi que à l'Université Queens, en 1976 seulement, quelque 200 demandes d'admission au programme de premier cycle en administration sur un total de plus de 2,000 ont été acceptées. A l'Université de Toronto, l'an dernier, la plupart des candidats acceptées. A l'Université de Toronto, l'an dernier, la plupart des candidats acceptés au programme avaient une moyenne de 70% et plus à la sortie de la 13e année. A l'Université McMaster, on a exigé une moyenne de 68%. Il est important de noter que ces trois universités et l'Université York produisent près de 75% des candidats de l'Ontario à l'examen final uniforme. Cette élimination assure, à notre point de vue, une qualité supérieure de candidats avant même qu'ils ne soient partie intégrante du système universitaire."[2]

Un deuxième facteur de sélection est le cours préparatoire à l'examen final uniforme. En Ontario, le School of Accountancy offre un cours de quatre semaines, commandité par l'Institut des comptables agréés de l'Ontario, et qui est obligatoire pour tout étudiant désirant se présenter à l'examen final uniforme. De plus, poursuit le rapport Chevalier, "il est

évident que le cours sert également de processus d'élimination, si l'on considère les taux d'échec enregistrés dans les dernières années, comme le démontre le tableau qui suit:

1972	1973	1974	1975	1976
8.0%	17.3%	16.7%	16.9%	23.0%

"Cette élimination représentant plus de 200 candidats par année a un impact direct sur le taux de succès en Ontario à l'examen final. Il est permis de croire que, sans cette élimination, les résultats de l'Ontario ne seraient pas meilleurs que ceux de Québec."[3]

Quelles sont donc, par opposition, les conditions d'admission à l'examen final uniforme au Québec? Le Rapport Chevalier nous informe que "la pluspart des universités de la Province (de Québec) offrent un cours d'appoint d'une durée d'environ 12 semaines qui est donné l'été précédant l'examin final uniforme.

Ces cours, même s'ils ont comme objectif de préparer les candidats à l'examen final, manquent d'uniformité, notamment en ce qui a trait aux exigences de succés. Il est inquiétant de constater un relâchement général des exigences de succès, si on compare ces dernières avec ce qu'elles étaient il y a quelques années. Jusqu'à l'an dernier, seule l'Ecole des Hautes Etudes Commerciales exigeait la réussite aux cours d'appoint dans la recommandation adressée à l'Ordre concernant la présentation d'un candidat à l'examen final.

"Dans la majorité des cas, le diplôme de premier cycle avec option en comptabilité donne accès aux cours d'appoint. Il y a quelques années, certaines universités exigeaient que, en plus, l'étudiant ait obtenu une moyenne cumulative excédant un certain niveau."[4]

A l'appui de ces propos, voici un tableau qui représente d'assez près la situation réelle d'une université participant au programme de formation des candidats à l'E.F.U.

On remarquera qu'il y a un écart considérable du taux de réussite à l'E.F.U. entre les candidats qui ont obtenu de 60% à 75%, de 75% à 80% et de 80% à 85%. Bien que le taux cumulatif de succés à l'E.F.U. ne soit que de 21% pour tous les candidats qui ont une moyenne cumulative inférieure à 75% au baccalauréat, rien dans les règlements de l'Ordre ne peut leur interdire de se présenter à l'E.F.U. Et le nombre de ces étudiants représente près de 60% des diplômés de cette institution.

C'est donc dire que 60% des candidats sont responsables de 80% des échecs à l'E.F.U. en ce qui concerne cette institution. Si, par hypothèse, on écartait ces candidats parce qu'ils sont jugés trop faibles, le taux de réussite, pour cette même institution passerait de 43% à 74%.

"La durée et la fréquence des examens varient beaucoup d'une université à l'autre ... A l'exception des H.E.C. où tout candidat doit avoir obtenu 60%, les résultats à l'examen du cours d'appoint n'entrent pas en ligne de compte dans la recommandation de ces universités à l'Ordre.

Cette politique enlève toute motivation chez l'étudiant. C'est ainsi que plusieurs étudiants interviewés ont avoué qu'ils n'ont pas pris le cours d'appoint au sérieux sanchant que celà ne comptait pas dans la décision de présenter ou non un candidat."

"Les cours d'appoint au Québec, si on fait exception de celui de l'Ecole des Hautes Etudes Commerciales, contrairement au School of Accountancy en Ontario, ne servent pas de critère d'élimination avant l'examen final. L'étudiant qui sait que sa performance aux cours d'appoint n'est pas prise en considération dans la décision de le présenter ou non à l'examen final uniforme, ne prend pas le cours d'appoint au sérieux. De ce fait, la motivation de l'étudiant du québec au cours d'appoint est très differente de celle de l'étudiant de l'Ontario au School of Accountancy."[5]

"On aurait intérêt à établir des exigences de succès strictes aux cours d'appoint dans les universités du Québec si on veut augmenter le taux de réussite des étudiants de la province. Il faut noter que quelques universités exigent, depuis cette année, que l'étudiant réussisse le cours d'appoint pour pouvoir se présenter à l'examen uniforme."[6]

"Vous remarquerez que le rapport Chevalier fait un cas à part de l'Ecole des Hautes Etudes Commerciales. Incidemment, nous ne parlons que des universités francophones puique le système existant dans les universités anglophones est différent. Précisément, les étudiants des H.E.C. étaient très conscients que leurs conditions d'admission à l'examen final uniforme étaient plus exigeantes que celles des autres universités francophones. En 1978, ils exercrent donc certaines pressions auprès de l'Ecole pour amener la suppression des examens éliminatoires à la fin des cours d'appoint. Afin d'apaiser une situation qui risquait de s'envenimer, l'Ecole est intervenue auprès de l'Ordre et celui-ci, pour des raisons d'équité, a accepté que les examens couronnant les cours d'appoint ne soient pas éliminatoires à l'Ecole des H.E.C.

Une autre université, où les examens à la fin des cours d'appoint étaient obligatoires mais non éliminatoires, a demendé à son tour l'abolition des examens. L'Ordre, encore une fois, a dû accéder à sa demande pour des raisons d'équité mais a réagit, par la suite, en demandant à toutes les universités de rétablir les examens obligatoires et éliminatoires à la fin des cours d'appoint. Cette demande de l'Ordre s'est heurtée à un refus concerté des étudiants et de la direction des principales universités francophones du Québec. Compte tenu de la situation sociale qui existe au Québec, l'Ordre a récemment retiré sa demande et laissé aux universités le soin d'évaluer, comme elles l'entendaient, la session d'études des cours d'appoint.

L'Ordre n'en est pas moins conscient pour autant du besoin d'une meilleure sélection des candidats à l'E.F.U. L'Ordre ne peut que partager l'opinion du Jury de l'examen lorsqu'il déclare, dans son rapport que "les candidats qui ont obtenu moins de 200 points sur 400 auraient été bien avisés de renoncer à se présenter à l'E.F.U."

Voici, à ce propos, un troisième tableau qui montre les résultats obtenus par les candidats de trois universités différentes. Je serais prêt à atténuer le jugement du Jury de l'examen et à accepter comme raisonnable

un taux de 10% de candidats qui auraient obtenu moins de 200 points sur 400. Même alors, celà supposerait que ces trois universités devraient éliminer, à la suite des cours d'appoint, entre 15% et 20% de leurs candidats.

Depuis 25 ans, le Ministère de l'Education de Québec s'est donné une politique d'accessibilité de l'enseignement à tous les niveaux. Une première étape fut la création des commissions scolaires régionales, qui avaient pour objectif de développer l'enseignement secondaire dans toutes les régions et dans toutes les classes de la société du Québec. En 1966, le ministère de l'Education franchissait une nouvelle étape avec la création des CEGEPS, qui visait à relever le niveau de scolarisation de toutes les classes et de toutes les régions du Québec. Enfin, en 1969 le Ministère de l'Education élargissait les bases de l'enseignement universitaire par la création de l'Université du Québec et de son réseau de constituantes.

Parrallèlement à cette démocratisation de l'enseignement, le gouvernement du Québec a adopté, en 1973, le Code des Professions visant, d'une part, à régir les corporations professionelles et, d'autre part, à en faciliter l'accès. C'est dans ce cadre politique et social que l'Ordre doit évoluer et adopter sa règlementation.

Bien que l'Ordre soit conscient de la nécessité d'améliorer les critères de sélection de ses candidats, il lui serait difficile d'aller à l'encontre de la tendance sociale du milieu dans lequel il exerce sa juridiction.

Les règlements actuels de l'Ordre ne sont pas suffisamment précis pour exiger avec rigueur l'application d'une politique de sélection des candidats à l'examen de l'Ordre par les universités qui dispensent les programmes d'études qui y préparent. L'Ordre ne pourrait apporter de modification aux ententes actuelles que par voie de règlement, puisque de telles modifications seraient considérées, par l'Office des professions, comme une modification aux conditions supplémentaires de délivrance d'un permis professionnel.

En outre, l'article 95 du Code de Professions prévoit que tout règlement adopté par le Bureau doit être soumis à l'approbation du gouvernement. C'est donc dire que l'Ordre n'a pas discrétion absolue, comme les autres instituts provinciaux, pour corriger une situation qui lui semble demander un redressement. L'Ordre doit donc, à l'intérieur des limites qui lui sont fixées par la philosophie sociale de l'Office des Professions et le pouvoir d'intervention du gouvernement, adopter la meilleur solution réalisable. Cette solution, l'Ordre croit l'avoir trouvée dans l'établissement d'un certificat professionnel de deuxième cycle en sciences comptables.

Le niveau de connaissances théoriques et la compétence professionnelle requis pour exercer la comptabilité publique se sont considérablement élevés au cours des dix dernière années, c'est-à-dire, depuis le moment où l'Ordre, avec tous les instituts provinciaux, convenait d'exiger un dipôme universitaire de premier cycle comme condition préalable à l'admission à l'exercice de la profession. Compte tenue du rôle de conseiller que joue

le comptable agréé auprés de la petite et moyenne entreprise, l'Ordre favorise une formation fondamentale en administration des affaires aussi large que possible, couronnée par une année de formation professionnelle de niveau élevé. L'Ordre n'a pas la prétention que cette orientation soit la seule bonne ou la meilleure solution possible, mais il a eu l'occasion, depuis quelques années, de la voir adoptée par l'Université McGill et de pouvoir juger de ses résultats.

Si l'on se reporte au tableau IV, on constatera que les détenteurs du Graduate Diploma in Public Accountancy représentent, depuis 1977, le deuxième plus fort groupe anglophone au Canada, immédiatement après l'Alberta, et suivi de près par la Colombie-Britannique, mais bien avant le Manitoba. Nous parlons ici, évidemment, des candidats de première tentative. Nous constatons, également, que, en termes de succès, pour les trois dernieres années, c'est ce groupe de diplômés qui se classe le premier au Canada, même s'il s'est fait ravir la palme par la Colombie-Britannique en 1979. Voici, à ce propos, un graphique qui illustre les résultats obtenus par ces quatre groupes au cours des trois dernières années, ainsi que la moyenne pour cette période.

Ainsi, même si l'Ordre se voit quelque peu contraint dans son pouvoir de règlementation par la surveillance de l'Office des Professions et le pouvoir d'intervention du gouvernement, il espère pouvoir améliorer le taux de réussite de ses candidats en élevant le niveau de leur formation professionnelle. Il est à noter que, dans le système présentement en vigueur dans les universités francophones, la majeure partie des étudiants se présentent à l'examen final uniforme avant même d'avoir commencé leur stage. Il n'est par certain que cette situation se prolongera lors de l'implantation des diplômes de deuxième cycle. Cette année de formation professionnelle pourra, soit se donner à plein temps, soit être répartie sur deux étés séparés par une période de stage, ou encore se poursuivre en cours du soir concuremment avec l'accomplissement du stage. Chaque université sera libre de fixer les modalités qu'elle jugera les plus favorables à sa clientèle, sans pour autant limiter sa possibilité d'offrir ce programme dans des régimes multiples.

Après avoir évoqué le taux de réussite insatisfaisant des candidats de l'Ordre à l'examen final uniforme; après avoir tenté d'identifier la principale cause de cette situation et avoir souligné les difficultés d'y remédier; après avoir énoncé la politique de formation que l'Ordre entend donner à ses candidats, dans l'avenir; il serait peut-être bon de revoir un peu la situation existante, pour vérifier si elle est aussie alarmante que le laissait présager le graphique numéro 1 que je vous ai montré au début de cet exposé.

Il est intéressant de noter, si on revient au tableau 1, la progression due nombre des candidats du Québec à l'examen final uniforme. Alors que le Québec a connu un taux de 65% au cours des cinq dernières années, l'Ontario n'a augmenté le nombre de ses candidats que de 17%, les "Autres provinces" de 12%, pour une moyenne de 16.6% pour l'ensemble du Canada à l'exclusion du Québec et une moyenne de 31% pour le Canada tout entier. Cette croissance est représentée par le grahique numéro III que permet de constater que c'est maintenant le Québec qui bat la marche pour le nombre des candidats.

Peut-être certains observeront-ils, non sans raison, que le taux d'échec élevé des candidats du Québec tend à accroitre le nombre de ses candidats du contingent de tous ceux qui doivent reprendre l'examen. Observons alors le tableau numéro V, qui nous donne le nombre des candidats de première tentative.

Un calcul rapide nous permettrait de constater que le nombre de candidats de première tentative a augmenté de 86? au Québec, par rapport à 27% pour l'Ontario et 18% pour les "Autres provinces," et que c'est l'accroissement considérable du nombre des candidats au Québec qui permet de hausser la moyenne canadienne à 40%, comparativement à un taux d'accroissement de 23% pour l'ensemble des autres provinces.

Le graphique suivant (numéro IV) illustre très bien la participation croissante du Québec dans la préparation des candidats à l'examen final uniforme.

Peut-être serez-vous portés, comme nous l'avons nous-mêmes été, à penser que cet accroissement rapide du nombre des candidats devrait entraîner une baisse correspondante du taux de réussite. Le tableau V nous permet de constater que le nombre des candidats qui ont réussie l'examen final uniforme n'a pas cessé de croître au cours des cinq dernière années et que la part du Québec, sans être prépondérante, prend de plus en plus d'importance.

En définitive, ce qui est important, ce n'est pas tellement le nombre total de candidats qui se présentent à l'examen final uniforme, ni le nombre des candidats de première tentative, ni le nombre des candidats de première tentative qui ont réussi, mais le nombre total des candidats qui ont réussi à l'examen final uniforme et qui peuvent accéder à l'exercice de la Profession.

Le tableau 1, nous révèle que le nombre de candidats du Québec qui ont réussi l'examen final uniforme a maintenant dépassé celui des "Autres provinces" et se rapproche sensiblement de celui de l'Ontario. Cette croissance est illustrée par le graphique suivant (VI).

Ceux qui ont leur calculatrice en poche pourraient rapidement constater que le nombre des candidats du Québec qui ont réussie a augmenté de 63% au cours des cinq dernières années, alors que cette augmentation n'a été que de 7% pour l'Ontario et de 20% pour les "Autres provinces," et que c'est la participation de Québec qui a permis au nombre total des candidats au Canada de progresser de 25%, par rapport à 12% pour l'ensemble des provinces à l'exclusion du Québec.

Il est intéressant de noter, au tableau VI que voici, le taux de progression des candidats qui ont réussi l'examen final uniforme. On remarque que la part du Québec dans le nombre des succès est passée de 25% à 33% du nombre total des candidats, tandis que la part de l'Ontario a baissé de 43.8% à 37.4% et celle des "Autres provinces" de 31.1% à 29.8%. Cette croissance est illustrée par le graphique suivant (VII) qui montre comment le Québec est venu gruger la part de l'Ontario en particulier pour s'assurer une part de près du tiers des candidats qui ont réussie à l'examen final uniforme.

Si on compare le nombre de candidats qui ont réussie à l'examen final uniforme avec le nombre de membres originels de chacun des trois groupes, on constate que c'est l'Ordre qui possède le taux de croissance le plus élevé, comme le démontre le graphique suivant (VIII). Comme un grand nombre d'admissions se font au début de l'année à la suite de la publication des résultats de l'examen final uniforme, nous avons établi arbritairement le nombre des membres originels de chacun des groupes au 31 décembre en faisant la moyenne du nombre réel au 31 mars de l'année indiquée au tableau et de l'année suivante.

On constate alors que le taux de croissance du Québec est passé de près de 5.3/4% à 8.1/4% tandis que celui de l'Ontario est tombé de 6.3% à 5.4% et que celui des "Autres provinces" a connu un léger fléchissement, passent de 6% à 5.6%. En somme, alors que le taux de croissance dans l'ensemble du Canada, à l'exclusion du Québec, a fléchi de 6.2% à 5.5%, c'est l'apport du Québec qui a permis à ce taux de croissance de progresser de 6% à 6.16% pour le Canada pris dans son entier. C'est donc dire que, n'eût été de l'apport du Québec, le taux de croissance de la profession au Canada aurait légèrement fléchi au lieu de progresser.

Suite à cette constation, nous serions en droit de présumer que les effectifs de l'Ordre ont dû progresser en conséquence. Malheureusement, le tableau suivant (VII) nous démontre le contraire. Si on ajoute au nombre de membres originels au 31 décembre 1975 le nombre des candidats qui ont réussi l'examen final uniforme de 1975 à 1978 (en présumant que tous ceux qui ont réussie en 1979 n'étaient pas encore inscrits au 31 décembre de la même année), nous obtenons un total qui diffère du nombre des membres originels au 31 décembre 1979, tel que nous l'avons établi précédemment. Il est normal, que pour diverses raisons, comme les décès, les radiations, que les effectifs aient connu une certaine diminution. Si on compare le total des deux facteurs précédents avec le nombre des membres originels au 31 décembre 1979, on constate que le Canada tout entier a connu une diminution de 689 membres alors que, de ce total, la part du Québec est de 866 membres. C'est donc dire que le Québec, à lui seul, a perdu plus de membres que le Canada tout entier et, évidemment, celà nous amène à nous poser la question si le Québec n'a pas contribué, de quelque façon, à la croisance des autres instituts provinciaux.

Le même tableau tente de nous fournir une certaine explication de ce phénomène. Si on considère un taux de diminution ou d'attrition proportionnel pour l'ensemble du Canada, toutes choses étant égales entre elles comme disent les mathématiciens, on constate que le Québec aurait dû voir le nombre de ses membres diminuer de 185, comparativement à 289 pour l'Ontario et à 215 pour les "Autres provinces." On ne peut que constater que l'écart à la moyenne est défavorable au Québec par 681, alors qu'il favorise l'Ontario par une marge de 237 et les "Autres provinces" par une marge de 444.

Peut-être pourrions-nous expliquer en partie ce phénomène d'attrition excédentaire de l'Ordre par les dispositions de la charte de la langue française qui régissent les ordres professionnels. Voici ce que dit le texte de la loi à ce sujet:

Ces dispositions de la Loi expliquent qu'un certain nombre de comptables agréés qui détiennent un permis temporaire s'empressent de devenir membres d'un autre institut provincial par voie d'affiliation afin de sauvegarder leur statut professionnel. Advenant le cas où leur permis temporaire ne serait pas renouvelé, ils peuvent ainsi conserver leur droit d'exercice dans les autres provinces du Canada. L'Ordre est très conscient des conséquences de ces dispositions législatives qui ont pour but d'assurer l'accessibilité des services professionnels à la majorité de la population. De telles dispositions législatives n'existent pas dans les autres provinces du Canada mais nous soupçonnons qu'il doit être difficle d'y exercer une activité professionnelle sans connaître la langue de la majorité.

Nous sommes egalement conscients que la Charte de la langue française n'est pas la seule responsable de cet exode que nous venons de constater. D'autres facteurs peuvent expliquer le taux d'attrition inférieur des autres instituts provinciaux, comme l'admission de membres de corporations étrangères. Ce n'est un secret pour personne que de dire que la part de l'Ordre en ce domaine est nettement inférieure à celle des autres institus provinciaux. C'est pourquoi l'explication que nous avons tenté de fournir devrait être tempérée par ces autres facteurs que nous n'avons pu apprécier.

J'aimerais clore cet exposé en exprimant ma confiance dans l'avenir de la Profession au Québec et dans sa capacité d'assurer non seulement son autosuffisance mais également de contribuer au développement de la Profession dans l'ensemble du Canada.

CHAPITRE V

LA LANGUE DES ORGANISMES PARAPUBLICS

Art. 30

Les entreprises d'utilité publique, les ordres professionnels et les membres des ordres professionnels doivent faire en sorte que leurs services soient disponibles dans la langue officielle.

Ils doivent rédiger en cette langue les avis, communications et imprimés destinés au public, y compris les titres de transport en commun.

Art. 31

Les entreprises d'utilité publique et les ordres professionnels utilisent la langue officielle dans leurs communications écrites avec l'Administration et les personnes morales.

Art. 32

Les ordres professionnels utilisent la langue officielle dans les communications écrites avec l'ensemble de leurs membres.

Ils peuvent toutefois répondre dans la langue de l'interlocuteur lorsqu'il s'agit d'un membre en particulier.

Art. 33

Les articles 30 et 31 ne s'appliquent pas aux communiqués ni à la publicité destinés aux organes d'information diffusant dans une langue autre que le français.

Art. 34

Les ordres professionnels ne sont désignés que par leur dénomination française.

Art. 35

Les ordres professionnels ne peuvent délivrer de permis au Québec qu'à des personnes ayant de la langue officielle une connaissance appropriée à l'exercice de leur profession.

Cette connaissance doit être prouvée suivant les règlements de l'Office de la langue française, lesquels peuvent pourvoir à la tenue d'examens et à la délivrance d'attestations.

Art. 36

Dans les deux ans précédant l'obtention d'un diplôme rendant admissible à un permis d'exercer, toute personne inscrite dans un établissement d'enseignement délivrant ce diplôme peut faire la preuve qu'elle remplit les conditions de l'article 35 quant à sa connaissance de la langue officielle.

Art. 37

Les ordres professionnels peuvent délivrer des permis temporaires valables pour une période d'au plus un an aux personnes venant de l'extérieur du Québec qui sont déclarées aptes à exercer leur profession mais qui ne remplissent pas les exigences de l'article 35 quant à la connaissance de la langue officielle.

Art. 38

Les permis visés à l'article 37 ne sont renouvelables que deux fois, avec l'autorisation de l'Office de la langue française si l'intérêt public le justifie. Pour chaque renouvellement, les intéressés doivent se présenter à des examens tenus conformément aux règlements de l'Office de la langue française.

Art. 39

Les personnes ayant obtenu au Québec un diplôme visé à l'article 36 peuvent, jusqu'à la fin de 1980, se prévaloir des dispositions des articles 37 et 38.

Art. 40

Dans les cas où l'intérêt public le justifie, les ordres professionnels peuvent, avec l'autorisation préalable de l'Office de la langue française, délivrer un permis restrictif aux personnes déjà autorisées à exercer leur profession en vertu des lois d'une autre province ou d'un autre pays. Ce permis restrictif autorise son détenteur à exercer sa profession exclusivement pour le compte d'un seul employeur dans une fonction ne l'amenant pas à traiter avec le public.

Ordre des comptables agréés du Québec

TABLEAUX

I- Nombre total de candidats

II- Résultats d'une université à l'E.F.U.

III- Analyse des échecs des premières tentatives.

IV- Graduate Diplomas in Public Accountancy.

V- Candidats de première tentative.

VI- Taux de croissance.

VII- Contribution du Québec à la croissance des autres instituts provinciaux?

GRAPHIQUES

I- Taux de succès à l'E.F.U.

II- Graduate Diplomas in Public Accountancy.

III- Nombre total de candidats.

IV- Nombre de premières tentatives.

V- Succès des premières tentatives.

VI- Succès de tous les candidats.

VII- Proportion des succès au Canada.

VIII- Taux de croissance.

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Ordre des comptables agréés du Québec

Tableau I

EXAMEN FINAL UNIFORME

Nombre total de candidats

	1975	1976	1977	1978	1979
1. Nombre de candidats					
Québec	800	915	911	1181	1317
Ontario	1029	1065	1041	1139	1205
Autres provinces	767	795	835	862	889
Hors Québec	1796	1860	1876	2001	2094
Canada	2596	2775	2787	3182	3411
2. Nombre de succès					
Québec	363	383	431	538	593
Ontario	633	653	605	671	676
Autres provinces	450	440	434	490	539
Hors Québec	1083	1093	1039	1161	1215
Canada	1446	1476	1470	1699	1808
3. Taux de succès					
Québec	45.4	41.9	47.3	45.6	45.0
Ontario	61.5	61.3	58.1	58.9	56.1
Autres provinces	58.7	55.3	52.0	56.8	60.6
Hors Québec	60.3	58.8	55.4	58.0	58.0
Canada	55.7	53.2	52.7	53.4	53.0

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COMPARAISON ENTRE LES RÉSULTATS DU BACCALAURÉAT ET CEUX DE L'EXAMEN DU C.A. D'UNE UNIVERSITÉ.

BACCALAURÉAT	EXAMEN DU C.A.		
Moyenne cumulative %	Nombre de candidats	Nombre de réussites	Taux de réussites %
50.1 à 55	8	0	0.0
55.1 à 60	36	2	6.0
60.1 à 65	46	7	15.0
65.1 à 70	94	23	24.0
70.1 à 75	84	25	30.0
75.1 à 80	84	49	58.0
80.1 à 85	34	27	79.0
85.1 à 90	50	42	84.0
90.1 à 95	19	18	95.0
95.1 à 100	7	7	100.0
TOTAL	462	200	43.0

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Ordre des comptables agréés du Québec

Tableau III

ANALYSE DES ÉCHECS DES PREMIÈRES TENTATIVES A L'EXAMEN FINAL UNIFORME DE 1979

1. Résultats obtenus	Université A	Université B	Université C
Moins de 40%	19/248 = 7.7%	16/155 = 10.3%	4/78 = 5.1%
Entre 40% et 50%	43/248 = 17.3%	32/155 = 20.6%	15/78 = 19.2%
Entre 50% et 60%	50/248 = 20.2%	46/155 = 29.7%	18/78 = 23.1%
TOTAL	112/248 = 45.2%	94/155 = 60.7%	37/78 = 47.4%
2. Elimination proposée			
Candidats ayant obtenu moins de 50% en 1979	62/248 = 25%	48/155 = 31%	19/78 = 24.3%
Pourcentage d'échec acceptable en bas de 50% = 10%	25/248	16/155	8/78
Nombre à éliminer	37/248 = 15%	32/155 = 20.6%	11/78 = 14.1%
3. Taux de succès après élimination (Pro Forma)	136/211=64.5%	61/123 = 49.6%	41/67 = 61.2%

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EXAMEN FINAL UNIFORME

Graduate Diplomas in Public Accountancy

Premières tentatives

	1977	1978	1979	Moyenne
1. Nombre de candidats				
G.D.P.A. - McGill	115	176	178	156
Colombie Britannique	144	137	167	149
Alberta	178	144	193	172
Manitoba	80	79	93	84
2. Nombre de succès				
G.D.P.A. - McGill	96	141	134	124
Colombie Britannique	87	105	142	111
Alberta	93	101	131	108
Manitoba	54	58	65	59
3. Taux de succès				
G.D.P.A. - McGill	83.5	80.1	75.2	79.5
Colombie Britannique	60.4	76.6	85.0	74.5
Alberta	52.2	70.1	67.9	62.8
Manitoba	67.5	73.4	69.9	70.2

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Tableau V

EXAMEN FINAL UNIFORME

Candidats de première tentative

	1975	1976	1977	1978	1979
1. Nombre de candidats					
Québec	441	573	507	828	820
Ontario	661	749	707	831	838
Autres provinces	523	543	565	555	620
Hors Québec	1184	1292	1272	1386	1458
Canada	1625	1865	1779	2214	2278
2. Nombre de succès					
Québec	264	300	315	444	446
Ontario	434	512	467	551	534
Autres provinces	324	339	330	354	432
Hors Québec	758	851	797	905	966
Canada	1022	1151	1112	1349	1412
3. Taux de succès					
Québec	59.9	52.4	62.1	53.6	54.4
Ontario	65.7	68.4	66.0	66.3	63.7
Autres provinces	62.0	62.4	58.4	63.8	69.7
Hors Québec	64.0	65.9	62.7	65.3	66.3
Canada	62.9	61.7	62.5	60.9	62.0

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Tableau VI

EXAMEN FINAL UNIFORME

Taux de croissance

	1975	1976	1977	1978	1979
1. Nombre de succès					
Québec	363	383	431	538	593
Ontario	633	653	605	671	676
Autres provinces	450	440	434	490	539
Hors Québec	1083	1093	1039	1161	1215
Canada	1446	1476	1470	1699	1808
2. Proportion de succès au Canada					
Québec	25.1	26.0	29.3	31.7	32.8
Ontario	43.8	44.2	41.2	39.5	37.4
Autres provinces	31.1	29.8	29.5	28.8	29.8
Hors Québec	74.9	74.0	70.7	68.3	67.2
Canada	100.0	100.0	100.0	100.0	100.0
3. Nombre de membres originels (1)					
Québec	6,348	6,612	6,745	6,916	7,197
Ontario	10,035	10,644	11,260	11,880	12,545
Autres provinces	7,551	8,009	8,547	9,043	9,594
Hors Québec	17,586	18,653	19,807	20,923	22,139
Canada	23,934	25,265	26,552	27,839	29,336
4- Taux de croissance (2)					
Québec	5.72%	5.79%	6.39%	7.78%	8.24%
Ontario	6.31%	6.13%	5.37%	5.65%	5.39%
Autres provinces	5.96%	5.49%	5.08%	5.42%	5.62%
Hors Québec	6.16%	5.86%	5.25%	5.55%	5.49%
Canada	6.04%	5.84%	5.54%	6.10%	6.16%

Note:

(1) Nombre théorique au 31 décembre, en faisant la moyenne du nombre réel au 31 mars de l'année indiquée et de l'année suivante.

(2) Nombre de succès par rapport au nombre de membres originels.

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VARIATION DU NOMBRE DE MEMBRES ORIGINELS AU CANADA

	Nombre au 31/12/1975	Succès 1975-78	Total	Nombre au 31/12/1979	Gains (Pertes)
Québec	6,348	1,715	8,063	7,197	(866)
Ontario	10,035	2,562	12,597	12,545	(52)
Autres provinces	7,551	1,814	9,365	9,594	229
Hors Québec	17,586	4,376	21,962	22,139	177
Canada	23,934	6,091	30,025	29,336	(689)

CONTRIBUTION DU QUÉBEC A LA CROISSANCE DES AUTRES INSTITUTS PROVINCIAUX ?

	Gains (Pertes)	Attrition proportionnelle (1)	Ecart à la moyenne
Québec	(866)	185	(681)
Ontario	(52)	289	237
Autres provinces	229	215	444
Hors Québec	177	504	681
Canada	(689)	689	0

(1) 2.295% du "total" du tableau supérieur

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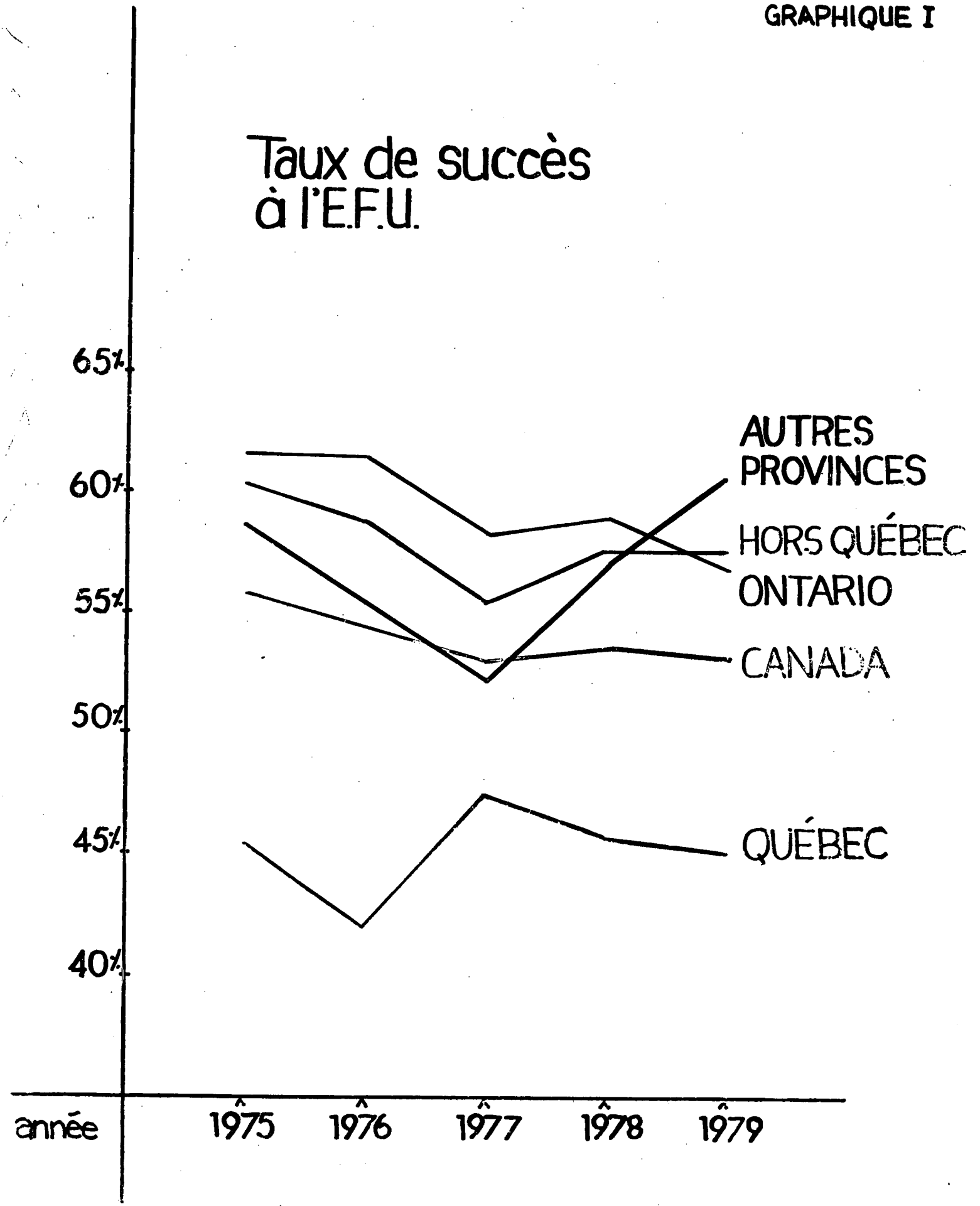
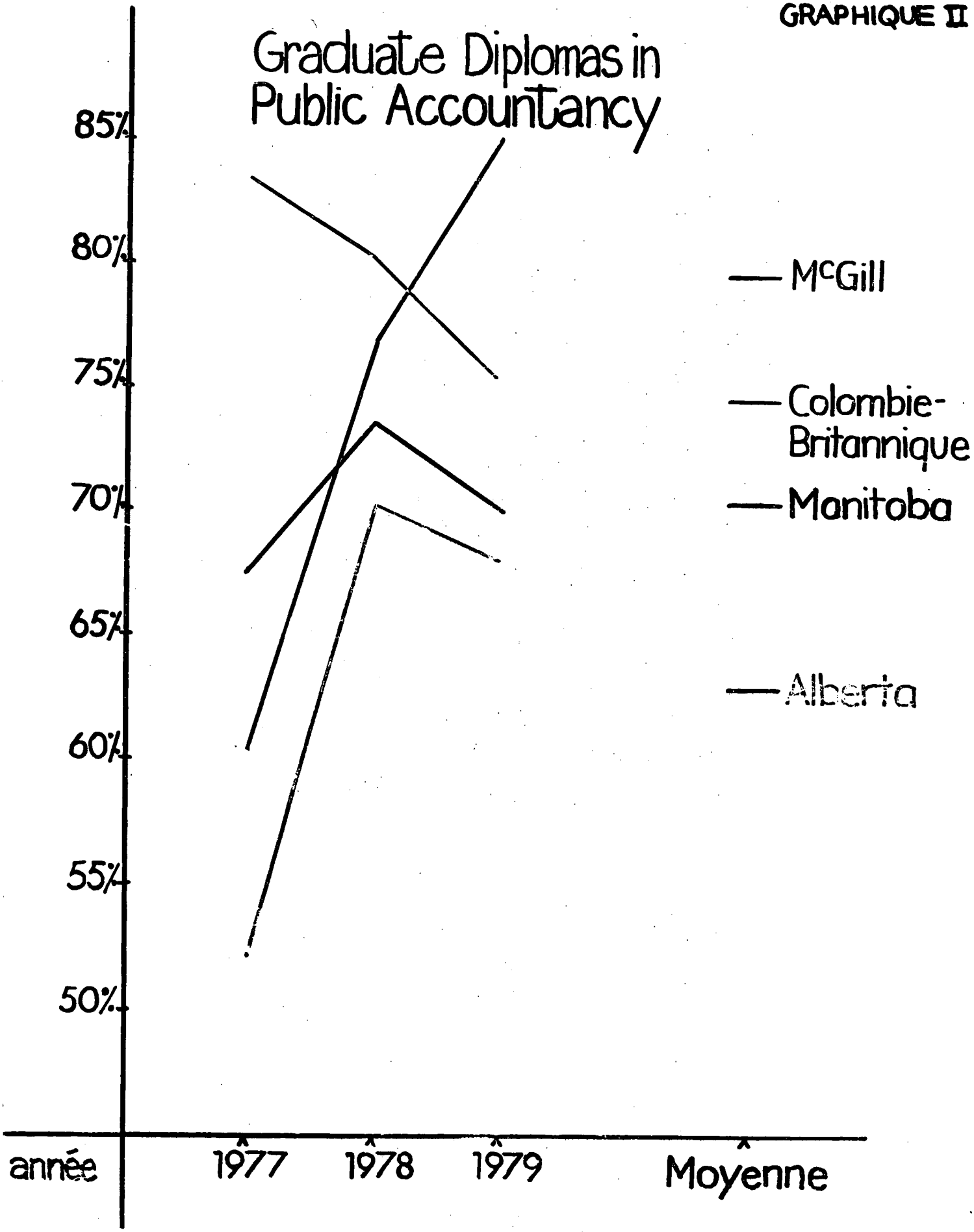
GRAPHIQUE I

Taux de succès à l'E.F.U.



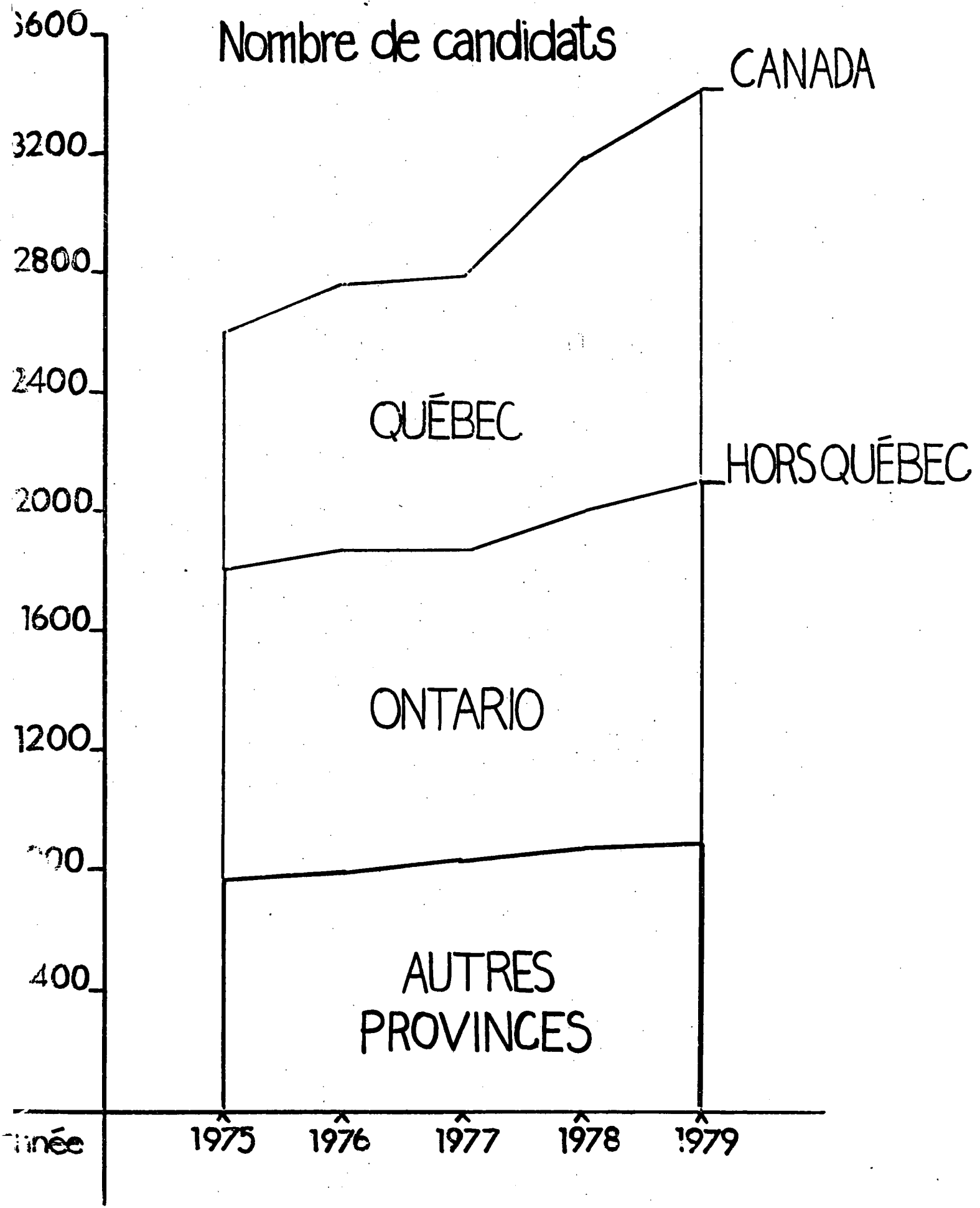
GRAPHIQUE II



Examen Final Uniforme

GRAPHIQUE III

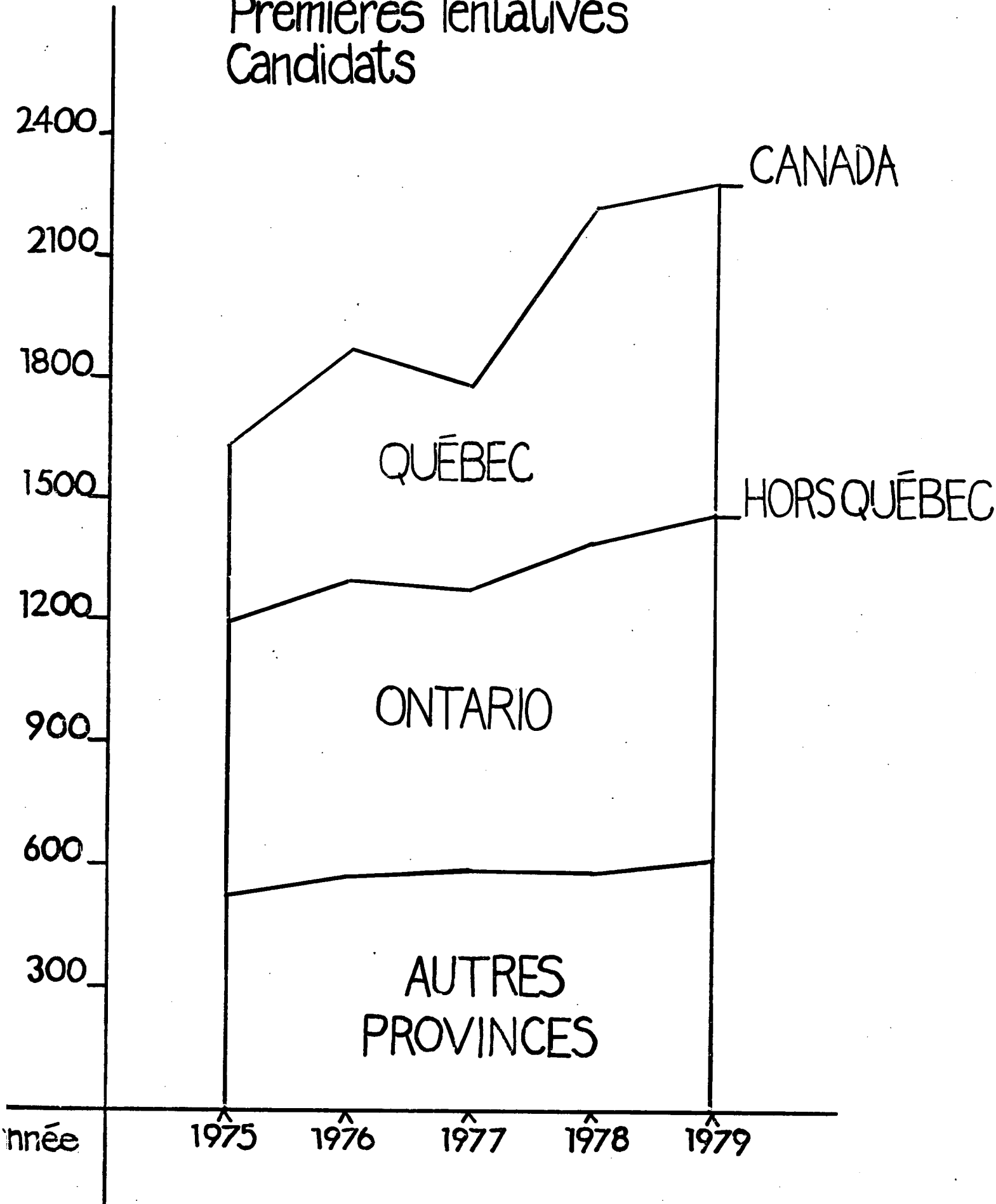
Nombre de candidats



Examen Final Uniforme

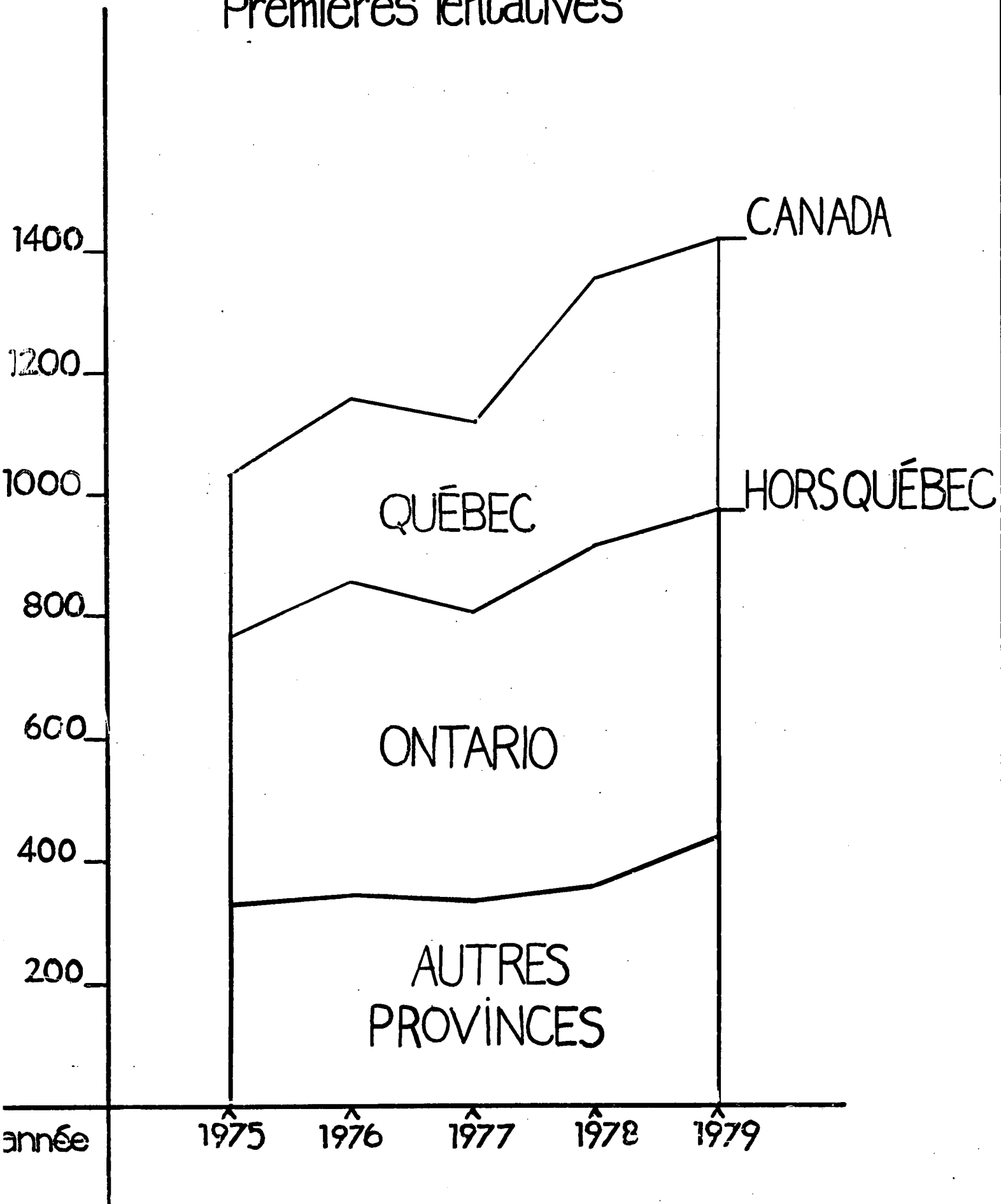
GRAPHIQUE IV

Premières Tentatives
Candidats

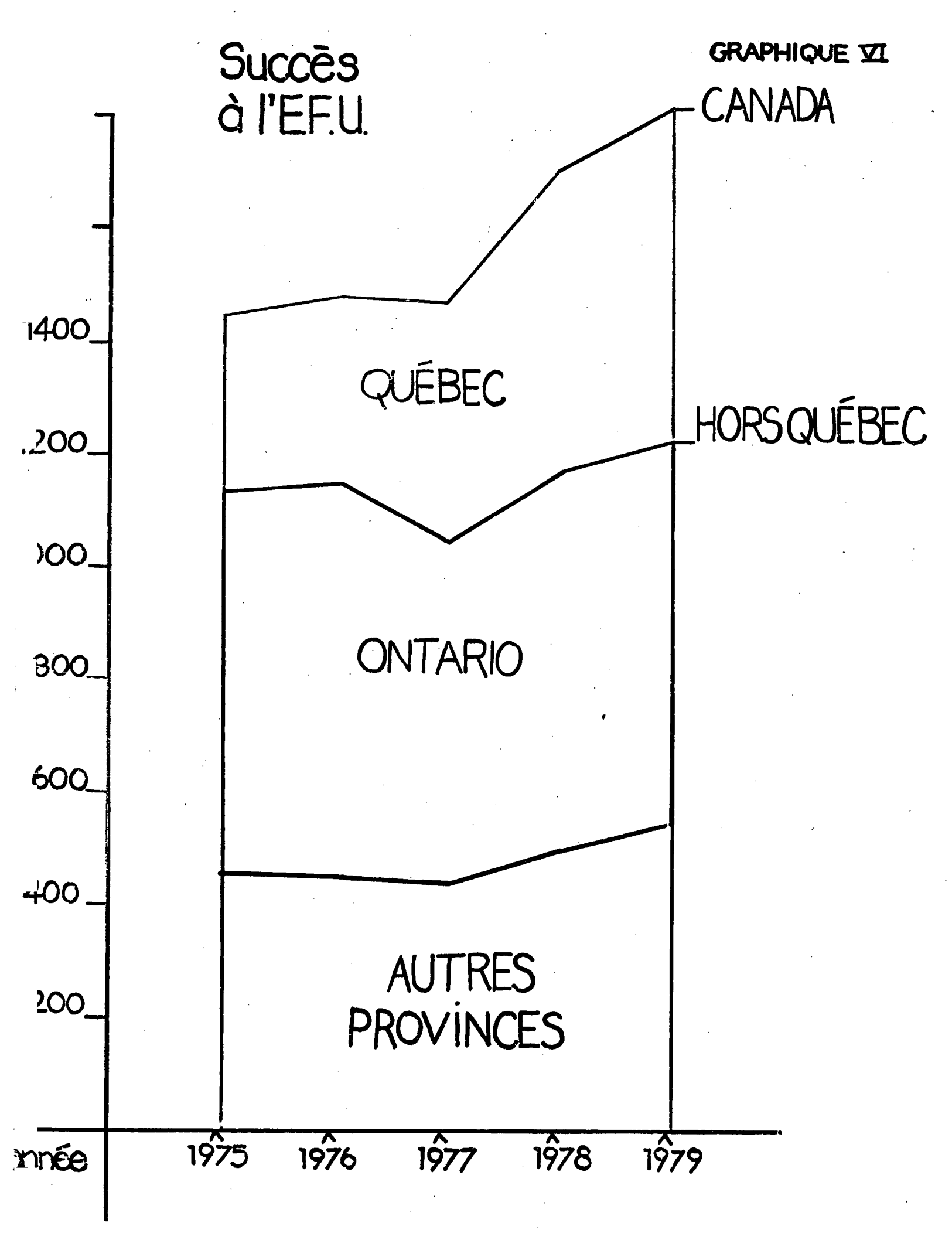


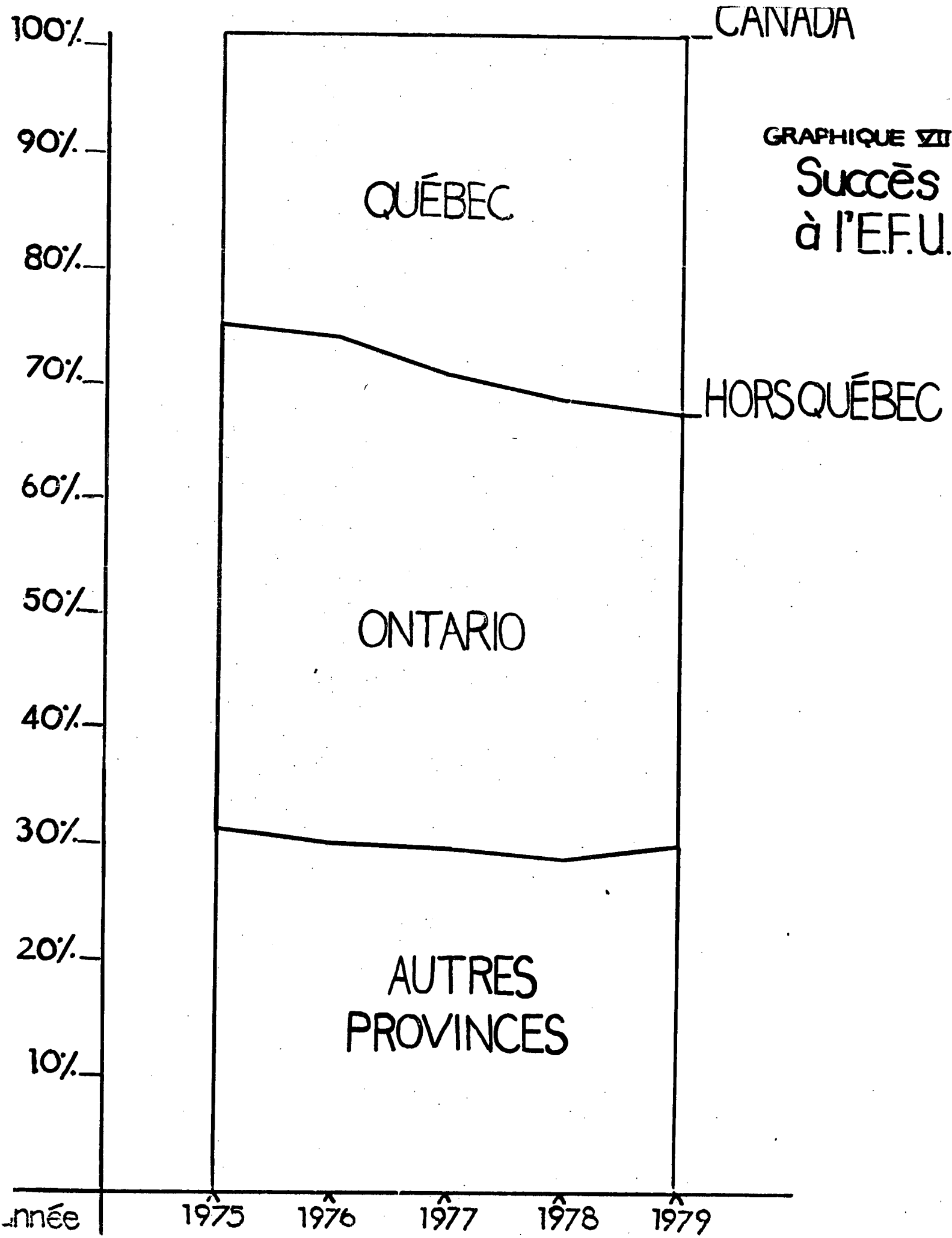
GRAPHIQUE V

Succès des Premières Tentatives



GRAPHIQUE VI



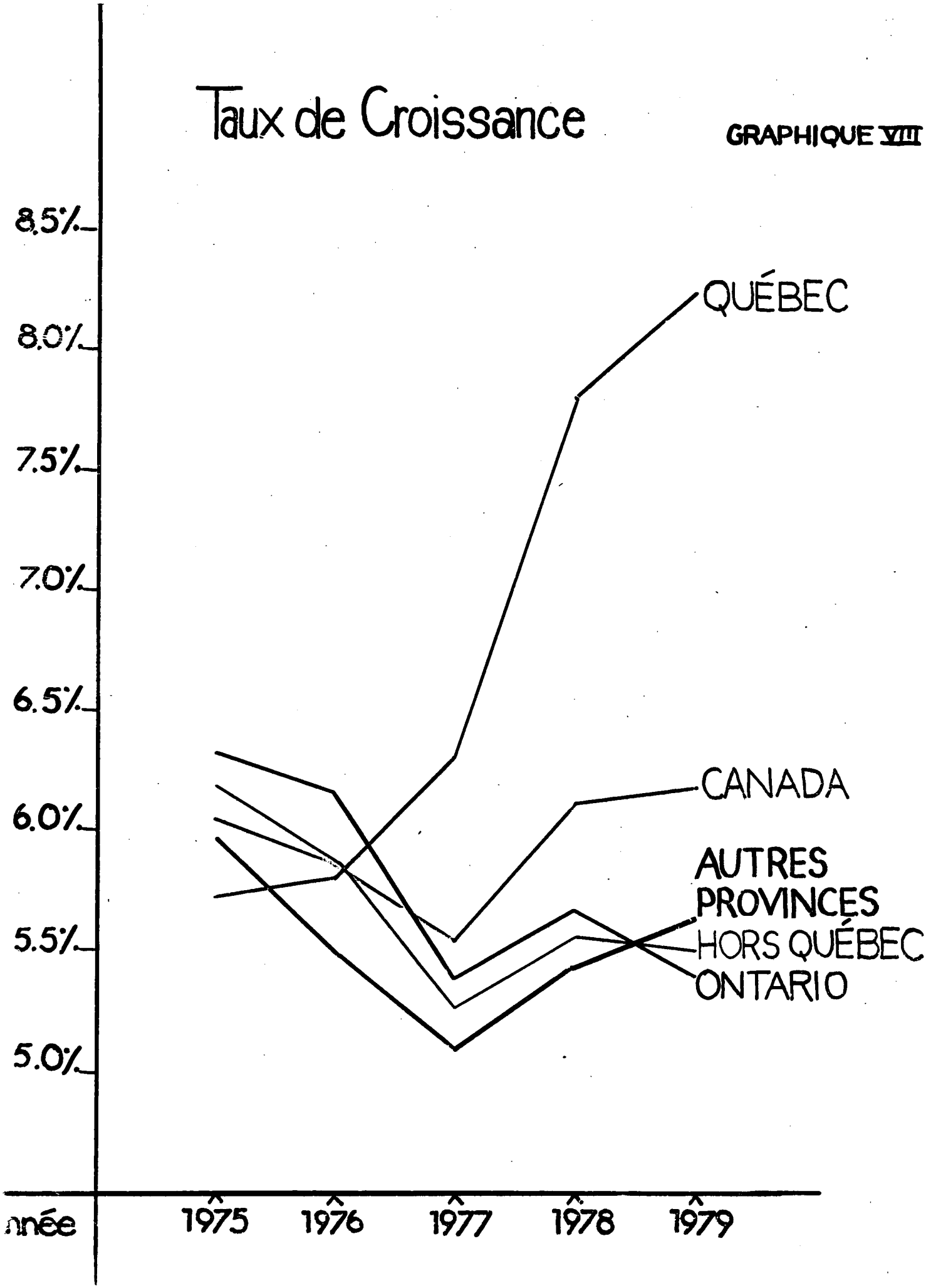


GRAPHIQUE VII

Succès à l'E.F.U.

Taux de Croissance

GRAPHIQUE VIII



CAAA 1980 Conference
Université du Québec à Mont
May 1980

David A. Hope
Faculty of Commerce
Saint Mary's University
Halifax, Nova Scotia

WHAT THE DATA TELLS ABOUT EDUCATION AND RESEARCH: IMPLICATIONS FOR EDUCATION, RECRUITING, PERSONNEL PRACTICES AND RESEARCH

Introduction

In 1978 I began to develop for the Atlantic Provinces Association of CA's a data file and system for analysing it which might provide better quality data for management of their system and for long-term planning. I will show you some of the facts about CA student education in Atlantic Canada that have come from this project. I cannot say which, if any, of the facts are relevant to other systems or organizations.

The few thoughts and facts I want to discuss are specific to the data base, as requested by the program chairman. To give them meaning, I must tell you briefly about the CA education system to which they related and how they were gathered.

APACA - The Organization

The Atlantic Provinces Association of CA'S (APACA) is an incorporated society the purpose of which is to provide pre-qualification education to CA students who are registered with the participating Institutes of New Brunswick, Newfoundland, Nova Scotia, Prince Edward Island and Bermuda. The provincial Institutes have retained responsibility for setting the experience requirement, the approval of offices for the training of students, and the administration of Uniform Final Examination (UFE) centres. APACA assesses the exemption position of new students; sets a course schedule for each student; develops, staffs and administers a variety of courses and seminars for students; and by examination assesses a student's academic progress toward being a CA.

APACA is under the direction of a 10 person board (two appointed by each of the five Institutes) and is run by a staff of 6 (full-time equivalents).

The APACA Program of Studies

APACA has analysed the UFE syllabus and concluded that as a minimum, a student must complete a certain number of courses in order to be recommended to write the UFE's. These courses have been defined to correspond with the dominant course patterns in Atlantic universities, and it is not the intention to dictate course content. The courses have been classified as pre-professional courses as shown in Exhibit 1. The pre-professional courses are readily available in undergraduate degree programs. The professional courses are those in which APACA expects a

degree of professional emphasis and about which APACA is more particular in granting exemptions.

Exhibit 1
APACA Courses

Pre-Professional or Undergraduate	Professional
Introductory Financial Accounting	Advanced Financial Accounting
Economics	Advanced Financial Accounting II
Management	Introductory Audit
Quantitative Methods	Advanced Audit
Commercial Law	Taxation - Part A
Introductory Management Accounting	- Part B
Intermediate Financial Accounting	Advanced Management Accounting
Finance	Advanced Current Topics
Management Information Systems	
(9 Courses)	(7 Courses)

APACA has a "no exemption" policy with respect to five of the professional courses - the last course in each of Financial Accounting, Management Accounting, Audit, and Taxation plus the capstone course called Advanced Current Topics which includes all four of these subject areas. Thus there is a five course program for all students which starts the summer before they are scheduled to write the UFE's and, with very few exceptions, at least one year after graduating from university. Other courses must be complete before starting this program. The time from university graduation to the start of this program permits a student to complete the other professional courses (Taxation A, Introductory Audit, Advanced Financial Accounting I), if necessary, and even make up a pre-professional course (such as Management Information Systems). Each course is described by a course syllabus.

Exhibit 2 shows the scheduling of the final five courses and also shows the time available in a two year program for other courses.

Exhibit 2
Professional Program

SS	F/W	SS	F/S	SS	SEPT.
		ADV MGMT ACC TAX-B	ADV AUD	ADV FIN ACC II ADV CURR TOPICS & CASES	
TIME TO COMPLETE OTHER COURSES WITHIN TWO YEARS		5-WEEKS CLASSROOM	HOME STUDY SEPT.-FEB.	5-WEEKS CLASSROOM	WRITE FINALS

APACA puts its emphasis on a professional program and encourages universities to do a good job of undergraduate education in general without the pressure to do the advanced technical and professional work in a manner required by one particular professional body. The universities participate in the professional level education by staffing and housing these courses, but the staffing is done using faculty from all of our geographically scattered universities and borrowing some from other parts of Canada.

The Project

The file is made up of a subfile for each calendar year composed of all students who registered with APACA in that year. This is possible in the system because students must register in order to have their term of service/experience/training recognized. Employers normally include APACA registration in their first-day-on-the-job procedures. The file that I will discuss today includes 607 students who registered with APACA during calendar years 1973, 1974, 1975 and 1976. The objective was to follow their progress through the system until they graduated as a CA, or left the system. Some, of course, have as yet done neither and remain students or repeating finalists. Thus this file is still active and changing.

These may seem to be old figures, but the 1977 registrants only began writing the Uniform Final Examinations in 1979, and no clear figures have yet emerged from that group. There is a fact of life in education: it takes time to see the result.

Most of the figures I will use are as of September 1979 (including the results of the 1979 UFE's). Others are as of September 1978 because I have not had the opportunity over the winter to incorporate the revisions into all the figures.

The registrations for these four years were reconstructed from provincial institute registration records and copies of regular reports informing CICA of the existence of new students.

I see merit in an analysis by year of registration which corresponds to the year of employment and in most cases with the year of graduation from university. This grouping has probably always made more sense to the universities and employers, and now APACA is finding that this approach to analysis is very useful in managing the CA educational system. Analysis of UFE results by year of writing has not been dropped, it is simply not the only analysis undertaken.

The 607 students were registered by year as shown in Exhibit 3.

Exhibit 3
Students Registered in 1973 to 1976

Year of Registration	Number Registered
1973	122
1974	141
1975	144
1976*	200
Total	607

* 1976 includes students registered that year in Newfoundland, the first year Newfoundland students were educated through APACA.

Analysis of Resignations

How Many Left?

Of the 607 registrants, 3.8% had left the system at the request of APACA by September 1979. That is, they had failed out by missing a course exam three times. That is the only way to fail out. However, 34.1% of them had left for other reasons. These figures by year of registration are shown in Exhibit 4.

Exhibit 4
Resignations and Failures Before UFE's
as Percents of Registrations
(to September 1979)

	% of Registrations				
	1973	1974	1975	1976	73-76
Resignations Before Writing UFE's	31.2	39.7	31.9	33.5	34.1
Failed Out	5.8	1.4	2.8	5.0	3.8
Total	37.0	41.1	34.7	38.5	37.9
Potential: Students Still in the System	0.8	2.1	2.1	17.5	6.9

When Did They Leave?

Exhibit 5 shows when they left. Note that the table shows only those who resigned and did so before writing the final exams. The percentages are complete except for the two year plus row for all columns, with even these figures close to final for 1973, 1974 and 1975. Those for whom there is no specific information usually resigned without taking a course, often before a file could be completed. Taking this into account, the resignation pattern is 12-15% in each of the first two years and another 6-9% after that.

Exhibit 5
Months from Registration to Resignation
(to September 1979)

Months	1973	1974	1975	1976	Total
0-6	3.3	4.2	7.7	2.5	4.3
7-12	5.7	5.7	4.9	9.0	6.6
13-18	6.6	10.6	6.9	5.0	7.1
19-24	6.6	5.7	2.1	8.0	5.7
25+	5.8	8.5	8.2	7.0	7.4
No Info	3.2	5.0	2.1	2.0	3.0
Total	31.2	39.7	31.9	33.5	34.1

Who Left - By University

The resignation rates varied considerably by university. Ten universities in Atlantic Canada accounted for the first degree of 86.4% of the registrants over the four years 1973-6. The resignation rates for these Atlantic universities varied from 12% to 50%. These variations are not yet adequately explained, but APACA now knows that they exist and each university is being informed of their rate and the average rate. Universities can take little consolation in reported UFE pass rates, number of their graduates initially employed, and recognition by the professional society of their course work if their graduates don't survive in the professional environment.

Who Left - By Degree

Exhibit 6 shows resignation rates by first degrees. Note the meaning of "accounting" in this table.

These figures are factual, but the meaning is not yet clear. Furthermore, the statistical significance of the variations has not been measured. It does appear, however, that the resignation rate is lower among the university graduates with a more rigorous quantitative background, not just among those who are socialized to accounting in their studies.

At the other end of the scale, non-acconting B Com's and BBA's leave in great numbers. Why? Are they taking accounting as a second choice in a tight job market? Are the employers unable to absorb a student who does

not have a developed quantitative skill? Are the employers recruiting mostly poorer quality non-accounting B Com's?

Exhibit 6
Resignation Rates by First Degree
(to September, 1978)

	Number of Registrants	% Resigned
Math/Computer Science	29	17.2
Accounting (1)	236	22.9
Economics	16	31.3
Science and Engineering	35	34.3
Humanities	24	37.5
Business (except ACC)	241	39.0
All other Registrants (2)	20	45.0
Information Missing	6	

(1) B.Com or BBA with three of:
- I) Introductory Managerial Accounting (6 hours)
- II) Intermediate Finncial Accounting (6 hours)
- III) Advanced Financial Accounting I (6 hours)
- IV) Introductory Auditing (3-6 hours)

(2) Nine of these were mature admissions without degrees.

Who Left - By Employer

The group of firms usually referred to as "the Nationals" had twenty-four offices operating in Atlantic Canada during 1973-76. Larger regional firms had about the same number of offices. The resignation rates for nine of the larger employers (firms) ranged from 15% to 40%. Again, the variation in resignation rates is great.

Summary

To sum up with respect to resignations:

1) The 34.1% pre-UFE resignation rate startled those involved with accounting education. Now that the fact of resignations has been established, the participants in the system can get down to the matter of what, if anything, to do about it.

2) APACA can really only measure and report at present. It is studying the possibility of more effective entry criteria.

3) Employers and universities may have the greatest leverage at present and with the aid of better data may be able to use it.

Analysis of UFE Performance

Richer Pass/Fail Statistics

A rich set of statistics can be calculated using as a population the students who started rather than just those who wrote the finals in a particular year.

The published statistics do not take into account those who resigned or failed out before writing the UFE's or those who resign after one or more attempts at the UFE's. Institute statistics report the percent of first-time writers (FTW) that pass and the percentage of all writers that pass. A pass rate for those repeating the exams can be calculated from the figures given. Some firms publicize passes as a % of an unexplained base.

Exhibit 7 shows the Institute's all-candidate figures for APACA and Canada, and FTW figures for APACA and Canada, for 1975 to 1979. The Canadian figures are somewhat familiar to most of you, but I would like you to note that the APACA pass percentages are close to the national average for all candidates, and for four of the last five years have been at or above the national pass rate for first-time writers.

Exhibit 7
Pass Rates for APACA and Canada
As Reported by the Provincial Institutes/Ordre

	% Pass				
	1975	1976	1977	1978	1979
All Candidates					
APACA	53	54	56	50	62
Canada	56	53	53	53	53
First-Time Writers					
APACA	63	70	69	54	72
Canada	63	62	63	61	62

In Exhibit 8, you can see in rows 1 and 2 a different perspective on the data. Note that the pass percentages include 1979 UFE results. Row 1 - passes as a percent of those who have written - says that 80% of the 1974 students and 77% of the 1975 students who got to write the finals passed them eventually. It looks as if a similar figure will emerge for 1976 registrations. The pass rate appears to be 75-80% for those who write. Another way to look at the pass rate is as a percent of all those who registered, thus incorporating resignations and fail-outs into the unsuccessful group. Row 2 of Exhibit 8 does this. The reported pass rates from the previous exhibit are reproduced for comparison. They are listed so as to be compared with the year most of the FTW started in the program.

Exhibit 8
APACA's UFE Pass Rates by Year of Registration
(to September 1979)

1. Passes as a % of those who have written the UFE's	72	80	77	72	
2. Passes as a % of all registrations	45	45	49	32	
And for comparison:					
3. Published pass rate -- all candidates	53('75)	54('76)	56('77)	50('78)	62('79)
4. Published pass rate -- first-time writers	63('75)	70('76)	69('77)	54('78)	72('79)

Exhibit 9 summarizes the data we have been looking at and provides the setting for the figures described on Exhibit 8 as "passes as a % of all registrations." Seventeen and one-half percent of the 1976 registrations have neither written the UFE's nor resigned, making that year's figures considerably less complete than those of the other years. Less than three percent of the 1973-75 registrations are in this position. Exhibit 10 drops 1976 and the actual numbers, and adds detail about the passes. It is easier to read. The dominant figure is the slowly increasing wash-through pass percentage (45.0 to 45.4 to 48.6), with the prospect of a slight further improvement in 1975's figure from repeating finalists. As time passes, the registrants now in rows 6 and 7, will move to rows 8, 9 and 10, with a few moving to row 5. The 1976 figures, though very incomplete, indicate that that trend will not hold, in spite of the fact that APACA's reported pass percentage on the UFE's has improved recently.

Exhibit 11 expands on the other way pass rates have been calculated; passes as a percentage of those who have written the UFE's. Row 5 shows the pass percentage, while rows 2 to 4 show rather clearly that only 12-15% of those who write the finals pass on attempts other than the first attempt. Again, while some repeating finalists will move up to row 5, especially from 1975 registrations, most will move to row 7 and become the final fail statistics.

Exhibit 9
Status of Registrations at September 1979
(for the years 1973, 1974, 1975, 1976)

	1973		1974		1975		1976	
	No	%	No	%	No	%	No	%
Completed UFE	55	45.0	64	45.4	70	48.6	63	31.5
Repeating Finalist	10	8.2	12	8.5	18	12.5	22	11.0
Current Student	1	0.8	3	2.1	3	2.1	35	17.5
Failed out on Courses	7	5.8	2	1.4	4	2.8	10	5.0
Resigned Before Writing UFE	38	31.2	56	39.7	46	31.9	67	33.5
Resigned After Writing UFE	11	9.0	4	2.9	3	2.1	2	1.0
Transferred out of APACA	0	—	0	—	0	—	1	0.5
Totals	122		141		144		200	

Exhibit 10
Status of Registrations at September, 1979
(for the years 1973, 1974, 1975)

		% of Registrations		
		1973	1974	1975
1.	Passed UFE - First Attempt	37.7	36.9	38.9
2.	- Second Attempt	4.1	7.8	7.6
3.	- Third Attempt	1.6	0.7	2.1
4.	- Fourth Attempt	1.6	0.0	NA(1)
5.	Total	45.0	45.4	48.6
6.	Repeating Finalist	8.2	8.5	12.5
7.	Current Student	0.8	2.1	2.1
8.	Failed out on Course Work	5.8	1.4	2.8
9.	Resigned after Writing UFE	31.2	39.7	31.9
10.	Resigned after Failing UFE	9.0	2.9	2.1
11.	Total Registrations	100.0	100.0	100.0

(1) Students registering in 1975 could have attempted the UFE's only three times before the end of September, 1979.

Exhibit 11
Status of Success of UFE Candidates to September, 1979
(for 1973-1975 registrations)

		% of UFE Candidates		
		1973	1974	1975
1.	Pass UFE - First Attempt	60.6	65.0	61.5
2.	- Second Attempt	6.5	13.7	12.1
3.	- Third Attempt	2.6	1.3	3.3
4.	- Fourth Attempt	2.6	0.0	NA(1)
5.	Total	72.3	80.0	76.9
6.	Repeating Finalist	13.2	15.0	19.8
9.	Resigned after Writing UFE	14.5	5.0	3.3
11.	Total of Those Who Attempted UFE's	100.0	100.0	100.0

(1) Students registering in 1975 could have attempted the UFE's only three times before the end of September, 1979.

Another way to demonstate the flaws in the simplistic reporting system now in place is to look at pass rates of those called repeaters. In 1979, the reported repeater pass rate for APACA of 47.8% (22/46). However, eighty-four were eligible to repeat the UFE's. Thirty-eight (45%) did not write in 1979, making the effective pass rate, as I read it, 26% (22/84). Unless we insist on the latter method, then one can improve one's results with repeaters by not allowing them to write (reducing the denominator) and doing nothing to educate the candidates.

A more complicated question than "how to improve the pass rate" now emerges: "How to improve educational effectiveness." The pass rates we now report can stimulate efforts to screen. A different perspective on the numbers can focus attention on entry standards and education of those who are accepted as students.

Revised Pass/Fail Statistics - By University and By Employer

To emphasize the importance of resignations to the statistics, two universities are compared in Exhibit 12. They have similar average reported pass rates for 1978 and 1979 (all candidates). These have been reasonably constant for both universities over the last 5 years. If you measure the wash-through pass rate for registrations from 1973 to 1976 (up to the 1978 UFE's), you see a dramatic change for University A from 50% to 39%, while University B moves from 52% to 56%. Note that the two schools each had 31% of the original registrations still in the system at the end of September 1978.

I am not suggesting that universities are responsible for the subsequent career choices of their graduates, but it is better that they know the full story on their graduates. There is currently a lot of false advertising and some of it is based on official statistics.

Exhibit 13 compares two employers, both with several offices. Again the reported pass rates of the firms is distorted by the resignations (or firings).

Exhibit 12
Two Universities Compared

	Univ A	Univ B
Average Reported Pass % in '78 & '79 (all candidates)	51	52
Passes as a % of 1973-76 Registrations (to September, 1978)	39	56
Current Students & Repeating Finalists As a % of 1973-76 Registrations (at September, 1978)	31	31

Exhibit 13
Two Employers Compared

	Employer X	Employer Y
Reported Pass % in '78 (All Candidates)	67	60
Passes as a % of 1973-76 Registrations (to September, 1978)	37	44
Current Students & Repeating Finalists as a % of 1973-76 Registrations (at September, 1978)	21	21

Analysis of Writers

Acknowledging that those who leave the system before writing the UFE's are a significant factor in any complete analysis, let me show you some facts about those who write the UFE's.

Who Passes - By Course Failures

Exhibit 14 shows passes as a percent of those who wrote grouped on the basis of the number of failures in required APACA courses. The pass rates are calculated for the '73-'76 registrations and for the 1979 first time writers, the latter providing the most recent measure of performance. The 1979 figures are lower for those with two or more failures but some of these students will pass on later attempts.

For students who have had no more than one course failure, the pass prospects have been better than 70% for some time, and in 1979 had reached 85%. Those who run the system should realize that 85% is respectable, and that they can start looking carefully at those who are not passing the APACA courses, and at those who are resigning, and at attracting more good candidates into the system.

Exhibit 14
UFE Pass Rates by APACA Course Failures

No. of Fails In APACA Courses	Passes as a % Of 1973-76 Registrants Who Have Written UFE'S (to September, 1978)	1979 FTW Pass Rate
0	83	86
1	71	84
2	52	38
3	53	29
4 or more	53	50 (1)

(1) Only four first time writers had 4 or more course failures

The same story is captured in Exhibit 15, this time using as a variable the difference between the expected or scheduled writing data at the time of registration and the actual first writing data. One failure would not delay a writing date; two failures would usually result in a one-year delay, etc. Thus, Exhibit 15 shows the relationship of pass rate to academic performance of APACA course work, and also the results of efforts to tighten the standards. All of these courses are subject area courses in accounting, auditing, and taxation; none of them have comprehensive exams that go beyond the syllabus of that course and none of them have a multi-subject syllabus. The one multi-subject course (Advanced Current Topics) has no pass requirement.

Exhibit 15
UFE Pass Rates by APACA Program Delays

Years of Delay In Writing Date	Passes as a % Of 1973-76 Registrants Who Have Written UFE's (to September, 1978)	1979 FTW Pass Rate
0	74	83
1	56	33
2 or more	33(1)	--(2)

(1) Only six candidates wrote after a delay of two or more years.
(2) Only one candidate wrote after a delay of two or more years.

The overall picture for those who get to write is not as bleak as most people think. B.Com's and BBA's - all majors - from Atlantic Universitites writing for the first time in 1979 had a 78% pass rate on the 1979 UFE's. The overall first time pass rate in APACA was 72%. Exhibits 14 and 15 confirm that those who can handle the course work (having survived as an employee) pass the UFE's in good numbers.

Concluding Comments

1. A large proportion of those hired by CA firms and registered by them as APACA students resign, for reasons not yet clearly understood, before getting into academic trouble in the educational program's exams. Fail-outs are a mere fraction of resignations. This situation requires attention if scarce resources are being wasted on those who cannot make it or if they occupy a training position such that they prevent others from becoming CA's. If neither of these occur, there is still a case of misrepresentation in holding out to these people the prospect of being a CA, one result of which is a poor image of CA education that may be discouraging some good prospective professionals. But, if the entry is restricted, what should be the entry standard? Is GPA adequate? Are there other qualities that can be assessed?

2. Pass/fail statistics are inadequately stated at present and misrepresent the facts. More attention must be given to performance measurement before passing judgement - good or bad - on universities, training offices, or professional programs. Education could be better managed with better data and less politics.

3. Data must not be used to punish prematurely. For example, a university that has believed it has had an "above average" pass rate and now finds out that was not so needs time to absorb this new information.

4. Finally, data give only quantitative information. And it does not create policy. It is best used as one input to policy formulation and performance review and adjustment. This is true in business and in education. Educational leaders and administrators must seek longer-term policy that is good, not a quick window dressing.

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P. D. Chant
Faculty of Management
McGill University
Montreal, Quebec

STATISTICAL TECHNIQUES AS ANALYTICAL REVIEW
A CRITICAL EXAMINATION

This paper critically examines the ability of statistical models to perform analytical review functions. Theoretical arguments as well as the results of an empirical test of the accuracy of alternative models are presented.

Introduction

The ability of regression, time-series, and other statistical methods to provide useful models of the behavior of accounting data has been widely recognized in the academic accounting literature. Accounting and auditing uses of regression models have been discussed by Benston (1966), Jensen (1967), Comiskey (1966), Deakin and Granof (1974), and Kinney and Bailey (1976), among others. Time series models, including the versatile ARIMA models of Box Jenkins (1976) have been employed as models of accounting data by Dopuch and Watts (1972), Brown and Rozeff (1978), (1979), Foster (1977), Albrecht, Lookabill and McKeown (1977), and Watts and Leftwich (1977). Econometric models of firms' accounting data have also been investigated by Elliott (1972) and Elliott and Uphoff (1972). This research has demonstrated (albeit with varying degrees of success) the ability of statistical techniques to model the behavior of firms' financial data.

An obvious practical accounting application for such models exists in the audit function, when audits require expectational or relational judgements by auditors about elements of financial statements. Specifically, the process of analytical review, which is defined as "studying and evaluating the interrelationships between elements of financial and other information" (CICA, 1973), is a logical location for statistical applications. The development of an on-line regression package to perform these functions has already been described by Stringer (1975), and is in operational use by Deloitte, Haskins and Sells. The potential application of ARIMA methods to analytical review has also been discussed in Kinney (1978), and in Albrecht and McKeown (1977). Clearly, there is great potential for regression and time series models in analytical auditing.

The principal issue to be discussed in this paper is the extent to which the aims of "statistical models", as a generic form, are consistent with the functions of auditing, or more particularly, analytical review. This question will be considered in two parts. The first deals with the theoretical relationship between statistical modelling and analytical review, a question which has been only briefly addressed by Stringer, and Kinney and Bailey. The second part deals with the practical aspects of applying models to analytical review. Here we provide a test of the ability of four alternative models to represent the behavior of several series of audited data. The results of the analyses and tests indicate that while statistical models may

have some use in analytical review, their use must be tempered by certain practical and theoretical limitations.

Operational Aspects of Statistical Models as Analytical Review Procedures

To propose that analytical review be made an objective statistical process (rather than a subjective process) requires that two assumptions be made concerning an auditor's decision process. These assumptions are:

(i) the auditor can objectively specify, in the form of a statistical model, conditional probability distribution functions relating audit variables to other sets of independent variables
(ii) the auditor's test of significance can be expressed in terms of a critical region or probabilistic significance level.

There are several means by which both these assumptions can be operationalized, some of which are more effective than others. For example, to specify a conditional probability distribution function (c.p.d.f.) in its entirety is obviously a fairly arduous task. A far simpler technique is to have the auditor define the form of the conditional p.d.f., and assume the necessary details to complete the p.d.f. Two simple forms that an auditor could specify are (i) a regression model between the dependent (audited) variable Y and independent variable X, such as

$$\begin{aligned} f(Y|X) &= \alpha + BX + \varepsilon \qquad \text{(univariate)} \\ &= AX + \varepsilon \qquad \text{(multivariate)} \end{aligned} \tag{1}$$

or (ii) a time series model,

$$\begin{aligned} f(Y|X) &= \psi(B)\varepsilon \qquad \text{(univariate)} \\ &= \sigma^{-1}(B)\omega(B)X \qquad \text{(transfer function)} \end{aligned} \tag{2}$$

where B is the backshift operator or lag operator, and ψ, σ and ω are polynomials (see Box and Jenkins (1976).

In order to complete the specification of the c.p.d.f., the simplest thing to do is to assume the distributional properties of the random variable ε, the only unspecified details. For example, by assuming the ε have

1. Zero mean $E(\varepsilon_i) = 0$ for all i
2. Homoscedasticity $Var(\varepsilon_i) = \sigma^2$ for all i
3. Independence $Cov(\varepsilon_i, \varepsilon_i) = 0$ for all $i \neq j$
4. Independence ε_i, X_j independent for all i, j
5. Normality $\tilde{\varepsilon} \sim N(0, \sigma^2)$

then the conditional probability distribution function f(Y|X) can be estimated for either type of model specified above, by relatively simple (least squares) methods. These estimators, under the given assumptions, have desirable properties: for the regression models they are the best linear unbiased estimators. (See Maddala (1977)).

It is necessary to recognize that the likelihood of these assumptions being true in many audit situations is not very high. When used on unaudited

data in a planning situation, several of the assumptions are in fact somewhat highly unlikely. For example, Kinney (1978) used a time series model of monthly gross revenues for an analytical review model of annual railroad revenues and found that the assumption of independent errors for his models was valid only in three of thirty cases. This could be partly attributed to the fact that with unaudited data, cutoff errors between months can produce inter-month correlated errors (Kinney, p. 51). Similarly, when using budgets or industry-wide figures as independent variables one can expect to find that (a) the errors are in proportion to the size of the variable, or (b) that the independent variables are themselves not error free (such as industry figures involving both public and private firms' data). Furthermore, it is not difficult to foresee that mergers and acquisitions may have an impact on the distribution of the error terms, if not on the conditional distribution itself.

Any deviation from these assumptions has a serious effect on the estimators. In most cases, the unbiased estimation of the variance of the residual error term is destroyed. This results in a biased test of the significance of any deviation from the mean value (of zero) -- and thus an inappropriate test of the hypothesis implicit in analytical review. It is extremely dangerous, therefore, to assume the necessary conditions for least squares in the ordinary audit environment.

There is theoretically only one alternative to the above dilemma. This is to restrict the application to those circumstances where the requisite assumptions are more likely to hold, such as those circumstances involving audited figures. Statistical analytical review should be applied conscienciously only on data that are considered relatively error-free.

Many of the problems involved in operationalizing the first assumption apply as well to the second assumption that the auditor be able to choose a specific quantitative meaning of significance. GAAS do not specify a mathematical statement of what is sufficient audit evidence nor does SAS 23 (AICPA, 1978) define the meaning of unexpected or unusual events in quantifiable terms. To translate the qualitative terms into a consistent quantitative expression is a difficult task. Assuming auditors can specify for themselves an acceptable confidence levels, two or more auditors will not necessarily agree on the confidence intervals that convey "reasonable certainty". (See Chesley (1978)).

It should be pointed out that classically speaking there is no real need to specify assumption (ii) in terms of percentages. For example, Hogg and Craig (1978, p. 239) specify a "critical region" merely as a specified "subset of the sample space". Thus, for example, one could specify the critical region of the sample space to be that space in which the absolute error in expectation ($|Y^o - f(Y|X^o)|$) is greater than ten percent of some normalized net income number (see Kinney (1979, p. 154). However, the reason for using statistical techniques in this situation seems somewhat confused as no probability statement can be attached to a critical region which is itself a random variable. The benefit of the formal approach to analytical review is that it relies upon an objective statement of probability. In essence, the problem of "materiality" occurs in any attempt to employ objective analytical review techniques.

A reasonable solution in this case may be to employ a definition of significance which would have some consistent statistical meaning such as

5% or 2% significance test. If employed when the probability assumptions of the model are satisfied - as in post-audit analytical review - it would seem to have unambiguous meaning.

To summarize, the operational problems encountered in using statistical test are roughly two-fold. First, in order to develop reasonably probability distribution functions, there are two choices (i) assume polite p.d.f.'s exist, and ignore the consequences, or (ii) restrict the use of statistical analytical review to those cases in which polite p.d.f.'s are reasonably expected to exist. Second, in order to obtain consistent interpretations of significance, there are also two choices (i) allow the auditor to interpret the statistical meaning of significance on an individual basis, or (ii) establish a standard level of statistical significance which is not dependent of the context. It is reasonably clear that in both cases if statistical analytical review is to have any objective reliability, the second alternative must be chosen. Otherwise, the situation would involve using faulty estimators of probability distribution function parameters to make decisions about levels of significance which are themselves random variables. This would be inappropriate.

A Limited Test of Regression and Time Series Analysis as Analytical Review Techniques

To investigate the difficulties involved in applying statistical models in analytical review, a limited test was performed on a random sample of one (1) firm's data. The results are only preliminary, and are presently being expanded to cover the wider sample of firms' data. As no measures of variance of the estimates are currently available, the tests are conducted on a basis of the relative accuracy of forecasts, rather than in terms of a statistical or probabilistic measure of significance. Furthermore, there are no comparative results available using either standard analytical review techniques, or subjective probability distributions, to allow a competitive appraisal, although this is planned.

The following tests are designed to assess the abilities of increasingly complex techniques to model relatively noisy data. The hypothesis being investigated is that the more complex the statistical technique, the less representative the technique will be in modelling the behavior of a financial time series of a firm. The rationale for this hypothesis, as outlined in the previous sections, is that the more complex the assumptions of the statistical model, the less "noise" it can absorb before producing forecasts or expectations which are inconsistent with the underlying process. Thus, we should expect that simple regression methods should outperform multiple regression methods under noisy data, and that simple moving average (smoothing) models should outperform more complex ARIMA models. Essentially, the hypothesis is that the adequacy of any model will be in inverse proportion to the number or complexity of the assumptions necessary to "validate" its application.

To test this hypothesis, four alternative models are proposed for three different time series of a firm. These models are:

(i) A multiple regression model, employing up to four variables per model.
(ii) A stepwise regression model, employing a subset of the variables employed in (i)
(iii) An exponential smoothing time series model
(iv) A Box-Jenkins ARIMA model.

The multiple and stepwise regression models are used because they are commonly found in both the professional (Stringer (1975)) and academic (Elliot (1972)) literature on financial modelling. In fact, the models employed are similar to those used in Elliott and Uphoff (1972). ARIMA models are used because of their popularity in the academic literature, both as models of time series (see Foster (1978)) and as candidates for use in analytical review (Kinney (1978)). Exponential smoothing is employed because it is a simple version of an ARIMA model (See Brown (1963)). Thus, for both regression and time series models, a relatively complex and simple model are used in this test.

The sample firm to which the models are applied is Carling-O'Keefe Breweries Ltd. This company is chosen because (i) it is in the same industry as Elliot and Uphoff's sample firms, (ii) it has over thirty years' data available (from 1945-1975), and (iii) it is Canadian. The financial series chosen for modelling are the reported (audited) values for (i) net sales (NS) (ii) total operating costs (TOC), and (iii) interest expense (IE). These data were chosen mainly because they were consistently available across the sample period, and because they were audited.

To test the hypothesis as specified, the ARIMA, smoothing and regression models were fitted to 25 years' audited data covering 1945-1969. The parameters of these fittings were then used to forecast the behavior of the variables on a one-step ahead basis over the next five years. These data are known to have certain properties which will variously affect attempts to model their behavior. Since the data which are used are audited, it can be assumed that there are no errors in observation, i.e. inappropriate cutoff, etc. Similarly, we can assume that the data passed some sort of analytical review process. However, other assumptions that cannot be made are (i) that there are no mergers and acquisitions or (ii) that there are no changes in accounting policy. There were many of both. Thus, this is a test of the robustness of alternative models as much as it is a test of implicit accuracy. Clearly, we should expect those models with the less complex assumptions to be more robust.

The use of regression models requires the specification of a regression equation. Revenue and expense variables (sales, operating costs) have been chosen for analysis because they are primarily audited by compliance tests rather than substantive tests. Thus, we can develop regression models of compliance-tested variables based on substantively-tested and other variables to reduce the chances of errors in the independent variables. The regression models are:

1. NS = f(AR, POP, NOS, NSL, TP)
2. TOC = f(NS, NOS, AP)
3. IE = f(NSL, CL, LTD, IR)

where
- AR = accounts receivable year-end balance
- NOS = number of subsidiaries
- POP = % increase in population (est'd)
- NSL = net sales, lagged
- TP = total beer production (gallons)
- AP = accounts payable
- CL = cash position lagged
- LTD = long term debt
- IR = average annual commercial loan rate for year.

It should be noted that time as an independent variable was excluded even though high trend effects (r^2 of .81 to .95) were detected among many of the independent variables. This means that spurious correlations may occur in the estimation results, but the forecasts or predictions may be aided by the implicit use of a time variable.

To compute the less complex regression forecasts, multiple regression is used on all variables in a first pass. Then stepwise regression is applied to select a restricted list of variables, excluding those that do not make a significant reduction in the marginal error sum of squares in estimation. Results from the estimation, both multiple and stepwise, are summarized in Table 1. Note that for net sales only endogeneous variables are included in the stepwise regression. For interest expense the exogeneous interest rate is included. Also note that no simple model seems to perform well for operating costs.

The time series models applied are linear exponential smoothing, and ARIMA methods. The exponential smoothing model is estimated by minimizing the fitting errors for various α's over the previous twenty-five observations. For ARIMA models, inspection of autocorrelation functions and partial autocorrelation functions leads to the identification of a model which involves both moving average and autocorrelation parameters. In the present case, the behavior of sales, operating costs and interest expense leads to the identification of all three times series as ARIMA (1, 2, 1) models. This suggests that second differences are stationary for all series (i.e. the basic series exhibit growth at an increasing rate for 1945-1970).

The important results are those concerning the expectations each model generates. These results are in Table 2, for mean absolute percentage forecast error. Looking at the forecast error results, it appears that the statistical processes governing the 1970's financial results were not the same as those of the preceding years. Both the regression models and the time series models consistently overestimate almost every variable for each year of the forecast period.

The results show that for two out of the three variables, a relatively simple stepwise regression model generated the best (smallest error) forecasts. More importantly, in no case did the complex ARIMA model outperform the other three models. It is true that the stepwise model performs poorly for interest expenses. But for the two major variables, sales and operating costs, there is a relatively clear indication that the simpler models do better. This can also be seen in the comparative smoothing/ARIMA results, in which simple smoothing outperforms (by a factor of two) the complex ARIMA models for all but interest expense.

These results permit some tentative conclusions to be drawn concerning the ability of statistical models to contribute to analytical review. The first concerns the general validity of Kinney's (1978) results on the superiority of ARIMA over regression models in analytical review. In that paper Kinney concluded (p. 60) "we find models with the greatest information requirements and computation effort are superior in predictive power". This conclusion is obviously in contradiction to the hypothesis of this paper, and to the present results. To a certain extent, these contradictory findings can be reconciled by considering the differences in data (Kinney only used monthly sales data for a homogeneous sample of six Southwest U.S. railroads), and

Table 1

Summary Results of Regressions

Sales	AR	NOS	POP	NSL	TP	R^2	D.W.
Stepwise Regression Coefficients	6.5888			0.3267		0.8575	2.2311 (N)
t-statistics	4.3380			2.1620			
Multiple Regression Coefficients	8.6093	0.0343	19.6042	0.3452	-0.2103	0.8689	2.4408 (I)
t-statistics	2.8140	0.0210	1.1140	1.6280	-0.4980		

Oper. Costs	NS	NOS	AP	R^2	D.W.
Multiple Stepwise Regression Coefficients	0.4072	3.6216	2.5539	0.9409	1.6637 (N)
t-statistics	3.9010	3.534	3.4910		

Int. Exp.	NSL	CL	LTD	IR	R^2	D.W.
Stepwise Regression Coefficients			0.0338	0.2920	0.8817	1.1921 (I)
t-statistics			6.3740	3.4990		
Multiple Regression Coefficients	-0.0308	0.0195	0.0375	0.2108	0.8891	1.3376 (I)
t-statistics	-0.5430	1.1990	4.5800	1.6620		

N.B. Constant terms are not shown in the table

R^2 = coefficient of multiple determination
D.W. = Durbin Watson statistic
I = indifference region
N = no autocorrelation
Level of significance = 0.05
25 observations

Table 2

Percentage Forecasting Error

		Stepwise Regression	Multiple Regression	Exponential Smoothing (Linear model)	Box Jenkins ARIMA (1, 2, 1)
Net Sales:	1971	- 8.04	13.89	-13.81	-20.40
	1972	0.03	- 4.37	-12.06	-27.39
	1973	- 3.71	- 7.94	-10.01	-27.45
	1974	- 5.96	-10.88	- 6.89	-28.45
	1975	-12.02	-21.26	5.98	-15.45
Average Absolute % Forecasting Error:		5.95	11.67	9.75	23.83
Total Oper. Costs:	1971	- 7.92	- 7.92	-11.08	-17.71
	1972	- 7.54	- 7.54	- 5.70	-21.56
	1973	- 5.64	- 5.64	3.97	-17.77
	1974	- 2.85	- 2.85	3.81	-15.48
	1975	1.89	1.89	12.04	- 4.98
Average Absolute % Forecasting Error:		5.17	5.17	7.32	15.50
Interest Expenses:	1971	-20.51	- 6.03	- 1.60	-12.91
	1972	-39.56	-26.13	-13.02	-41.55
	1973	-14.73	0.30	40.46	4.92
	1974	-14.33	10.37	15.73	11.31
	1975	10.39	18.76	- 8.68	3.68
Average Absolute % Forecasting Error:		19.90	12.32	15.90	14.87

models (Kinney used only a single-variable regression alternative to ARIMA). At the same time, a great deal of faith can not be put in our one-firm sample results nor our limited amount of data for estimating the ARIMA parameters. However, it would seem the more complex models did not perform well in the noisy situation used in this experiment. Given the fact that the data were audited, this would seem to have even greater implications for the use of statistical models with unaudited data in even less homogeneous environments.

The preliminary results of this paper indicate that there are some problems using complex statistical models to formulate the expectations implicit in analytical review. The more complex models performed well for only one out of the three variables, namely interest expense. However, it is also clear that a sample composed of one firm's data is insufficient for general conclusions.

Summary and Conclusions

This paper has examined the theoretical and operational aspects involved in employing statistical models in analytical review situations. It has shown that in order to convert the analytical review decision into an hypothesis test, it is necessary to make several assumptions that are difficult to operationalize. A limited test of four alternative statistical models on three variables of one firm over five years indicated that the more complex models performed less well on average than the simple models. The prognosis for statistical models employed with unaudited data is thus considered unfavorable.

The implications of these results for the audit use of statistical models are three-fold. First, such models should only be used in conjunction with an objective assessment of the validity of the model's assumptions. Second, they are best used not as direct evidence, but in a personal probability revision technique, as in Scott (1973) or Chesley and Heimann (1977). Finally, more work needs to be done on the use of less structured models for data analysis. For example, Tukey's Exploratory Data Analysis (1978) can probably generate more insights than the classical statistical models employed in academic and professional practice at present.

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Charles Dirksen
Dalhousie University
Milton C. Chew, Jr.
Saint Mary's University

DEFERRED TAXES - CHANGES OVER TIME

In order to encourage firms to make capital expenditures, the U.S. government permits them to write-off the cost of their capital assets faster for tax purposes than for financial statement purposes. This means that in any given year a firm may report one income figure to the government and another figure to its stockholders. The realization of this fact gives rise to the question: should the amount of tax expense reported to stockholders be based on the amount of money due government in the current period or should it be based on the amount of income reported to stockholders?

In 1967, the U.S. accounting profession concluded that the tax expense reported to stockholders should be based on the income reported to stockholders and not the income reported to the government. In effect, what Accounting Principles Board Opinion 11 said was that interperiod tax allocations were required. The amount of taxes owed the government establishes the amount of taxes payable; the amount of taxes that would be owed the government if the firm followed the same acounting principles in reporting to government that it used in reporting to stockholders determines the amount of tax expense. The difference between tax expense and tax payable is deferred taxes.

Since then a number of interpretations and clarifying opinions were issued which have reaffirmed that position. However, some developments also have occurred which appear to have undermined the general principle of tax allocation by allowing firms considerable discretion in determining the amount of tax expense they report. Nonetheless, the principle has not been revoked.

Brief Review of the Literature

Studies on deferred taxes in both the United States and Canada have generally concluded that reduction in deferred income taxes tended to be small in amount and infrequent in occurrence. One of the most comprehensive U.S. studies in support of this general conclusion was conducted by Price Waterhouse in 1967. Cawsey, et. al. looked at deferred taxes reported by Canadian firms between 1958 and 1967 and drew similar conclusions. The only exception is an article in the Journal of Accountancy (Herring and Jacobs, 1976), which concludes that deferred income taxes increased for about half of the firms examined and decreased for the other half. However, the authors appear to have mistakenly analyzed change in long-term debt rather than changes in deferred taxes. (See Davidson, et. al., 1977 and Lantz, et. al., 1977.)

In addition to the empirical work cited above, models have been developed by some U.S. authors which indicate that deferred taxes will grow over time. Davidson, in his classic article on deferred taxes, set forth a number of rather simple models which demonstrate this point quite clearly. Livingstone (1967, 1969) developed a more sophisticated model which demonstrated that given the historical capital expenditure pattern of U.S. utility companies, deferred taxes would accumulate over time.

The majority of the work done to date on deferred income taxes uses logical reasoning and/or hypothetical models to reach conclusions. It is based to a great extent on the examination of the deferred tax data of many firms within each of a number of years. None of the literature looks empirically at what happens to deferred income taxes within individual firms over a period of years. In this paper, we examine, the deferred tax data of U.S. firms to determine the extent to which the deferred taxes of individual firms are tending to increase over time. In addition, we examine a number of financial statement items such as depreciation and capital expenditures to determine the extent to which they influence the amount to deferred taxes.

Sample Selection

Since our investigations were primarily exploratory in nature, we selected a sample of U.S. firms from the 1979 COMPUSTAT according to several criteria. First, since we initially considered examining the effect of a firm's industrial classification on its deferred tax pattern, we restricted our attention primarily to industries represented by 25 or more firms.

From among the companies in the selected industries, we considered only those that had reported the following data items on the COMPUSTAT tapes for the years 1967 to 1978 inclusive: accumulated deferred taxes, assets, gross plant, depreciation, sales, taxes, and capital expenditures. All data items other than accumlated deferred taxes represent the items from the balance sheet and income statement that we intended to examine as possible explanatory variables affecting yearly changes in deferred taxes.

Since APB Opinion 11 was written in 1967 we limited our study to the period 1967 through 1978. We arbitrarily eliminated those firms with zero accumulated deferred taxes in either all of the first four years of that period (1967 through 1970), or all of the last four years in the way their deferred taxes were reported on the COMPUSTAT tapes.

Although the majority of the firms used only the straight-line method, we further eliminated those firms that used accelerated depreciation or both accelerated and straight-line methods on their financial statements. The result of the screening process yielded a sample of nearly 400 firms from among 39 different industries.

The firms selected seem to be reasonably representative of all the firms on the COMPUSTAT tapes in regard to accumulated deferred taxes. In letters to the Journal of Accountancy, Davidson, et al., (1977) and

Lantz, et. al., (1977) looked at all firms on the COMPUSTAT tape which reported accumulated deferred taxes between 1954 and 1974. They found reversals in deferred taxes in about 20% of the cases. Similarly, in our sample about 20% of the firms reported deferred tax reversals. The percentage of reversals in any given year was about the same for both our data and their data. In addition, the basic ratio of deferred tax increases to deferred tax decreases follows the same general pattern in our data as it does in Lantz, et. al. However, it should be noted that this ratio was consistently higher for our data than for theirs, probably because the firms we rejected, i.e., those which used accelerated depreciation for some of their assets, had smaller deferred tax increases than did those which used only straight-line depreciation.

Methodology and Results: Phase I

The analysis of our data was carried out in two phases. The first phase was devoted to studying the behaviour of accumulated deferred taxes (ADT) over time for each of the firms in our sample. In effect, ADT was viewed simply as a time series over the twelve-year period from 1967 to 1978. Since ADT are yearly data, only twelve data points were available. This limitation, of course, makes it difficult to do even relatively simple time analysis. We did, however, attempt to fit variations of a simple linear regression model, such as the following, to the data:

$$y = \quad + \quad t + \quad ,$$

where y is ADT, or some variant of ADT, t is years from 1967 to 1978, and is random error.

A fair number of firms in our sample showed very strong exponential or quadratic relationships between ADT and time. In a number of instances, it was difficult to identify the "best" fit, or pattern. Since not one, or even several, typical patterns were evident among all firms in our sample, we decided against further refinement and classification of ADT patterns over time. The major shortcoming here was, of course, the length of the data record.

Instead, we felt it would be of some interest simply to determine the number of firms for which accumulated deferred taxes showed a significant linear trend over time. (The level of significance used here and throughout the remainder of our analyses is 5%.) The results are shown in Table I, indicating in particular that for nearly 80% of the firms, ADT is significantly tending to increase over the years. Even when ADT is scaled by total assets, approximately 50% of the firms showed significantly increasing trends over time.

Table I

Accumulated Deferred Tax (ADT) vs. Time

	Number of firms with significant positive trend	Number of firms with significant negative trend	Positive as percent of significant trends	Total number of firms with significant trends	Percent of firms with significant trends
ADT vs time	299	17	95%	316	80%
ADT/Assets vs time	197	51	79%	248	63%

The figures in Table I suggest that deferred taxes are growing, and in fact are growing as a percentage of total equities.

Methodology and Results: Phase II

An ultimate, and no doubt optimistic, objective that we hoped our current research might lead to was the development of empirical models that could serve as valid and reliable predictors for deferred taxes.

For a randomly selected subsample of 30 firms, we used step-wise regression procedures from the Statistial Package for the Social Sciences (SPSS) to study the yearly changes in deferred taxes as explained by such items as: time, capital expenditures, change in gross plant, sales, taxes, and depreciation. These factors were included as variables both scaled and unscaled and also lagged up to two periods. In the step-wise regression runs, five of the items-depreciation, sales, taxes, change in plant, and change in plant lagged one period - were frequently selected as explanatory variables. Each of the these five items, along with time, was then used as the independent variable in a simple linear regression model with change in accumulated deferred taxes (ADT) as the dependent varialbe. Thus, six different models were fitted to the data for each of the 396 firms in our screened sample. The number of cases for which each of the six variables explained a significant amount of the variability in ADT is given in Table II below.

Table II

Yearly Change in Accumulated Deferred Tax vs. Explanators

	No. of firms with sign. pos. relation	No. of firms with sign. neg. relation	Pos. as % of sign. relation	Tot. # of firms with sign. rel.	% of firms with sign. relation
Depreciation	78	29	73%	107	27%
Sales	87	17	84%	104	26%
Taxes	118	15	89%	133	36%
Plant	94	32	75%	126	32%
Plant (lagged)	67	18	79%	85	21%
Time	73	19	79%	92	23%

In approximately 63% of all cases, one or more of the five variables other than time accounted for a statistically significant amount of the variation in accumulated deferred taxes. As indicated in the table, the two best explanatory variables were taxes and change in plant. One observation worth mentioning is that for all but two of the 73 firms for which time was positively related to ADT, there was at least one other variable to significantly related to ADT. The possibility then of using selected items on a firm's financial statement to develop a prediction model for deferred taxes thus appears to show some promise.

Concluding Remarks

We have examined the patterns and trends of deferred taxes for a large sample of individual U.S. firms. For an overwhelming majority of the firms, a significantly increasing trend in accumulated deferred taxes was observed. This is not inconsistent with previous authors who found reversals in deferred taxes to be small in amount and infrequent in occurence . Such observations suggest that there is no need to report deferred taxes on financial statements, and that the reporting policy initially set forth in APB Opinion 11 should be rescinded. However, four percent of the firms in our sample showed significant downward trends in accumulated deferred taxes over the twelve year period studied. And until the reasons behind such decreases are understood, as well as the extent to which they are associated with actual paybacks to the government, it seems premature to argue for removal of deferred tax reporting requirements.

Further we observed that for a majority of firms in our sample, one of five simple linear equations was able to explain a significant amount of the change in deferred taxes. This suggests that deferred taxes may be caused by underlying economic factors, and the effects of such factors should probably be reported in financial statements.

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Vasant Raval
Faculty of Business Administration
University of Windsor
Windsor, Ontario
and
Kwong Yan Tsang

RELATIONSHIP BETWEEN METHOD OF ACCOUNTING FOR PREDISCOVERY COSTS AND CERTAIN OTHER VARIABLES IN THE PETROLEUM INDUSTRY

This paper presents the results of a survey of Canadian oil companies. The survey was designed to investigate relationships, if any, between method used for accounting for prediscovery costs and size, leverage, age, and the fact that the company is a subsidiary of a U.S. company. The results reveal that size was unrelated to the choice of a method to account for prediscovery costs whereas age and financial leverage were related to method used. Specifically, full-cost companies are younger, and carry a higher long-term debt to equity ratio. Finally, more of the sampled U.S. subsidiaries in Canada use the successful-efforts method.

Introduction

The basis for providing for accounting alternatives has come under scrutiny by accountants, public bodies, and business entities. The trend is towards elimination of alternative accounting methods if relevant facts and circumstances surrounding the transaction are essentially similar. If significant differences exist, these might justify continued use of alternative methods.

Subsequent to the issuance of Financial Accounting Standards Board Statement 19 requiring the use of successful-efforts accounting in the oil and gas industry, the full-cost companies in the United States (U.S.) argued that there are significant differences between companies using each accounting method and that these differences would justify continued use of both full-cost and successful-efforts methods (Deakin, 1979). On the basis of the testimony before the Securities and Exchange Commission and the U.S. Department of Energy, Deakin (1979) derived four factors which were considered to be dimensions for the differentiation between nonmajor full-cost and nonmajor successful-efforts companies. These factors are: (1) aggressiveness in exploration, (2) the need for external capital, (3) size, and (4) age.

Given such assertions regarding differences along several dimensions, one useful step would be to gather empirical evidence to ascertain their validity. As Deakin suggests, "the results should be viewed as possible inputs to policy makers' decision processes, and not as policy conclusions" (1979, p. 723). The purpose of this paper is to discuss an empirical investigation of three of the four factors derived by Deakin: size, the need for external capital, and age. In addition, the paper presents an evidence on the choice of a method by U.S. subsidiaries in Canada.

The organization of this paper is as follows. Following a brief discussion of research background, operational definitions of variables used in the survey are presented. The data collection procedure and statistical methods used for data analysis are described next. Finally, results of the survey are presented and discussed.

Research Background

There are two main methods of accounting for prediscovery costs in the petroleum industry, successful-efforts (SE) method and full-cost (FC) method. Roughly, the SE method requires that only costs that are capitalized are those incurred in finding productive wells. On the other hand, all prediscovery costs, including such costs incurred for unsuccessful efforts are capitalized under the FC method. In his study of nonmajor U.S. oil companies Deakin (1979, p. 723) found that

> ... on average, full cost companies are more aggressive in exploration, smaller, newer, more highly leveraged and spend more on capital expenditures per revenue dollar than do those in the successful efforts group. However, none of these differences is statistically significant except the difference in age, leverage, and ratio of capital expenditures to revenues.

The three variables relevant for this study, size, leverage and age, are further discussed in the following paragraphs.

Size

The relationship between size of a firm and its accounting method is quoted very often. Bierman, et al (1974), for example, suggested that small, relatively young companies have tended to use the FC method, whereas larger and more established companies have generally favoured the SE method. While this generalization is popular, possible reasons for the same are either unavailable or remain undisclosed. It seems that since the FC method was introduced later, younger companies had an opportunity to choose. For most of them, the choice turned out to be the FC method. As Shyam Sunder (1976, p.12) pointed out,

> ... the average [positive] difference between full-cost and successful-efforts income moves to zero as the firm matures. But for the new firms, the difference is substantial; and the newer the firm, the greater is the effect of the accounting method on its average income.

Shyam Sunder argued that if there are any imperfections in the market, the use of full-cost method by newer firms would project a better performance (in terms of income) for them. This would help these firms since newer firms are more susceptible to the evaluations made by outsiders about its performance and viability.

Leverage

Given two companies identical in all respects except the method, the one using the FC method will show higher capitalized prediscovery costs, and consequently higher total assets and owners' equity. The debt-equity ratio for such a firm would be more favourable (that is, lower) than for the firm using the SE method.

In the article referred to earlier, Shyam Sunder (p. 10,13) concluded that if two companies are identical in all respects except in the accounting policy for capitalization of exploration costs, the full-cost firms will have a higher capitalized value and lower debt-equity ratio. This holds for new as well as mature firms. Explaining the case of new firms, Shyam Sunder stated that the new and expanding businesses face cash shortage. In order to meet the cash requirements, the new firms need to raise capital, and their capacity to raise capital depends to an extent on their financial position. Given the cash needs of the new firms, combined with their ability to show better income and more favourable capital structure under the FC method, such firms tend to prefer this method of accounting in the absence of other overriding considerations.

Age

It is believed that relatively less established companies tend to use the FC method whereas more mature companies generally favour the SE method (Patz and Boatsman, 1972). As discussed earlier, Sunder's mathematical analysis supports the argument that newer firms could benefit from using the FC method. As Deakin (1979) described in his article, the FC companies argued that "they were generally newer companies in the exploration business and, therefore, did not have a base of established producing properties which would provide sufficient revenues to reduce the relative income effect of the costs of unsuccessful prospects" (p. 724). Thus, it is reasonable to expect that there are significantly more FC users among younger companies than among older companies.

U.S. Subsidiaries

The third and final relationship concerns U.S. subsidiaries in Canada. Field (1974) provided some evidence to conclude that the FC method is more popular among the Canadian oil companies (also see Skinner, 1972). However, he did not distinguish between those Canadian companies that are subsidiaries of U.S. companies and those that are not. The presence of subsidiary - parent relationship for a Canadian company may have certain implications.

Most large U.S. oil companies use the SE method (Field, 1974). Assuming that U.S. parent companies are large, it would be reasonable to expect that most U.S. parent companies use the SE method. Now, assuming that a U.S. parent would expect its Canadian subsidiary to use the same method as used by the parent, most Canadian subsidiaries of U.S. parents would be expected to use the SE method. Since such ties are nonexistent for Canadian independent companies, the choice of a method can be considered "open" for them.

To summarize, size is expected to be related to the accounting method. Specifically, smaller firms are expected to be using the FC method, the

larger firms, the SE method. The debt-equity ratio of the firms using the FC method is expected to be favourable. There are more FC users among younger companies. And, finally, most Canadian subsidiaries of U.S. parents are expected to be using the SE method. These relationships were tested in a survey of Canadian oil companies. The research method and results of the survey are presented in the following sections.

Sample, Research Design and Method

Sample

The survey was restricted to oil and gas producing companies in Canada. The sample for the survey came from a collection of 161 companies under the classification 'crude petroleum and natural gas' in the Canadian Key Business Directories of 1977 and 1978. A letter requesting a copy of its recent annual report was mailed to each of these companies. No follow-up letters were sent.

A total of 91 annual reports were received, of which two did not state the accounting method used, whereas one adopted the development stage method. Of the 88 remaining reports, eight belonged to wholly-owned Canadian subsidiaries of parent companies based in countries other than the U.S. These were excluded from analysis. Thus, the resulting sample for analysis comprised of 80 companies. With the exception of four companies who sent their 1976 report, reports received were the 1977 annual reports.

Whereas most of the information for analysis came from annual reports, the primary source for identifying the U.S. subsidiaries was Who Owns Whom, North America 1978/79.

Operational Definition of Variables

The accounting method employed by an oil company is classified as either successful-efforts (SE) or full-cost (FC) method. Many companies explicitly noted the method used by them; where no direct indication was available, interpretation of notes to the financial statements provided the basis for ascertaining the method used. For such interpretation, guidelines and illustrations provided in the Oil and Gas Industry in Canada, the 1977 Survey of Financial Reporting and Accounting Developments (Price Waterhouse & Co., 1977), were used.

The size of a firm was defined in two ways: Total revenues, and oil and gas revenues. For some firms, adequate information to determine oil and gas revenues was not available. The extent to which an oil company financed its investments was indicated using long-term debt to equity ratio.

Statistical Methods

The Kolmogorov-Smirnov (KS) test was used to test the hypothesized association between method and each of size, leverage, and age. The strength of such relationship and its significance were determined using r_{pbi}, the point-biserial correlation coefficient. The t-test for group means was used to examine if average age of the two groups (classified by method) differed significantly.

The method as well as whether or not a particular Canadian company is a U.S. subsidiary (USSUB) are dichotomous variables, that is, they take only two values. The existence of association between these two variables was, therefore, tested using Chi-square test. To determine the strength of such association, Kendall's tau b coefficient was used.

Results

One result of interest is the proportion of full-cost companies in Canada. Field (1974) presented some evidence to conclude that "the markedly higher ratio of full-cost to successful efforts companies in Canada correlates with the much higher proportion of smaller independent companies among which full-cost accounting has been especially popular " (p. 10). Table 1 shows a comparison of results of this survey with those of a survey noted by Field (1974)[1], and the 1977 Price Waterhouse Survey[2].

Table 1

Use of the Two Methods by Oil Companies

	This Survey	Survey quoted by Field			Price Waterhouse Survey (1977)
	All Canadian	Total	U.S.	Canadian	All Canadian
Companies surveyed	80	297	246	51	30
Full-cost companies	62	141	106	35	21
Successful effort companies	18	156	140	16	9
% full-cost to total	77.5%	48%	43%	69%	70%

The results of this survey are consistent with Field's conclusion that the proportion of number of companies using the full-cost method in Canada is significantly higher.

Only three of the successful-efforts companies stated the cost centres they used, whereas the corresponding number for full-cost comapnies was 42. All of the three successful efforts companies used small centres such as geological and legal units. In contrast, a variety of centres ranging from smallest (geographical) to largest (companywide) were found among the forty-two full-cost companies. Among these full-cost companies, 15 used companywide,

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[1] The Ad Hoc Committee (Petroleum Companies) on Full-Cost Accounting - A Brief submitted to the Securities and Exchange Commission - File No. 57-464, 1973.

[2] The Oil and Gas Industry in Canada - 1977 Survey of Financial Reporting and Accounting Developments, Price Waterhouse & Co., 1977.

nine used North America as one and overseas as several others, and eight used geographical regions as cost centres.

Six of the eighteen successful-efforts companies (34 of the sixty-two full-cost companies) disclosed drilling results. Typically, they provided information on the number of wells drilled, the number of successful wells, and the number of dry holes. Twelve of the eighteen successful-effort companies (and 46 of the sixty-two full-cost companies) disclosed probable and proven reserves separately, or gross reserves. The number of companies declaring the present value of reserves was three for successful-effort group, and 8 for the full-cost group.

The results of tests in respect of relationship between method and the two different measures of size can be found in Tables 2 and 3. In these tables, cumulative frequencies and the ratios of cumulative to total frequencies are shown by different size groups. The classification of strata within a given size measurement was subjectively determined by the researchers.

Table 2

Relationship Between

Total Revenues and Method

Interval	Successful Efforts		Full Cost	
	Cumulative no.	%	Cumulative no.	%
$0 - $10M	8	44.4	30	48.4
$10.1M - $50M	9	50.0	40	64.5
$50.1M - $100M	10	55.6	46	74.2
$100.1M - $500M	14	77.8	56	90.3
$500.1M - $1000M	14	77.8	61	98.4
Over $1000M	18	100.0	62	100.0
Total	18		62	

(M = Million)

Using the KS test, it was found that the relationship between method and each of the two measures of size was statistically not significant ($p > .15$). The point-biserial correlation of method with size as measured by total revenues (0.108) and as measured by oil and gas revenues (0.086) was not significant. In other words, contrary to popular belief, size as measured in this study seems to be statistically independent of the method used by oil companies in the sample surveyed.

The results of tests in respect of relationship between method and the measure of leverage, long-term debt to equity ratio, appear in Table 4. The cumulative frequencies and the ratios of cumulative to total frequencies are shown by different intervals of the given ratio. The interval classification

was subjectively determined by the researchers.

Table 3

Relationship Between

Oil and Gas Sales and Method

Interval	Successful Efforts		Full Cost	
	Cumulative no.	%	Cumulative no.	%
$0 - 0.1M	0	0	2	3.3
$0.11M - $1M	4	25.0	9	14.8
$1.1M - $10M	8	50.0	33	54.1
$10.1M - $100M	10	62.5	48	78.7
$100.1M - $1000M	13	81.3	60	98.4
Over $1000M	16	100.0	61	100.0
Total	16		61	

(M = Million)

Table 4

Relationship Between

Long-term Debt/Equity Ratio and Method

Interval	Successful Efforts		Full Cost	
	Cumulative no.	%	Cumulative no.	%
0% - 10%	4	25.0	4	7.1
10.1% - 20%	7	43.8	13	23.2
20.1% - 30%	10	62.5	18	32.1
30.1% - 40%	10	62.5	23	41.1
40.1% - 60%	12	75.0	31	55.1
60.1% - 80%	14	87.5	38	67.9
80.1% - 130%	15	93.8	42	75.0
Over 130%	16	100.0	56	100.0
Total	16		56	

A visual examination of the data in Table 4 would indicate that a large majority of the SE companies had low long-term debt to equity ratio. For example, 75 percent of the SE companies carried a ratio of 0.60 or less, whereas the corresponding figure for FC companies was 55 percent. The asso-

ciation between this measure of leverage and method, using the KS test, was found to be statistically significant ($p<.05$) ($r_{pbi} = 0.21$, $p>.05$, one-tailed). Thus, the FC companies carried a higher long-term debt to equity ratio than the SE companies.

The results on the relationship between method and age are consistent with previous findings (Deakin, 1979) and logical derivations (Sunder, 1976). In the sample studied, the average age of the FC firms in the sample was 22.9 years, as compared to 39 years for the SE users ($t = 3.38$, $p<.0005$, one-tailed). The cumulative frequencies and the ratios of cumulative to total frequencies by different age intervals, subjectively determined by the researchers, can be found in Table 5. The KS test of the results indicated the relationship was statistically significant ($p<.01$) ($r_{pbi} - 0.36$, $p<.005$, one-tailed).

Table 5

Relationship Between

Age and Method

Age Group (Years)	Successful Efforts		Full Cost	
	Cumulative no.	%	Cumulative no.	%
0 - 10	0	0	18	29.0
11 - 20	2	11.1	32	51.6
21 - 30	8	44.4	49	79.0
31 - 40	12	66.7	52	83.9
41 - 50	12	66.7	56	90.3
51 - 60	16	88.9	61	98.4
Over 60	18	100.0	62	100.0
Total	18		62	

Finally, a two-way classification of companies in the sample by method and its subsidiary status can be found in Table 6. As compared to 13 per cent of the full-cost companies found to be U.S. subsidiaries, a third of the successful-efforts companies were U.S. subsidiaries. The popularity of the SE method among the U.S. subsidiaries (as compared to the non-U.S. subsidiaries) sampled is relatively high. The measure of association between method and the existence or otherwise of the subsidiary status, as computed using chi-square, was statistically significant ($p<.05$). The strength of such association, as measured by Kendall's tau b, was 0.225, $p<.023$

Table 6

Relationship Between U.S. Subsidiary Status and Method

	Method				
	Successful Efforts	%	Full Cost	%	
U.S. Subsidiary	6	(43) 33	8	(57) 13	(100%) 14
Not an U.S. Subsidiary	12	(18) 67	54	(82) 87	(100%) 66
Total	18	100	62	100	80

Limitations and Discussion

The findings of the study are limited to the sample used, and generalization of the results beyond the sample studied are at best tentative. Also, the researchers did not attempt to estimate the effects of non-response bias. In operationally defining variables, some difficulties should be noted. The classification by method was carefully performed. However, given that the researchers had to rely on several diverse sources, some classification error cannot be totally ruled out. Finally, the measurement of equity of a firm is affected to some extent by the accounting method (SE or FC) used. Therefore, the leverage ratio used in this study (long-term debt to equity) is subject to this confounding error. With the available data, the actual assessment of the effect of this error on the results was not possible.

The popular belief that size is related to the method could not be supported in this study. Although two different measures of size were used, neither turned out to hold statistically significant association with method. This finding is consistent with the results of Patz and Boatman (1972) study of 49 oil companies, some of which were Canadian companies.

The leverage measure used in this study and age were significantly associated with the method. In particular, the FC companies were younger, and carried relatively higher leverage ratio than the SE companies. These findings are consistent with Shyam Sunder's (1976) conclusion and Deakin's (1979) results in this regard.

Overall, more Canadian companies used the FC method. Large or small, the Canadian companies seem to have favoured the FC method. Among the Canadian companies that are also U.S. subsidiaries, the proportion of those using the SE method was higher than among those who did not possess the subsidiary status. This may have been caused by the possibility that most U.S. parents are large. Since large U.S. oil companies use the successful-efforts method, many of the U.S. parents use this method, and as well, require their sub-

sidiaries to adopt the same.

The findings of this study are not offered in support of or against the existence of the two alternative methods. However, the differentiation of entities using different methods along relevant dimensions could be input relevant for future accounting development in this area. This study can be considered to be one such attempt to differentiate.

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John F. Dewhirst
Faculty of Administrative Studies
York University
Toronto, Ontario

CAAS 1980 Conference
Université du Québec à Montréal

FASB OBJECTIVES: A CRITICAL EXAMINATION AND IMPLICATIONS FOR CIGA

The Financial Accounting Standards Board (FASB) is in the middle of its "Objectives and Conceptual Framework Project." The first part of this project has been completed with the recent 1979 issue of Statement of Financial Concepts No. I - Objectives of Financial Reporting by Business Enterprises (hereafter referred to as "FASB Objectives": FASB, 1979). The Canadian Institute of Chartered Accounts (CICA) began a similar study several years ago and has recently formed a Special Committee on Standard Setting under the chairmanship of Morley Carscallen. A call for business participation by the CICA Committee recently and comments made by Morley Carscallen suggest that the Committee is experiencing great difficulty in deciding just what direction the Canadian "objectives" and "conceptual framework" should take (Carscallen, 1979). Given the tremendous expenditure of human and financial resources in the United States on the same mission and their three year lead time, one might wonder why the CICA Committee is asking for help. At first sight it might seem more rational for CICA to adopt the Objectives selected by FASB.

It will be the aim of this paper to demonstrate that the hesitation of the CICA Special Committee to accept FASB Objectives is sound. FASB Objectives have not provided a mission for external public accounting (more popularly referred to as "financial accounting") that deals with the real problems in current public accounting. In addition, FASB Objectives imply a radical new direction for external public accounting standards and the standards setting process, even though there is no evidence that public accountants now or in the near future will have a comparative advantage in servicing this new role. If FASB Objectives imply a radical shift in the role of public accounting, the question arises as to who will assume their traditional role.

Two factors contribute to the confusion exhibited in both practice and academic circles about the existing role of external public accounting and its proper role. First, the long tradition of implicit or unstated objectives and lack of substantive theory in external public accounting literature -- including textbooks -- helped create the public accounting identity crisis (Ross, 1974; Dewhirst, 1976). Second, the on-again and off-again war among several different schools of thought about external accounting theory -- a virtual "accounting theory jungle" -- in the academic accounting world has made the identity crisis even worse for FASB and CICA (Dewhirst, 1974, 1977; AAA, 1977). We will attempt to cut through this confusion to support our contention that FASB Objectives are questionable.

Objectives of External Public Accounting According to FASB

"The" dominant objective of external public accounting and reporting according to FASB Objectives is that "financial reporting should provide information that is useful to present and potential investors and creditors in making rational investment, credit and similar decisions ... Information provided to meet the investors' and creditors' needs is likely to be generally useful to members of other groups" (FASB, 1979: pp. 91, 94). "Investors" and "creditors" in FASB Objectives "include both those who deal directly with an enterprise and those who deal through intermediaries, both those who buy securities from other investors or creditors and those who buy newly issued securities from the enterprise or an underwriter, both those who commit funds for long periods and those who trade frequently, both those who desire safety of investment and those who are willing to accept risk to obtain high rates of return, both individuals and specialized institutions" (FASB, 1979: p. 95).

While it is not expected that the new objectives will have much effect on "generally accepted accounting principles" (GAAP) in the short-run, "the [FASB] expects to reexamine its pronouncements, pronouncements of predecessor standard-setting bodies, and existing financial reporting practice in the light of newly enunciated objectives and concepts" (FASB, 1979: p. 90). Given the explicitness and narrow focus of FASB Objectives and the intention to restructure GAAP to meet those objectives over time, the question of the "appropriateness" of FASB Objectives is of paramount importance. We will now address this question.

Evaluation of FASB Objectives for External Public Accounting

Our evaluation of FASB Objectives will focus on two major areas of concern. First, we will evaluate the Objectives from the point of view of the body of knowledge of investment and creditor decision-making and the ability of external public accounting to service this clientele. Second, we will evaluate Objectives by testing their implications for consistency with current external public accounting GAAP and practice.

FASB Objectives and Investment and Finance Theory

The focus on the capital market participant and investor or creditor user relevance test selected by FASB to serve as the fundamental guidelines for the future body of knowledge and standards underlying external public accounting practice raises the important question of whether the accounting profession can deliver without a substantial and revolutionary change in its product and its training. The important stated assumption underlying FASB Objectives is that external public accounting information and in particular net income and earnings per share prepared in accordance with the present accrual and allocation tradition of GAAP are important enough to all major investor and creditor groups in the economy to warrant making this particular segment of potential users the only significant focus of attention for the relevance test. This selection was made by FASB in the face of existing institutional and empirical research evidence concerning capital markets, investors and creditors, including: (1) the kinds of information used by the different types of investors and creditors and the relevance ranking applied by these users to the different kinds of information; and (2) the relevance of currently available accrual and allocation-based external accounting data to the different investor and creditor user groups. We will now review some of this evidence and

implications for public accounting.

Current Public Accounting Data and Security Trading. FASB Objectives intend to service the information needs of all major sectors of the capital markets, including short-term traders, at least those who do not have the power to obtain the information on their own as a condition for investment or credit extension. Institutional and research literature on short-term security trading decision-making shows that "technical analysis" and the associated information tracking security price movements in different configurations is the dominant focus of users in this investor sector, while current accounting data is all but ignored in decision-making (Dice & Eiteman, 1952; Shaw, 1975). In addition, short-term trading strategies based on technical analysis techniques imply that the capital market is somewhat segmented, sluggish and slow to react to new publicly available information and, in general, inefficient enough that users can use existing information on past stock price movements to successfully predict future price movements that are not impounded in those prices.

Existing institutional literature suggests that current public accounting data, or anything close to it, is irrelevant and completely unrelated to the types of data and information used for technical analysis. As a consequence, it is doubtful whether public accountants are qualified to develop and provide this type of information. Even more important, possibly, is the overwhelming empirical research evidence in the United States and limited evidence in Canada that the stock market is efficient in the "weak form" and has impounded any information content inherent in past stock price movements before technical analysts have a chance to carry through their analysis and act on it. In short, there is no chance to make abnormal profits from short-term trading based on technical analysis and public information. Therefore, even if external public accounting wanted to gear up to provide the type of information needed, it is questionable whether they should (Fama, 1970).

Current Public Accounting Data and Fundamentals Analysis. FASB Objectives intend to serve long-term investors in corporate stocks, who have relied traditionally upon "fundamentals analysis" as the primary technique for security analysis. FASB implies that accrual and allocation-based external accounting information is relevant to the fundamentals approach when they give long-term investors a prominent place in their list of users. The fundamentals approach which focuses on the determination of each security's "instrinsic value" is elaborated on by Benjamin Graham and David Dodd, the two pioneers of this method, as follows: "A general definition of instrinsic value would be 'that value which is justified by the facts,' e.g., assets, earnings, dividends, definite prospects, including the factor of management. The primary objective in using the adjective 'instinsic' is to emphasize the distinction between value and current market price, but not to invest this 'value' with an aura of permanence. In truth, the computed instrinsic value is likely to change at least from year to year, as the various factors governing that value are modified. But in most cases instrinsic value changes less rapidly and drastically than market price, and the investor usually has an opportunity to profit from any wide discrepancy between the current price and the instrinsic value as determined at the same time. The most important single factor determining a stock's value is now held to be the indicated average future earning power, i.e., the estimated average earnings for a future span of years. Instrinsic value would then be found by first forecasting this earning power and then multiplying that prediction by an appropriate 'capitalization factor'" (Graham, Dodd and Cottle, 1962: p. 28).

With the mention of "earning power" and other such accounting-type data, at first sight, security analysis appears to be closely tied to and based on current accrual and allocation-based GAAP accounting. This assumption is unjustified, however, because a closer review of this form of analysis indicates that current external accounting data are used for only two important purposes even though these data are not the most important: (1) adjusted external public accounting data for an enterprise issued over several past years is used to indicate trends in indicators of business and financial risk; (2) the format of the financial statements themselves (i.e., income statements and balance sheets) are used as a framework for gathering the analyst's quantitative estimate of the present and future implications of mostly qualitative and non-accounting information to begin to simplify and translate the implications of his overall analysis into an action decision. Neither of these two uses of external accrual and allocations-based GAAP accounting and its financial statement format represent the most important sources of information for fundamentals security analysis however.

Literature on long-term stock investment decisions as well as empirical studies of actual analysts engaged in this type of activity indicate that economic data, particularly of a non-accounting nature and dealing with estimates of the future, represent the most critical information required. Such items as: (1) the future economic outlook for the company; (2) the quality of management; (3) the future economic outlook for the industry of which the firm is a part; and (4) the expected future growth of sales, for example. These represent a few among many types of information that are more relevant for the fundamentals approach to security analysis than currently available external public GAAP accounting (Hayes, 1961; Baker & Haslem, 1973). If it is accepted that the type of expertise required to select and provide the most important of the relevant types of information for fundamentals intrinsic value' analysis does not now nor in the near future is likely to belong to public accountants' skills inventories, then the capability of public accountants to meet this major part of FASB Objectives is hard to demonstrate.

Even more important, even if we decide that public accountants could re-train themselves and training programs for new accountants could be retooled within a reasonable time period, existing empirical research suggests we might not want to meet this information need. Empirical research into the "semi-strong" form of market efficiency suggests that the slow market reaction time required for fundamentals-based intrinsic value analysis to be profitable does not exist, and that by the time this type of analysis is applied to publicly available information the stock market has long since impounded the new public news and the exercise is fruitless if one desires to earn abnormal returns (Fama, 1970).

Current Public Accounting Data and Portfolio Theory. Portfolio theory suggests that in modern capital markets the primary focus of common stock investment decision information should be on the prediction of "systematic risk" or "beta" for each security and for each portfolio as a whole rather than the total risk (including "unsystematic risk") for each security. The unsystematic risk for each individual security can be eliminated simply by adequate diversification either through your own individual portfolio or through a portfolio provided by institutional investment (Sharpe, 1978; Ball & Brown, 1969). Because it is irrational to assume individual security risk when it can be eliminated simply by diversification, unlike fundamentals-based instrinsic value analysis, portfolio theory emphasizes the selection of individual securities from a portfolio

perspective. That is, each investor first decides on the desired beta or relative risk level for his portfolio of securities, then he analyzes and selects individual securities that will combine to offer the net planned portfolio characteristics.

Research correlating external public GAAP-based accounting data for companies with individual security and portfolio betas has shown a relationship and more recent research combining external accounting and security market information in systematic risk assessment appears even more promising (Beaver et al., 1970; Beaver & Manegold, 1975; Rosenberg & McKibben, 1973; Rosenberg & Marathe, 1975). This research shows promise because it demonstrates significant correlation between betas and many ratios calculated from existing public GAAP-based accounting data. At the same time, however, the results indicate what could be termed a form of "blind empiricism" in that the research was not designed from or tied to any existing theory or hypothetical structure explaining the connection between business and financial risk, their accounting measures, and security market risk measures. This form of theoretical underpinning is necessary in order to both understand the connections and to develop improved external public accounting standards. Without this additional work we might just as well hold that there is another set of basic economic data influencing both market price measures of risk and accounting risk measures and that direct measures of these more fundamental data would be more useful than the indirect reflection of these data through external accounting measures. This important question, unfortunately, awaits future research.

Summary of Current Public Accounting Data and Finance Theory. When we compare current public accounting data to the requirements of both traditional and modern finance theory several important conclusions emerge. First, regardless of whether we believe in traditional finance and investment theory (technical analysis and fundamentals intrinsic value analysis) or modern finance and investment theory (efficient capital markets and portfolio theory of investment) it is not evident that current external public accounting data is very important in the hierarchy of either the traditional or modern investment theory ranking of relevant decision information. Second, where there is some sign of potential importance as in modern portfolio theory, the importance is based on raw empiricism and much further work is needed on theory development before accounting can use this promising new direction.

The main danger to the future of public accounting obtainable from a review of institutional and empirical finance literature of the adoption of FASB Objectives to serve as "the objectives for public accounting standards" is that there is no evidence that accounting has ever or will ever be the main or even a major source of relevant investment decision information. In addition, even if it were possible to modify GAAP to the extent required for external accounting to become the major supplier of relevant investment decision-making information the question remains as to whether other existing groups such as finance researchers and practitioners do not already now and in the foreseeable future have a comparative advantage in the development and compilation of these measures. If the answer to such a question is affirmative, it does not appear to be rational for the public accounting profession to adopt FASB Objectives.

FASB Objectives and Current Public Accounting Practice

One important test of the soundness of FASB Objectives is their consistency or lack of consistency with current GAAP and current practice. This test suggests

that the current stage of external public accounting GAAP and practice which has evolved over hundreds of years of trial-and-error in the real-life operating theatre of the competitive business world is a good practical test of suggested new directions for public accounting. That is, the pressures in the real world would assure over a long time period that any discipline would evolve in a manner that is useful to society or wither and drop by the wayside. Viewed from this perspective a lack of reasonable fit between external public accounting standards and practices with FASB Objectives would indicate one of two things: (1) external public accounting during its long natural evolution has somehow missed its main calling and yet it has survived -- an unlikely prospect in a competitive world; or (2) FASB Objectives are not the "true" societal objectives or function of external public accounting and should be questioned. To address this issue we will review several of the main characteristics of current public accounting standards and practice (GAAP), and in particular, the closeness of these characteristics to what we might expect if FASB Objectives were at all related to the public accounting tradition.

Standard Selection Criteria Used in Practitioner Literature and Investor-Creditor User Needs. In the main, current external public accounting practices and standards as revealed in the explicit standard selection criteria or arguments used in the practitioner literature such as CA Magazine, The Journal of Accountancy, CICA Handbook, APB Opinions and FASB Objectives, suggest that investor and creditor user information needs are not the primary or even a clear secondary focus of external public accounting. If investor and creditor needs are intended to be even a secondary test why are they rarely ever mentioned in the practitioner literature or even in the popular external public accounting introductory, intermediate and advanced textbooks used in the academic world? In addition, and possibly even more important, why is there no evidence in the practising wing of the profession of a tradition of support for basic and applied research into investor and creditor decision information needs?

Instead of a concern with investor and creditor decision information needs the explicit arguments referred to in the practitioner literature debating solutions to standards issues and found in the texts of CICA and AICPA recommendations on external accounting standards refer to such non-user criteria as: "better matching", "consistent with the going concern view", "relevant because it originates in an arm's length exchange transaction", "is appropriate because it represents accrual rather than a cash basis of accounting", and so forth. Surely, if investor and creditor decision information needs were at all being considered they would occupy a prominent place in the practitioner literature and in the text of CICA Accounting Research Recommendations.

General Purpose External Accounting Statements and Investor-Creditor User Needs. One feature of present external public accounting standards and reporting practices which suggests that investor and creditor decision needs are far from the main focus of accounting is the practice of preparing and issuing "general purpose statements." Even a cursory glance at the literature of investment management, security analysis and credit analysis readily indicates that the particular concerns and information needs of the different investor and creditor user sub-sectors differ greatly from one another. The assumption stated in FASB Objectives and underlying current practice that standards, practices and statements which are general purpose in nature can deal even adequately with the different needs, is highly questionable (FASB, 1979: p. 94).

Stewardship and Firm-Centred Accounting and Investor-Creditor User Needs. Present external public accounting practice suggests that accounting standards (GAAP) and statements are firm-centred and management stewardship focussed rather than investor and creditor user decision information requirement centred. Under present practice the general purpose financial statements can be viewed as constituting a "financial" model of the firm representing a report on the financial state or position of the firm and the results of operations of the firm. If investor and creditor user needs were dominant practice would not be firm-centred but rather user centred and several special reports of specific data of interest to user groups would predominate.

Procedural Definitions of Subject Matter and Investor-Creditor User Needs. Another common property of present-day external public accounting standards which appears inconsistent with an investor-creditor decision information need purpose is the tradition of defining external accounting subject-matter in procedural and non-substantive terms. Two examples from the practical literature will suffice to demonstrate this trait. First, John B. Canning described the definition of "income" in external accounting practice as: "What is set out as a measure of net income can never be supposed to be a fact in any sense at all except that it is the figure that results when the accountant has finished applying the procedures which he adopts" (Canning, 1929: p. 98). Second, in defining "depreciation" for external public accounting purposes, the Committee on Terminology of the AICPA claimed "definitions are unacceptable which imply that [depreciation] ... is a measurement ... of the physical deterioration ... or of the decline of monetary value ... or, indeed or anything that actually occurs within the year" (AICPA, 1953: p. 12). An information discipline serving investor and creditor needs as outlined in FASB Objectives would likely require as its fundamental subject matter, substantive and observable phenomena or particular attributes of those phenomena derived from research into user decision needs.

Standard Setting Process and Investor-Creditor User Needs. The formal process followed by both AICPA and CICA to establish new accounting standards or GAAP and in particular those recommendations published as Accounting Research Recommendations in the CICA Handbook and by AICPA as APB Opinions and FASB Statements, appears to be inconsistent with investor and creditor user needs implied in FASB Objectives.

The formal process followed by CICA to establish Accounting Research Recommendations emphasizes practitioner member voting on the final recommendation, relies on pre-testing prospective standards before they reach the exposure draft stage on outside special interest groups ("associates"), and finally issues "exposure drafts" of final positions to the public for comment before finalization as a Research Recommendation (Mulcahy, 1977). If substantial opposition to the exposure draft is encountered at any stage in the process CICA readily will withdraw the exposure draft, revise it, or even shelve it, or recommend trying it on an experimental basis. This process appears to be more of a negotiation, compromise, and political process than a research-based process designed to uncover decision-information requirements specified by user decision models and processes.

Summary of FASB Objectives and Current Public Accounting Practice. This review of the standard setting tradition in Canada, the United States and in the practitioners' literature suggests that the focus, arguments or criteria used, and process followed in the development of external accounting standards is very

different from what we might expect to find if FASB-type Objectives were being adhered to. In short, the adoption of investor and creditor decision information needs as the dominant focus of external public accounting would require radical change and it is questionable whether public accountants have the comparative advantage to service this objective better than other existing disciplinary groups.

FASB Objectives and the Historic Mission of Public Accounting

A very important test of FASB Objectives is to compare them and their implications with the historic mission and raison d'être of the public accounting profession. Throughout most of the history of accounting up through the 18th and most of the 19th centuries, accounting could be appropriately described as "private accounting". Prior to 1850 "auditing comprised a small part of the average accountant's practice, which was extremely varied. The self-styled 'expert in accounts' might be a bookkeeper, appraiser, attorney, actuary, bankruptcy auditor, executor of estates, or winder-up of dissolved companies" (Chatfield, 1974: p. 113). "Public accounting," the subject of this paper, did not emerge until half-way through the 19th century and its roots and traditions are noticeably different from its predecessor.

Public accounting evolved from an English tradition that began in feudal times. Chatfield explains that "underlying feudal audit procedures was a system of beliefs which has changed very little. Basic was the idea that men in positions of trust should be subject to public scrutiny... In the 19th century these beliefs became the foundation for the British statutory audit, which in turn set standards for verification all over the world" (Chatfield, 1974: p. 112). This tradition of responsibility and accountability commensurate with positions of power and trust combined with the rise of the limited company and development of the capital markets to lead to the birth of public accounting. It was a logical extension of the English tradition when we take into consideration the increasing importance of the limited company to economic stability. On this, Chatfield explains that despite its policy of noninterference with commercial corporations,"Parliament had always been willing to regulate companies whose failure was apt to dislocate the whole economy" (Chatfield, 1974: p. 116). This new concern for public auditing and accounting of limited companies led to a long series of Companies Acts commencing with The Joint Stock Companies Act of 1844 to the present-day Canada Business Corporations Act. "The companies acts were intended to regulate the formation of corporations and to permit continuing supervision of their directors' handling of company affairs. To achieve these goals a reporting obligation was imposed in exchange for the right to incorporate. Between 1844 and 1900 the Acts tried principally to establish minimum auditing and reporting standards. Since 1900 they have concentrated on improving financial statement quality by raising standards of disclosure" (Chatfield, 1974: p. 113).

In the mid-19th century when limited companies, the Companies Acts and public accounting were created, corporations were few and their economic impact relatively unimportant in terms of total gross national product. Corporations grew in importance until by the early 20th century they began to dominate the economies of their home countries. In The Modern Corporation and Private Property, the classic study of the modern corporation published in 1933 by Adolph A. Berle Jr. and Gardiner C. Means, the extent of this dominance was documented. Berle and Means maintained that "large corporations had become much too powerful in relation to individual employees, customers, and investors with whom

they dealt. The diffusion of stock ownership gave management almost complete control over corporate finances and the distribution of accounting information to investors. The mass of 'owners' were effectively disenfranchised; their only options were to hold their stock or sell it at the market price. Corporate managers were not mainly interested in paying dividends to stockholders. Their companies were becoming social institutions, influencing cultural values, contending for political as well as economic power. In such circumstances much depended on responsible business leadership. But the business community," Berle and Means wrote, 'was still characterized by 'seizure of power without recognition of responsibility -- ambition without courage.'" (Chatfield, 1974: p. 273). Berle and Means' book combined with the conditions of the time has been credited with having an important influence on the establishment of the Securities and Exchange Commission (SEC) in the United States. The trend documented by Berle and Means has continued up to the present time but new trusts have been created and new responsibilities and demands for accountability have emerged from time to time -- witness, for example, the demand for business's responsibility and accountability for their adverse impacts on the natural environment in recent years.

The raison d'être for public accounting which led to its birth in the mid-1800's has continued up to this day. The mission of public accounting is to provide accountability commensurate with corporate responsibility for whatever level of trust and power is achieved by corporations and their directors and managements in society in any time period. Thus enterprise and management accountability to society is the primary objective of public accounting, not the specific private decision information needs of a few special interest groups in society as claimed by FASB Objectives.

A Socio-Economic-Political Interpretation of Current Public Practice

We reviewed the practitioner literature concerning the nature of current public accounting standards and practices in conjunction with our evaluation of FASB Objectives and the investor-creditor information need objective. We concluded that the investor-creditor user needs are not consistent with current accounting standards (GAAP), financial statements, or the research process used to establish those standards.

In contrast to its lack of correspondence with FASB-type Objectives, current public accounting practice is very consistent with a socio-economic-political interpretation of public accounting. First, the traditional stewardship orientation and its more modern expanded version is very consistent with the tradition of social responsibility and accountability of directors and managements of enterprises. Directors and managers are entrusted with the resources and finances of other individuals in society and are responsible for the efficient and effective use of those resources, along with other secondary but important responsibilities such as provision of employment, minimization of unfavorable environmental impacts, and so forth. Second, the general purpose nature of public accounting standards and financial statements with their firm-centred focus portrays the firm as an economic model geared to the revelation of management stewardship and accountability to all of society for their economic performance and impacts. Also by focusing on the firm rather than the particular special user interest groups, the public accountant assumes a neutral, independent position concerned with measuring the facts, revealing the financial position and operations of the firm for each period. Third, the tradition in public accounting of defining its major subject matter phenomena in procedural rather than substantive terms is very consistent with a socio-economic-political interpretation of

public accounting. A procedural definition of "artefacts" like "income" maintain a flexibility that like legal phenomena leads to ease of adaptation to new social and political equilibria. Fourth, the process for establishing new public accounting standards (GAAP) described so well for Canada by Gertrude Mulcahy is clearly amenable to a socio-economic-political interpretation. Throughout the whole process, for example, the use of "associates", "exposure drafts", and willingness to modify or even withdraw initiatives that are clearly unpopular with major special interest groups in society, CICA places a major emphasis on consultation, negotiation, and the balancing of conflicting interests, all of which are very important in any socio-economic-political activity.

The notion of "fairness" enshrined in the auditor's report is a widely held view of external public accounting's overriding obligation that is very consistent with a socio-economic-political view of accounting. "Fairness" implies conflicting interests as well as impartiality and accuracy, and to many accounting practitioners like the late Leonard Spacek, former head partner of Arthur Andersen & Company, fairness is "the" objective and fundamental concept of public accounting. According to Spacek, "a discussion of assets, liabilities, revenue and costs is premature and meaningless until the basic principles that will result in fair presentation of the facts in the form of financial accounting and financial reporting are determined. This fairness of accounting and reporting must be for and to people, and these people represent the various segments of our society" (Spacek, 1962: p. 78). A different, though related view is presented by Robert Montgomery, well-known practitioner and pioneer in auditing theory who emphasizes the moral obligation of public accountants to search for and tell "the truth". Montgomery states that "it is the accountant's duty, after fighting the figures and finding the facts, to assemble the figures and to tell the truth about them, with clarity, conciseness and intelligence... I want men in the profession with ... indomitable courage to seek and tell the truth. Our profession always has had a vision -- this urge to find and tell the truth -- and we should cling to it and continue to strive for its accomplishment" (Montgomery, 1937: p. 400).

This review of the history and tradition of public accounting and current public accounting practice supports the view that public accounting is and always has been a socio-economic-political discipline and that if FASB Objectives with their narrow special interest group focus are adopted it would not only lead to radical changes in public accounting over time but also leave the traditional mission of public accounting unfulfilled.

Implications of Clear Recognition of our Socio-Economic-Political Heritage and Mission

The first implication of the explicit recognition of our tradition is the realization that acceptance of FASB Objectives would mean the acceptance of a new objective for public accounting. Whether this means that public accounting should assume a new "private accounting" role akin to management services is open to debate and quite feasible, but we must not confuse this potential new role with the traditional public accounting role outlined above.

Our traditional role must be made clear and explicit so that we can better understand our history, the current nature of external public accounting and reporting, the nature and meaning of the current pressures and controversies we face, and the ways we might explore to improve our effectivenss and our socio-economic-political service.

Our lack of understanding and common agreement upon our historical mission has often led to unnecessary problems, conflicts and naive responses to normal socio-economic-political pressures which should have been anticipated and managed in a responsible manner, perhaps through improving the formal process for resolving such conflicts. The counterproductive effect of a lack of understanding our tradition and mission on the part of AICPA in the case of the investment credit is outlined by Horngren as follows:

> "When Congress intervened in the 1971 investment credit fiasco, every member of the APB was shocked and disgusted including me. The Board issued a unanimous denunciation of this meddling by politicians. If we had better understood the political process, we should not have been surprised. Instead, we should have been far better prepared to cope with interference.
>
> Letters from congressmen and cabinet officers may upset us, but they are the facts of life. To survive, the private policy makers must face these facts skillfully" (Horngren, 1976).

If we come to understand our role better perhaps we can focus our attention on areas for improvement and methods for improving our service similar to those called for by the pioneer theorist in socio-economic-political accounting, D.R. Scott in his classic The Cultural Significance of Accounts published in 1931. Long ago Scott recognized that the first step to solving public accounting standards problems was to recognize public accounting's socio-economic-political mission. Otherwise, he would have forecast that contentious issues like inflation accounting would prove unresolvable. He would not have been shocked after hearing Marshall Armstrong's (the former Chairman of FASB) description of the reasons why the AICPA exposure draft on inflation accounting standards was shelved and the issue has proved to be insoluable. Armstrong stated:

> "It's interesting to see how the powers line up on this issue. Of the large accounting firms, none of whom have a vested interest in the outcome, opinion is diverse: Four favour the proposal, three are against it and two suggest that action be deferred.
>
> Banks and insurance companies, on the other hand, have no such diversity in view. They are absolutely and unequivocally opposed because of the impact that this proposal would have on their earnings: it would tend to reduce them. While they may discuss the issue on conceptual grounds, they arrive at one conclusion: the pragmatic [or more accurately, self-serving] one.
>
> On the other hand, public utilities and transportation companies which will experience an increase in their earnings should the proposal be adopted in its present form, are also virtually solidly opposed to it. But note the effect is different; here, earnings are increased. This group either favored the concept of price level adjustments for only depreciation and similar costs and raged against the recognition of gain on long term liabilities or insisted that fixed assets, in their case, should be treated as monetary items. They presented a new set of arguments, but their motivation was equally pragmatic.
>
> We are encountering another power bloc in connection with this project. Small public accounting firms argue that the proposal might increase the amount of work which they do for their clients or, if not done, would require that they qualify their opinions on these reports. These accounting firms have undertaken a vigorous

> write-in campaign to apprise us of the disastrous consequences of this proposal. What is their real concern? Although their arguments are couched in language questioning the usefulness of price-level data and concern over the cost of providing it, the true motivation for the spectacular responses we have received may be the concern, expressed by only a few, that with increased costs their clients may drift to other practitioners not required to insist on compliance with this standard. Is this how accounting principles should be forged?" (Armstrong, 1977).

In Canada, CICA issued a similar exposure draft on inflation accounting and it was withdrawn for similar reasons, and more recently after major opposition both CICA and AICPA have withdrawn finalized and issued standards on foreign currency translation.

Clear recognition of the nature of public accounting, its mission and the forces operating on it, unfortunately, is only the first step towards improving its effectiveness and in particular its accounting standards. The manner in which public accounting standards and their form should be modified remains to be determined. Several different interpretations of the implications of accepting the view that public accounting is a socio-economic-political discipline abound and this issue requires careful research and analysis. We will now review several different recommendations.

Hawkins maintains that socio-economic-political status means that public accounting standards setting should be based on the requirement that "the standard is consistent with the national macroeconomic objectives and the economic programs designed to reach these goals" (Hawkins, 1975: pp. 9-10). Also, even more controversial, he claims, "because the [FASB] has the power to influence economic behavior it has an obligation to support the government's economic plans" (Hawkins, 1975: p. 11).

Gerboth suggests another direction which appears to be consistent with the long-standing recommendation by Leonard Spacek for the establishment of an "accounting court" to mediate conflicting interests in the establishment and application of public accounting standards to ensure "fairness" (Spacek, 1958). Gerboth claims that "when a decision-making process depends for its success on public confidence, the critical issues are not technical, they are political... In the face of conflict between competing interests, rationality as well as prudence lies not in seeking final answers but rather in compromise -- essentially a political process" (Gerboth, 1973).

Solomons and Sterling suggest another line of attack. The socio-economic-political nature of public accounting suggests that accounting standards should attempt to achieve greater "neutrality" by making them more "factual", "scientific" and explicit and less subject to manipulation and abuse. Solomons states: "neutrality in accounting implies representational accuracy ... and the essential element in the reliability of information ... is that it shall as accurately as possible represent what it purports to represent... Information cannot be neutral -- it cannot therefore be reliable -- if it is selected or presented for the purpose of producing some chosen effect on human behavior" (Solomons, 1978; Sterling, 1976). The present Chairman of SEC, Harold Williams, appeared to agree with Solomons and Sterling in his statement of August 29, 1978, dealing with accounting standards for oil and gas producers which set aside FASB Statement No. 19 when he states: "If it becomes accepted or expected

that accounting principles are determined or modified in order to secure purposes other than economic measurement -- even such virtuous purposes as energy production -- we assume a grave risk that confidence in the credibility of our financial information system will be undermined" (Solomons, 1978).

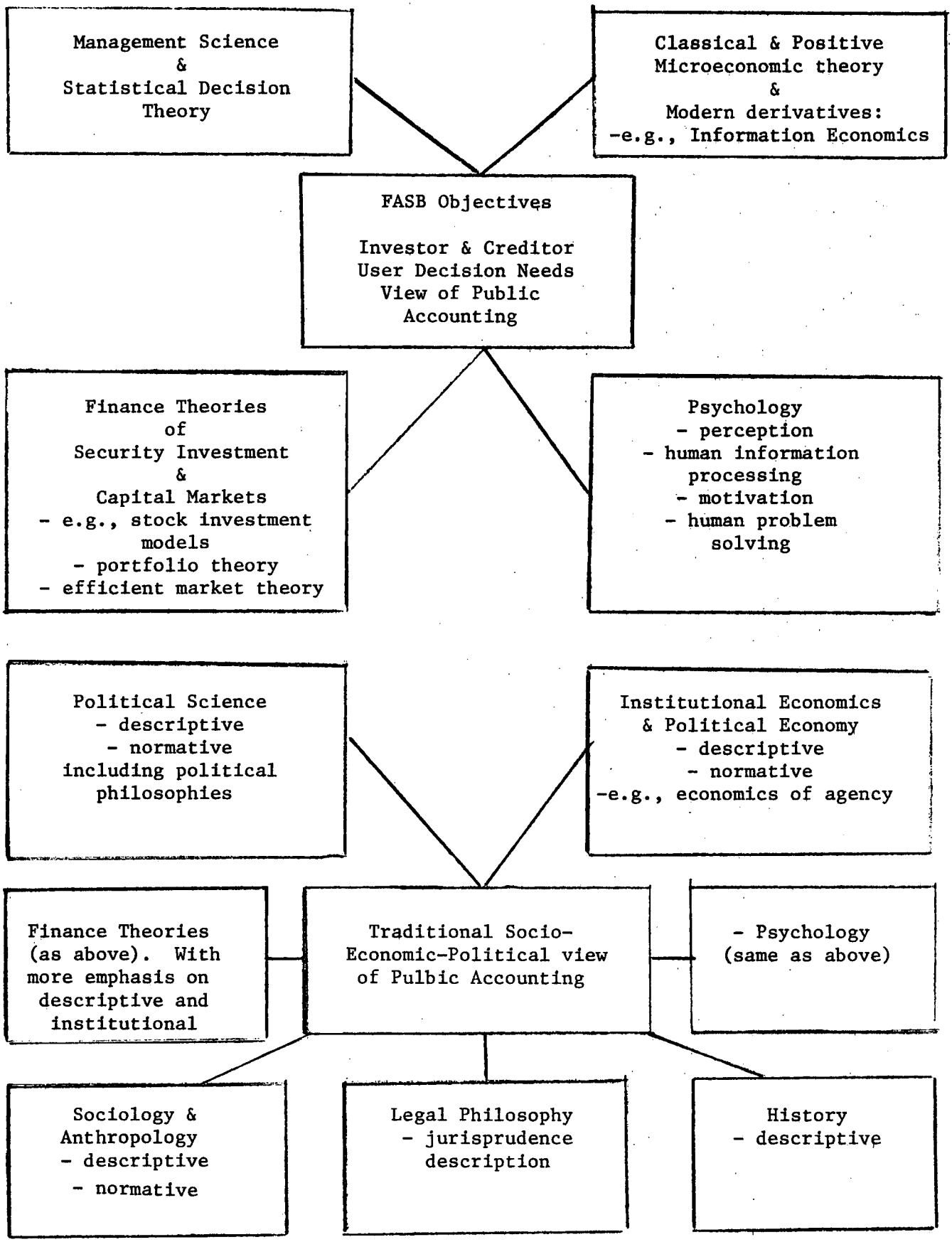
The different views on the implications of the recognition of the socio-economic-political nature of public accounting standard setting require much more analysis and research. The nature of basic research should change greatly with this recognition as well. Figure I outlines the constellation of basic disciplines that are most closely associated with the mission and objectives from the investor-creditor user information view recommended by FASB Objectives and the socio-economic-political view reviewed above. A quick review of the figure indicates very clearly that while there is some minimal overlap, the socio-economic-political view of public accounting is much broader and includes the need for research and theory exploration in many new disciplines including: political science, sociology, anthropology, legal philosophy and jurisprudence, history, and institutional economics and political economy.

Conclusion

We hope that we have achieved our objective to prove that the adoption of FASB Objectives as "the" guiding force behind public accounting standard setting would be a major mistake. If we did, it does not mean that FASB Objectives should not be explored as a potential new "private accounting" service aimed at special interest groups akin to management services. At the same time however it does mean that FASB Objectives will not be consistent with the traditional socio-economic-political raison d'être of public accounting which is something entirely different. Major improvements are needed in public accounting standards, practices, and reporting but the key to progress in this area lies first in a recognition and second in research and analysis of public accounting as a socio-economic-political discipline.

Figure I

Different Views of the Objectives of External Public Accounting and Major Associated Basic Disciplines



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C. T. Lau and M. Nelson*
Faculty of Business Administration
University of Windsor
Windsor, Ontario

TOTAL WAGE COMPENSATION: A SURVEY

This study represents a survey of eighteen Canadian companies on accounting for labour negotiations. The main emphasis is on the concept of total wage compensation, as the basis for costing a proposed wage package.

Introduction

This paper is a sequel to a previous article (Lau and Nelson, 1979) in which it was indicated that there was a dearth of research in accounting for industrial disputes and that herein lies an area of opportunity in which the accountant may play a positive role. It was also suggested that an appropriate research methodology would involve a two-stage case study; first, to conduct a survey of existing practice of a carefully selected sample of Canadian firms in accounting for labour negotiations and second, to deduce a managerial accounting and reporting model from the existing practice. This paper will report on the results of the first stage research, a survey of the state of the art.

Methodology

In conducting preliminary talks with management personnel, the researchers found a degree of initial reluctance to discuss issues connected with labour negotiations and strikes. It was this sensitivity which led the researchers to conduct in-depth personal interviews with a few carefully selected firms instead of using a questionnaire approach involving a much larger sample. Firms were chosen with a view to achieving a wide geographical and industrial balance.[1] Thirty-four companies were contacted of which twenty-four responded. Of those who responded, six indicated that they could not be of any assistance because of their lack of expertise in the area; and eighteen agreed to be interviewed. The eighteen participants represented the following industries: merchandising, petroleum, utilities, pulp and paper, manufacturing, steel, chemical, food products, and construction and property.

Two alternatives were considered in reporting the results of the interviews: a case by case analysis of the individual firms or a composite case description of all firms. The latter method was chosen for two reasons.

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[1] A selected number of unions and government labour agencies were also interviewed, the results of which would not be reported here as this paper deals only with industrial firms.

First, there is not a great amount of variation in the procedures adopted by the firms in conducting labour negotiations. Second, the sensitivity of the area is such that co-operation from the firms was received on the basis that the confidentiality with respect to their specific procedures would be respected. Thus, the case analysis which follows is a common description of most firms but does not necessarily reflect the procedures of a given firm.

Survey Results

All the firms surveyed have what is essentially referred to as an industrial relations (I.R.) department which has the primary responsibility for the negotiating function. The accounting department invariably is not extensively involved in this process. The extent of their involvement normally takes the form of supplying the raw data (e.g. payroll data) and occasionally playing a consultative role.[2] In no case was the accountant asked to participate in the actual negotiations. The situation as described above was common to all of the firms interviewed irregardless of whether they bargained on a centralized basis (e.g. pulp and paper industry) or on a decentralized basis (e.g. Westinghouse).

The I.R. area is primarily responsible for preparing a wage package taking into account the wage and benefit levels in the industry as a basis for a recommendation to a committee of senior management who will then issue a mandate to the I.R. group. The mandate is the negotiators' target for the negotiations. Any settlement outside of the mandate must first be cleared with the senior management committee. If an impasse occurs senior management will be forced to make a decision on whether to take a strike. In this regard it appears that no detailed analysis of costs and benefits are prepared. The decisions seem to be made based on management's subjective estimate of the costs and benefits as well as other issues such as management's prerogatives.

There appears to be little systematic planning until such time as the strike becomes imminent. Even when it does occur actions such as stockpiling seem to take place on an ad hoc basis rather than resulting from well conceived plans or careful cost/benefit analyses.

The decision to close down or to continue operations during a strike is indicated, by the firms interviewed, to be a function of the industry. For example, the petroleum industry continues to operate using the firm's non-union personnel. On the other hand, the pulp and paper and steel industries close the struck facilities.

After a settlement is reached, with or without a strike, none of the companies interviewed conducted a "post morten" analysis of the decisions made during the bargaining process although most agreed that such an analysis would be helpful for future negotiations.

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[2] Hess (1967) and Jack (1970) of the AFL-CIO and Miller (1971) of the Cadillac Gage Co. all observed the same situation in the U.S. and called for the accountant to take an active part in all phases of negotiations.

One aspect of the wage negotiating analysis which seems to be well developed is the process of determining the cost of a compensation package in conjunction with the preparation of a remuneration proposal and the evaluation of a counter-proposal. This aspect of practice is the subject of the following section.

Total Wage Compensation

The concept of total wage compensation is based on the premise that a wage increase should not be based only on the base wage rate but should cover all measurable items contained in a collective bargaining agreement. While the application of the total wage compensation concept has gained wide acceptance in Canada in recent years[3], a standard costing methodology under which uniform and comparable wage data on an industrial basis can be compiled, is still in need of development (Quinet, 1974, p.67). Despite the apparent non-uniformity of procedures and terminology used in practice, the various definitions of total wage compensation as currently followed in Canada share some common components. Space here will only permit a brief identification and description of the more common items found in a total wage compensation package and a discussion of two technical points related to the topic.

Base rate increase:

> Based on the number and mix of employees on the payroll records and the rate increases contained in a given proposal, the cost of any proposed base rate increase can be calculated.

Impact factor:

> As the base rate increases, the cost of certain fringe benefits which are directly tied to wages will automatically increase. One example of this type of fringe benefit would be the overtime premium where the premium is a function of the base rate. If the premium is 50% of the base rate, a base rate increase of 70¢ will result in an overtime rate increase of 35¢ per hour. The amount by which fringe benefits increase when wages increase is referred to as "impact".[4] Because of this phenomenon it is necessary to identify the wage sensitive items from the contract in order to determine the impact on the proposed wage increase based on the existing level of benefits. Other examples of wage sensitive items include vacations, statutory holidays, rest periods, company pension, other paid leaves and group life insurance.

Cola (Cost of living allowances)

> The cost is calculated with reference to the CPI and the terms of the agreement.

---

[3] The government labour agencies at both the federal and provincial levels (e.g., Labour Canada and the Ministry of Labour of Ontario) have not yet reached the stage where wage data are prepared using the concept of total wage compensation.

[4] This is sometimes referred to as "creep", "roll-in" or "burden".

Pay for time not worked

This category includes vacation pay, statutory holidays, shorter work day, rest periods, other paid leaves such as short-term illness, jury duty, bereavement leave, maternity leave, etc. The cost of these items is simply the cost of the wages paid for the anticipated loss of productive time.

Overtime pay:

The cost is the product of the number of projected overtime hours and the proposed change in the overtime premium.

Shift differential:

The cost is based on the number of hours to be worked on the shift(s) involved and the proposed change in the shift premium.

Direct and indirect incentives:

The costing procedure for plans such as production bonuses, commissions, profit sharing plans etc. will be dictated by the proposed terms of the agreement. In addition, other variables such as sales, production or profit would need to be estimated.

Payments required by law:

These items include Canada Pension Plan, Unemployment Insurance, Workmen's Compensation and, in some provinces, public health insurance plans. The cost of these items is a function of the number of employees and the increases imposed by law.

Private insurance plans:

These plans include group term life insurance, dental insurance, supplementary health benefits, sickness and accident insurance, long-term disability insurance and supplementary unemployment benefits. The cost of these items is usually based on quotations from the insurance companies involved given the number of employees and the level of benefits desired.

Retirement benefits:

This includes company pension and deferred profit sharing plans. The cost is based on the actuarial quotations from those engaged in administering these types of plans.

The costing of the above groups of items is done on an incremental basis. If one calculates, as an alternative, and compares the total compensation cost of the existing and proposed wage package the need to account for the impact is obviated. However, the incremental basis is a more powerful approach in evaluating the cost of a given change in isolation without the need to calculate the cost of other items not involved.

Technical Issues

There are two troublesome technical points in connection with costing a compensation package which should be dealt with at this stage.

Impact and Increased Benefits:

As explained earlier, when there is an increase in the base rate there is an automatic increase in the cost of the wage sensitive benefits, assuming the level of benefits remains constant. However, if the level of benefits increases, the question becomes whether this increase will in turn lead to an additional increase in the impact factor. Intuitively, one might respond positively to the question. The following example will demonstrate otherwise.

Assume the following data using only one wage sensitive benefit item (i.e. vacation) for one employee:

Annual hours worked: 2,000 (40 x 50 weeks)

Hourly pay rate: $8

Existing annual vacation: 2 weeks (80 hours)

Scenerio 1:

Hourly base rate increase: $1 ($8 to $9)

Annual vacation: unchanged

Existing costs			
Base pay	2,000 x $8	$16,000	
Vacation pay	80 x $8	640	
Total	2,080		$16,640
New costs			
Base pay	2,000 x $9	$18,000	
Vacation pay	80 x $9	720	
Total	2,080		$18,720
Increased cost			$ 2,080
Consisting of:			
Base rate increase 2,000 x $1			$ 2,000
Impact on vacation cost 4% x $2,000*			80
			$ 2,080

*Impact factor: $640 ÷ $16,000 = 4%

Scenerio 2:

Hourly rate increase: $1

Annual vacation: increased to 3 weeks (80 to 120 hours)

The increased vacation time is replaced by hiring additional temporary employees.

Existing costs			
Base pay	2,000 x $8	$16,000	
Vacation pay	80 x $8	640	
Total	2,080		$16,640
New costs			
Base pay	2,000 x $9	$18,000	
Vacation pay	120 x $9	1,080	
Total	2,120		19,080
Increased cost			$ 2,440
Consisting of:			
Base rate increase: 2,000 x $1			$ 2,000
Impact on vacation cost: $2,000 x 4%			80
Additional vacation (through replacement): 40 x $9			360
			$ 2,440

Scenerio 3:

Hourly rate increase: $1

Annual vacation: increased to 3 weeks (80 to 120 hours)

The increased vacation time is not replaced in any way.

Existing costs			
Base pay	2,000 x $8	$16,000	
Vacation pay	80 x $8	640	
Total	2,080		$16,640
New costs			
Base pay	1,960 x $9	$17,640	
Vacation pay	120 x $9	1,080	
Total	2,080		18,720
Increased cost			$ 2,080
Consisting of:			
Base rate increase: 1,960 x $1			$ 1,960
Impact on vacation cost: $2,000 x 4%			80
*Additional vacation 40 x $1			40
			$ 2,080

* Note that 40 hours at $8/hr. are released from the base pay.

Note that the increase in the level of vacation has no effect on the impact factor which remains at $80 in all cases and that the new level of vacations (or other benefits, wage sensitive or otherwise) can be dealt with independently of the impact factor: i.e. if the lost time is replaced the additional vacation is costed at the new base rate; whereas if it is not replaced, the additional vacation is costed at the incremental base rate.

Total Hours vs. Hours Worked:

In converting total costs into costs per hour the question of whether one should use total hours paid or hours worked as the divisor arises. As shown in the following example the use of total hours will lead to misleading results where the benefit involves time off. Assume that the annual cost, using only one benefit item (i.e. vacation) for one employee, is as follows:

	Hours	Cost	Average
Wages for hours worked	2,000	$16,000	$8
Vacation	80	640	8
Total	2,080	$16,640	$8

The fallacy of using total hours paid as a divisor can be seen if we examine the effect of increasing the vacation to three weeks.

Scenerio 1:

Assume the increased vacation time is replaced by hiring additional temporary employees.

	Hours	Cost	Average
Wages for hours worked	2,000	$16,000	$8
Vacation	120	960	8
Total	2,120	$16,960	$8

If total hours paid is used as a divisor, the average hourly cost remains $8 giving the impression that the additional vacation is costless. This misleading impression can be rectified by using total hours worked as the divisor as shown below.

Existing cost per hour: $16,640 ÷ 2,000 = $8.32
New cost per hour: $16,960 ÷ 2,000 = $8.48

Scenerio 2:

Assume the increased vacation time is not compensated for in any way.

	Hours	Cost	Average
Wages for hours worked	1,960	$15,680	$8
Vacation	120	960	8
Total	2,080	$16,640	$8

If the total hours are used as the divisor the same misleading result occurs. Again this may be rectified by using total hours worked as the divisor, viz:

Existing cost per hour	$16,640 ÷ 2,000 = $8.32
New cost per hour	$16,640 ÷ 1,960 = $8.49

In passing, another alternative which may be used as a divisor would be the total output hours (i.e. standard hours allowed given good output). Since employees are not generally paid on this basis this method would not produce a meaningful measure of hourly labour costs if used as a divisor.

Anti-Inflation Board Experience

Before closing, it would be useful to examine the impact of the reporting of compensation imposed by the Anti-Inflation Board, (AIB) during the control period. While those interviewed, firms and unions alike, may have reservations about the idea of being controlled, they were unanimous in the opinion that the reporting procedure was useful because:

(i) it provided a standard set of information
(ii) it gave greater access of information particularly to the unions
(iii) it crystallized the use of the concept of total compensation
(iv) it lent credability to the information provided by the firm because it was now subject to independent verification by a third party.

The procedures adopted by the Anti-Inflation Regulations in determining the cost of a compensation package are similar to those described earlier and classify the wage items under three broad headings: wages and salaries (including COLA); direct and indirect incentive payments; and fringe benefits. The AIB concept of total compensation was not viewed by those interviewed as exhaustive, however, because it failed to include prerequisites and payments required by law (i.e. CPP, U.I.C. and workmen's compensation), etc.

Conclusions and Recommendations

Despite the relatively well established methods of costing the compensation package, four major weaknesses can be observed from the existing practice. First, since the accounting area is often not involved, useful data generated by the accounting information system are not effectively integrated into the analysis. Second, no post mortem is conducted to determine the validity of the parameters and assumptions used in costing the package for the purpose of improving future estimations. Third, the cost calculations are past rather than future oriented, i.e. computations are based on historical as opposed to projected levels of operations. Fourth, the analytical techniques emphasize the cost of contract changes instead of the effect on profits, labour costs, volume, product mix and capital investments.

The results of the survey warrant the following recommendations -

(i) The accountant should take a more active role in the analysis of the decisions confronting management with respect to wage negotiations. This may include the participation in the actual negotiation process.

(ii) The costing experts interviewed and a number of authors (e.g. see Quinet, p. 67) had identified as an urgent need the development of a standard methodology and terminology for the costing of a total compensation package. Because of their expertise, accountants should participate and, hopefully, lead in this endeavour.

(iii) There should be a comprehensive cost/benefit analysis of the alternatives available taking into account the costs of strikes (lost contribution margin, loss of skilled personnel, decreasing post-strike productivity, etc.) and the potential future savings due to reduced wage costs. In this connection the technique of capital budgeting under uncertainty appears to have direct relevance.

(iv) A well defined reporting system should be developed for the purpose of evaluating the decisions taken and as a basis for making future projections.

(v) Adequate disclosure of pertinent information by the parties involved, particularly by the firm to the union, is necessary in order to minimize the element of brinksmanship in labour negotiations.[5] Access of information is often hindered by the need of the firm for "confidentiality" and the feeling of "mistrust" against the management held by the union. The service of an independent accountant as an arbitrator of unbiased information along the existing model or reporting to shareholders may be helpful in removing these obstacles.

(vi) The accounting curriculum should provide an exposure to the type of analysis required in the area of industrial relations.

A study in response to items (iii) and (iv) is near completion (the second stage indicated at the outset of this paper) and will be reported later elsewhere.

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5 The relatively free access of information pertinent to labour matters by Ontario Hydro to its union and their joint and co-operative efforts in preparing contract analyses of fifty major employers in Ontario plus utilities as a basis for negotiations were cited as one important reason for the good labour and management relationship enjoyed by the two parties.

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CAAA 1980 Conference
Université du Québec à Montréal

Peter R. Newsted
Faculty of Management
The University of Calgary
Calgary, Alberta

MODIFIED GUIDED DESIGN FOR THE TEACHING OF STRUCTURED ANALYSIS AND DESIGN[1]

Guided Design is a form of programmed instruction developed by Dr. Charles Wales of the University of West Virginia. It extends the typical frames of programmed instruction to "Instruction-Feedback" units for use with groups. Rather than giving a single student a single objective question for which he must supply a single answer, Guided Design presents an instruction (of a paragraph or more) to a small group of students (4-7). After the group has worked with the Instruction and attempted to meet the demands, they are given Feedback indicating how they should have responded. Such a technique not only has been shown to motivate students quite highly, but also it has been demonstrated to foster the development of decision making skills in undergraduates.

Modified Guided Design

Using Guided Design it is possible to lead students through the stages of developing an MIS--both from the point of view of the necessary software/hardware and from a consideration of the organizational consequences of implementing a system with which employees are not familiar. Students in a systems design course can utilize their existing programming skills and be directed to additional materials and literature on information systems via the Guided Design Instructions and Feedback.

This typical use of Guided Design has been modified to accommodate the nondeterministic aspects of systems analysis and system design. Specifically, written feedback has been dropped. Feedback is provided by the instructor on an individual group basis. The problem with written feedback is that it is either too superficial or too restrictive; it cannot be easily adapted (beforehand) to an evolving MIS.

This use of Guided Design also differs from previous approaches to teach analysis and design (Newsted, 1979) in that structured techniques are used throughout. Following the tools and techniques suggested by (Gane and Sarson, 1977, 1979), students are led through the use of data flow diagrams and structure charts to produce a running system. In the present example, an information system for a university bookstore is analyzed and designed. However, the approach is relatively content free. Any application which can be described in a manual or by available users can be tackled.

The following module/milestones (each composed of 3 to 4 Instructions) were designed to explore the succeeding phases and characteristics of putting an MIS into operation.

---

1. Defining the current system.
2. Specifying the new system.
3. Designing and coding the new system.

As a group progresses through the modules, the construction of a real MIS maintains continuity.

A sample course outline is included after the general bookstore cases as Appendix I. Typical student responses to the instructions will be available at the conference.

DEVELOPMENT OF A COMPUTERIZED INFORMATION SYSTEM FOR A UNIVERSITY BOOKSTORE

Introduction

Assume Helen Atkinson has just been hired by the University Bookstore to analyze, design, and implement a computer-based information storage and retrieval system to handle course books, trade books, stationery and sundries, the Medical Bookstore, stockroom operations, and office operations.

Taking the role of Helen Atkinson, I would like you to work on this project in groups. Why? So you can have the benefit of a variety of ideas as you tackle each step in the definition and solution of this problem. To guide your work, I have prepared a set of Instructions which will be given during the remainder of the term. During the next few weeks each of you will play the role of project leader. (Note: This job should rotate through each group with each new instruction.)

To begin your work you should read and follow the first instruction.

Instruction 1-1: The As-it-is Report

On the first day of the project, Helen Atkinson attends a meeting with the Manager of the University Bookstore. The Manager informs Ms. Atkinson that he doesn't want her to tackle computerization of everything all at once. He would like her to analyze the existing operation before suggesting any changes or automation. Thus, your initial task is to find out about the existing system. Only when you clearly understand this system should you consider making changes or computerizing all or part of it.

To aid you in this task, you should consult the reports and proposals which previous analysts have done. You don't want to reinvent the wheel, only make it run more smoothly. Don't be overwhelmed by the detail in these reports. Remember your task now is only to describe how things happen now, not how these analysts think they should happen.

Your initial response to this instruction is to prepare a <u>short</u> descriptive report of the current operation (e.g., Gane and Sarson, 1977: Section 3.5). It should not be more than five double-spaced, typed pages. Make it descriptive, not evaluative. You just want to understand what is happening now. If some things are unclear, or there is information you lack, you should raise these points in a special section of your report. Refrain from using diagrams or flow charts. This will come next.

As a feedback to this instruction your instructor will evaluate how adequate your description is and will attempt to provide information on areas you noted as unclear. If possible, the Bookstore Manager will be asked to comment on your report.

This evaluation will only be provided to the current project leader (who is assuming the role of Helen Atkinson). Remember for the next instruction there should be a new leader who will guide the group's activities. The reason for this is to give all of you the opportunity to participate in decision making both from the point of view of being a project team leader and a project team member.

Instruction 1-2: A Preliminary Logical Model of the Current System

Now that Helen knows what is happening in the existing operation and has phrased it in words, she is going to prepare a rough draft of a top level DFD (Data Flow Diagram) reflecting her description (Gane and Sarson, 1977: Figure 3.17). A rough draft won't be seen by management and is only a tool to get started. There is no pressure yet.

As ongoing feedback to this instruction, your instructor will point out missing parts and suggest where more detail is needed--in preparation for a finished top level DFD. To simulate actual conditions you will also get feedback from a walkthrough in front of the other groups who are working on the same project. This criticism will be constructive and should be useful in preparing a "pretty" DFD for management.

Instruction 1-3: A Comprehensive Logical Model of the Current System

Now's the time to worry! Management wants to know what Helen has been doing all these weeks. They want to know if she understands their system. Clearly they won't trust her to do new things until they are convinced she knows how the present operation works.

Your instructor may take the place of the Bookstore Manager depending on time constraints. For your presentation to the Manager you should have a top level diagram which is graphically pleasing (e.g., Gane and Sarson, 1977: Figure 3.19). It should cover one large piece of paper--such as used on a flip chart,

As feedback to this instruction, you will receive a grade based not only on your overall understanding of the Bookstore operations but also on how well you conduct a walkthrough of your DFD.

Instruction 2-1: Alternatives

Hooray! Management accepts. Helen's logical model of the current system makes sense to them. What your task is now is to incorporate changes, suggestions, and ideas you and the Manager both have as to what a new (computerized?) system should look like.

Important here are the following issues:

A. What new processes will be added? (e.g., On-line inquiry)
B. What will be deleted (if anything)?
C. What can be simplified now that we have the whole picture in one DFD?
D. What parts of the DFD (i.e., which processes) could be computerized?
E. What processes should stay manual?
F. There are almost certainly many multiple answers to D. and E.

In addressing these points you should provide a menu of alternatives (Gane and Sarson, 1977: Section 8.3): Low cost to doing-it-all. Don't tell management what to do; let them choose--they not only get to select the most bang for their buck, but they also assume part of the responsibility for the system they are commissioning.

Remember IRACIS and business objectives and distinguish them from system objectives as you prepare a revised top level DFD detailing the alternatives (Gane and Sarson, 1977: Sections 2.1.2, 8.3.1).

As feedback to this instruction your instructor will pick one of your alternatives which seems feasible to develop (i.e., computerize) in the remainder of the term. Choosing an alternative may be a cyclic process as it may need to be revised to fit time constraints as well as meshing with the other group(s) chosen alternative(s).

Instruction 2-2: Detailed Model of the New System

Working from the relevant parts of her revised top level DFD, Helen must now break down each process into its subprocesses or modules (Gane and Sarson, 1977: Figure 9.19). As a rough guideline you should think of each of these bottom-level processes as being represented (ultimately) by no more than 1 to 2 pages of COBOL procedure division code. Your instructor will provide feedback as to the adequacy of detail your lower level DFD's contain. It is important to note that you are only naming these modules; you are not coding them at this time.

A good guideline at this point is to ask yourselves how clear each top level explosion (to lower level boxes) would be to someone new joining your project team at this late date.

Instruction 2-3: A Data Dictionary

Prepare a dictionary of processes, data elements, data structures, data flows, data stores, and any special business terms that need to be defined. 4" x 6" cards should be adequate for each entry (Gane and Sarson, 1977: Chapter 4). Think about integrating your dictionary with the other group(s)--for how else can we truly build all of the group's systems into something really useful for the Bookstore?

Consider also how the dictionary will be used in writing data divisions.

Instruction 2-4: Specifying Process Logic

Use pseudocode or any technique of your choice (even traditional flowcharts) and define the logic of each process box (in the lower level DFD's)

so that it can be easily coded. Remember, however, that code with goto's--which is often induced by flowcharts--can be hard to change and hence very costly to modify.

Think about making your logic useful to junior programmers just joining your team. Remember to be clear about the input and output of each process.

Upon reaching this milestone you will be graded on the adequacy and obviousness of your logical specifications of the new system.

Instruction 3-1: Getting Physical

No, Helen has not been harassed, but now she must turn her detailed logical model into a top-down structure chart that shows where each module will fit. Input and output flows should guide you in your creation of this chart (Gane and Sarson, 1977: Section 9.2.2).

Instruction 3-2: Creating a Version Timetable

Development! Management is waiting. They want to see something working before the budget is completely gone. Now Helen must say what versions will be ready, when and what each one will do (Gane and Sarson, 1977: Section 9.5.1). Specify as many versions as you wish. You may not accomplish all of them, but at least you will leave the course with something working.

Your first version (0) will be a simple skeleton and should be composed of the minimum number of modules necessary to get a single error-free transaction through the system.

To answer this instruction you should draw up a version table (based on your previous structure chart)--noting completion dates expected, tasks accomplished, and involved modules, for each version you have specified.

Instruction 3-3: Implementation

Proceed with your versions. Show your instructor the results of each version as you complete and test it. Your data dictionary should indicate the kind of values to expect and hence those your system should flag as invalid.

As feedback to this final instruction will come a grade based on the structure, correctness, and mnemonicness of your code.

APPENDIX I

THE UNIVERSITY OF CALGARY
FACULTY OF MANAGEMENT
MGIS 453
WINTER 1980
INFORMATION SYSTEM DESIGN AND IMPLEMENTATION
COURSE INFORMATION

INSTRUCTOR:	Dr. P.R. Newsted	SECTION:	01
OFFICE:	MA 516	ROOM:	MA 211
PHONE:	284-7156	DAYS:	Tuesdays & Thursdays
HOURS:	As available	TIME:	3:30-4:45
		LAB:	TBA

COURSE OBJECTIVES

This course, building on the material presented in MGIS 433 (Information Systems Analysis) and on the programming experience you have had, is designed to instruct you and give you actual experience in the analysis, design, and programming of an information system. After initial discussion of structured techniques the class will be divided into project groups of 4 to 5 people each.

Using an incremental approach each group will be carefully guided through the stages of project development to producing a running system.

COURSE TEXT

Gane, C.P. and T. Sarson, Structured System Analysis, Improved System Technologies, 1977.

COURSE SCHEDULE

Dates	Topic	Assignment
Jan. 8,10,15	Structure!	Gane and Sarson (all except Chap. 6,2,3, & 9 are the most important)
Jan. 17	NO CLASS: BUSINESS DAY	
Jan. 22	Quiz on structured approach (10% weight)	
Jan. 24	Group assignments (last regular class meeting)	

DEADLINES (A group grade will be assigned for each milestone)

Milestone I,	Defining the Current System (30% weight)	Feb. 15, 5:00 p.m.
Milestone II,	Specifying the New System (30% weight)	Mar. 7, 5:00 p.m.
Milestone III,	Designing and Coding the New System (30% weight)	Apr. 10, 5:00 p.m.

THE UNIVERSITY OF CALGARY

FACULTY OF MANAGEMENT

MGIS 453 Status Sheet (Bookstore Project) Group #:_____

Meeting Room:_____

Members	Name	MULTICS Person ID	Phone
1.			
2.			
3.			
4.			
5.			
6.			
7.			

Unit	Leader	Instruction Date	Feedback Date	Grade
1-1 As-it-is Report				
1-2 Preliminary Model				
1-3 Comprehensive Model				
2-1 Alternatives				
2-2 Level 2 DFD's				
2-3 Data Dictionary				
2-4 Process Logic				
3-1 Structure Chart				
3-2 Version Timetable				
3-3 Implementation				

YOUR NAME_____

THE UNIVERSITY OF CALGARY

FACULTY OF MANAGEMENT

MGIS 453 Group Evaluation Sheet

Group #_____

Milestone #_____

Milestone Grade (0.00 to 4.00) _____

	Alphabetical list of group members including yourself.	Your estimate of percentage contribution to the group grade. THIS MUST SUM TO 100%
1.		
2.		
3.		
4.		
5.		
6.		
7.		

PLEASE DO YOUR RATING BY YOURSELF--NOT WHILE YOUR GROUP IS MEETING.

(instructor's use only)

Average and grade for circled member: _____/_____

REFERENCES

Gane, C. and T. Sarson, Structured Systems Analysis, Improved System Technologies, 1977 or Prentice-Hall, 1979.

Newsted, P.R., "Two MIS Cases Using Guided Design," American Institute for Decision Sciences Case Workshop, New Orleans, November, 1979.

CAAA 1980 Conference
Université du Québec à Montréal

Izak Benbasat
and Albert S. Dexter
Faculty of Commerce
University of British Columbia

PILOT SURVEY OF DEMAND AND SUPPLY CONDITIONS FOR CANADIAN INFORMATION PROCESSING PROFESSIONALS

This paper reports on a pilot research study conducted to forecast the supply and demand conditions for information processing professionals in Canada. The study conducted in British Columbia during the Summer of 1979 was sponsored jointly by the Canadian Information Processing Society (CIPS), the Canada Employment and Immigration Commission, and the British Columbia Ministry of Education through JEM Projects. The data on supply/demand conditions on computer professionals surveyed in British Columbia is presented together with an educational profile on these individuals in terms of skills possessed and skills deemed useful. Because of the pilot nature of the study, generalizations to the Canadian environment are not presented. Based on the study outcomes tentative suggestions for further research and analysis are made.

Introduction

The computing industry in Canada is marked by increasing growth in terms of computing systems installed and number of individuals employed. The problems in terms of critical personnel shortages of certain professionals is well known. Two recent press statements are cited here which summarizes the above point. Giles Gherson (1979) stated in the Financial Post that

> "demand for computer programmers and systems analysts has rarely if ever been higher ... Recruiting officers say demand isn't particularly strong for university-trained people with a solely theoretic base, notwithstanding their abundance. Rather, the search is on for, the apparently elusive breed of data processor with three to to five years' experience in industry ...it's paradoxical that the shortage of skilled data processors has pushed up salaries to extraordinary heights ... while employers steadfastly say they can't afford to train university graduates.

In the British Columbia context, Karen M. Krangle (1979) stated in the Vancouver Sun

> "An increasing number of professionals and skilled employees are being imported into B.C. because there aren't enough students in the province's post secondary institutions, a University of Victoria report has disclosed." (Statistics Canada).

Ms. Krangle quoted one researcher as follows:

> "This study has revealed deficiencies which we believe to be of such importance that they should be brought to the attention of policy-makers and to the public at large."... The report also asks what the implications of this educational gap are in terms of economic productivity and growth and what government strategies are for filling B.C.'s need for professional manpower.
>
> It is more than a job for government -- the educational institutions themselves need to to their policies, ... There is a serious responsibility for policy makers to address these issues.
>
> We believe that failure to do so will have serious consequences for the future of British Columbia."

Educational Institutions Survey

In order to assess the supply question all community colleges in British Columbia and the three universities, SFU, UBC, and University of Victoria were contacted using a mail questionnaire. At the university level, commerce and computer science program heads were surveyed; the departments of engineering and mathematics were excluded. Of the schools surveyed, a total of fourteen (14) programs exist where computer education in one form or another is taught. Nine (9) schools have no program and do not plan for one. Three programs in computing science are planned, two (2) at the undergraduate level and one (1) for the masters program. This data is presented below in Table 1.

Table 1

Number of Computing Education Programs

	PRESENT			
	2 Year	4 Year		
	Under-grad	Under-grad	Masters	Ph.D.
Commerce	3	0	1	1
Computer Science	2	4	2	1
Total	5	4	3	2

In addition to the relatively few computing education programs in existence, there are not many students graduating with either commerce/computing education or computing science education. It seems clear that in the foreseeable future there will not be enough graduates leaving B.C. institutions to keep up with industry demands. This data is consistent with the aforementioned University of Victoria study and data received from both computing professionals and managers in this study. The number of graduates with backgrounds in computing leaving B.C. Institutions is presented below in Table 2

Table 2

B.C. Institutions - Number of Graduates in Computing Disciplines

	Year	PRESENT 2 Year Under - Grad	4 Year Under-Grad	Masters	Ph.D.	Totals by Year
Commerce	1979	41	0	4	0	45
	1981	78	0	6	1	85
	1983	85	0	8	2	95
Computer Science	1979	79	92	8	1	180
	1981	85	120	16	2	223
	1983	88	135	21	4	248
Totals by Category		456	347	63	10	876

As part of the B.C. educational institutions survey, respondents ranked some twenty-two (22) subject areas offered in terms of perceived importance to their program's objectives. The rankings were based on the five (5) point scale shown below in Table 3.

Table 3

Level of Importance of Area of Learning

1. Of no importance
2. Of little importance
3. Average importance
4. Of high importance
5. Of extreme importance

The average results of this ranking are shown below in Table 4. following.

Table 4

Average Importance of Learning Areas

1.	Programming Languages	4.0
2.	Operating Systems	3.2
3.	DataBase Management Systems	3.1
4.	Telecommunications/Networks	2.7
5.	Computing Hardware	2.7
6.	Minicomputers and Microcomputers	3.4
7.	Structured Programming	4.0
8.	Design of hardware and software configurations	3.6
9.	Management science/operations research techniques	3.0
10.	File organization and searching techniques	3.5
11.	Hardware and software performance evaluation techniques	2.3
12.	Project planning and control techniques	3.3
13.	The social and behavioural impact of computerized systems on the organization	3.1
14.	Feasibility or cost benefit studies (e.g. technical, economic, operational)	3.0
15.	Techniques to effect acceptance and useage of new systems	3.2
16.	Systems and programming documentation techniques	4.1
17.	Approaches to communicating and interacting with non computer users and managers	3.4
18.	Techniques to determine information requirements of users	3.1
19.	Control and security techniques for programs and data	2.6
20.	Methods to determine information flows and interfaces amongst functional areas in the organization	2.7
21.	Functional application area knowledge (e.g. accounting, engineering, marketing, etc.).	3.4
22.	Privacy issues and implications for computerized systems.	2.5

Respondents were asked to identify the types of positions their graduates would be expected to fill immediately upon graduation and after five (5) years of work experience. This data is summarized below in terms of the number of individuals by position, both in 1979 and in 1983. In other words, Table 5 shows the number of graduates both in 1979 and 1983, their immediate employment potential, and their employment potential after five (5) years of experience.

Table 5
Positions in DP Industry that Graduates Are Expected to Fill

POSITIONS	1979 Graduates	Five Years Experience	1983 Graduates	Five Years Experience
Data Processing Manager	-	107	-	163
Database Administrator	8	107	25	154
Manager of Systems Analysis	-	115	-	189
Senior Systems Analyst	15	181	15	299
Junior Systems Analyst	176	2	220	18
Manager of Programming	-	121	-	209
Senior Systems Programmer	8	163	-	234
Junior Systems Programmer	171	-	-	-
Senior Applications Programmer	22	170	36	233
Junior Applications Programmer	192	-	266	-
Telecommunications & Network Specialist	-	85	-	115
Hardware Specialist	-	85	40	115
Small Systems Specialist	141	30	156	63

Also of interest in Table 5 above is the absence or paucity of numbers in certain positions that students of B.C. educational institutions are expected to fill upon their graduation. Some of these positions are in critical demand such as senior analysts as will be shown in the discussion on data processing professionals.

Data Processing Professionals Survey

During the summer months of 1979 one hundred ninety seven (197) data processing professionals in B.C. responded to a survey querying their educational background, job demographics and the level, source, and usefulness of various EDP skills. The typical respondent was thirty-four (34) years old and had worked an average of ten (10) years in the industry. Thirty-eight (38) had attended professional, vocational or technical schools while one hundred forty-two (142) had attended a college or university. Twenty-six (26) had received a professional designation such as CDP, CGA, P.Eng., etc.[1] Twenty-eight (28) of the respondents were women, which comprise fourteen (14) percent of the sample.

The above group of professionals was asked to describe the level, source, and usefulness of twenty-three (23) data processing skills. Because of space limitations this data will not be presented here; rather it shall be presented at the conference.

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[1]Note: These numbers will not sum to 197 because of the possibility of multiple answers.

The single most significant source of the skill as perceived by EDP professionals is on the job experience after data processing entry. On the job experience clearly dominates the responses in all but a very few of the questions. Next in significance are either formal sources of education such as professional, technical, vocational schools, colleges and universities or less formal education such as in-house educaton sponsored by the employer or independent study on one's own, depending upon the particular data processing skill. The category of vendor supplied education is also worth noting. In certain skill areas which are close to the forefront of technological breakthroughs, such as database management systems, telecommunications and networks, and mini and microcomputers, vendor supplied education is an important secondary source next to on-the-job experience.

Upon reflexion these results above are hardly surprising. In a field that has just passed its infancy and is subject to such rapid technological change, data processing professionals need to be devoting a significant part of their job time to staying abreast of current developments. It is widely known that certain technical knowledge such as specifics of computing hardware has a half life of three (3) years. Therefore, knowledge of this type is quickly dated, regardless of source. As well, considering the typical respondents have nine (9) years of experience, many of the skill areas such as databases weren't even in most curricula during the time of their formal education. Given the present projections on technological change now being forecasted, we hypothesize that on the job experience after entry into the data processing will continue to be the most significant source of skills for EDP professionals. We will return to this topic in our policy suggestions for the profession.

The Managers Survey

Some three hundred (300) firms in British Columbia were sent the manager's survey. The response rate of forty two (42) or fifteen (15) percent was too low to make any generalizations even for the British Columbia environment. Thus most comments concerning the manager's survey relate to the respondents only.

The managers who responded to the survey indicated that their companies had been using computers for a median of seven (7) to ten (10) years with a range of less than three (3) to more than twenty (20) years. The typical hardware expenditure was $5,000-10,000 per month, which comprised one third (1/3) of their total data processing budget. The respondents described their distribution of expenditures as shown below in Table 6.

Table 6
Distribution of Data Processing Expenditures

Category	Percent
Computing Hardware	33.9
Computer Operatons and Data Entry Personnel	20.4
Systems Analysis and Development Personnel	11.4
Programming Personnel	10.6
Management	10.2
Supplies and Accessories	8.4
Outside Consultants and/or software houses	1.8
Miscellaneous	3.3
Total	100.0

The managers were asked to indicate the sources of their personnel for three categories - managers/supervisors, seniors, and juniors. In only the Juniors category did the source of colleges, universities and technical schools become of interest. Here about one fifth (1/5) of their Juniors came directly from this source. Recall from the professionals survey, however, that the colleges, universities and technical schools provide the background for the vast majority of data processing professionals. Thus, it appears that while formal education is important in the background of data processing professionals, but that on-the-job experience is a major source of education in the more advanced data processing positions.

The managers were asked to indicate their additional personnel demands over the next five (5) years. Additional requirements for Managers/Supervisors was thirty-five (35) percent, for Seniors fifty-one (51), and for Juniors eighty (80) percent. Again no generalizations will be made; however, these managers indicated a substantial increase in demand for the Juniors positions over the next five years.

Another result of this survey is of interest to both the profession and to educational institutions. Over forty (40) percent of these managers indicated that they were having difficulty in filling some data processing positions. The most frequent positions mentioned were senior systems programmer. This position isn't generally a direct entry position for juniors. Thus in spite of all of the efforts the schools in British Columbia undertake to expand their enrollment, there will be both educational and experiencial gaps in the industry for the foreseeable future.

Many of the responding managers, some eighty-three (83) percent, indicated they had specific personnel training plans to overcome their hiring difficulties. The most frequently mentioned personnel training plans included: in-house training, on-the-job training, and courses by technical schools and hardware manufacturers. This result if generalized indicates that managers are well aware of their personnel difficulties and are taking measures to overcome these problems. We now turn to some suggestions for policy planners.

Policy Planning

The potential for growth in the data processing industry is both well

known and significant. The rapid change in technology and breakthroughs in cost reduction and other performance variables are occurring simultaneously with the high rates of inflation for labour in the economy. These factors suggest a much larger use of computing technology during the decade of the 1980's. The colleges, universities and technical/voicational/professional schools will have an important role to play in providing entry level individuals for the industry. While the data from this pilot study is NOT sufficient for generalization to the Canadian economy, it is consistent with the hypothesis that gaps in computing education exist presently and will continue into the foreseeable future.

The implications of the shortfalls on the part of B.C. institutions to supply enough entry level personnel for the computing industry are important particularly since the present immigration policy in Canada is for our firms to train our own individuals. To the extent that there aren't enough of the highly qualified and experienced data processing professionals at present, as indicated by the difficulties managers are now having in filling certain positions, this problem will certainly be exacerbated if the projected growth rates continue for the industry. For managers of data processing installations then it will be necessary to continue and improve education efforts now undertaken. One suggestion is for these managers to institute the concept of articling, similar to the accounting profession, where new graduates may learn as they work and qualify for higher levels of responsibility as their performance dictates.

The results of the pilot study should not be considered as conclusive for the economy as a whole. Nonetheless, we hypothesize that there is now and will continue to be a shortfall of competent professionals for the industry. More research is needed. We quote the recent Annual Report of the Economic Council of Canada in this regard.

> "It is apparent that as we enter the 1980s, skill shortages -- already appearing in a number of industries -- will get worse. This has major implications for occupational forecasting and training programs. Clearly, appropriate treatment of labour market imbalances depends crucially on accurate and timely diagnosis. A critical review is needed of the capabilities of Canadian government and industry in forecasting the demand and supply of occupational skills, translating these into skill training requirements, and mounting effective training programs. Such a review is currently under way at the Council. What is needed, however, is a thoroughgoing reappraisal by the principal parties themselves.
>
> > We recommend that the federal government, in conjunction with the provinces, unions, and employers, reassess the present array of labour market and manpower programs with a view to tailoring them more efficiently to the labour market needs of the 1980s including, in particular, the identification and treament of skill shortages.
>
> Not only must retraining programs be reshaped for the 1980s, there must also be less of a shotgun approach to job creation programs with their bewildering array of acronyms.

> We recommend that the federal government, in conjunction with the provinces, unions and employers, review the federal job-creation programs now in effect, with the objective of making them more selectively targeted to the changing needs of business, and that proper evaluations of the programs be carried out and made public.

In summary a skills problem seems to exist. The pilot study supports this hypothesis. More study appears warranted so that educational programs can provide their proper role in supporting the country's needs.

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CAAA Conference
Université du Québec à Montréal

Norman X. Dressel
Faculty, School of Accountancy
Georgia State University
Atlanta, Georgia

THE INTERNATIONALIZATION OF THE ACCOUNTING CURRICULUM

The American Association of Collegiate Schools of Business has adopted a standard requiring all members to internationalize their curriculum. The Georgia State experience, after almost one year of implementation, is given.

Financial Accounting

At the outset, it is advisable to look at various areas of specifics relating to the international aspects of accounting. The multi-national corporation must decide whether it shall account for foreign operations on U.S. G.A.A.P. or 'go native' and adjust accordingly later for equity basis investment or consolidation purposes. Sears, as an example follows the former method. Many operations have to be accounted for in two ways, G.A.A.P. for U.S. purposes, and 'local basis' for local statute and/or tax law.

Currency translations, very important in multi-national accounting, both for transaction events and for financial statement purposes, continue to give difficulty in the profession. F.A.S.B. No. 8 is basic to this area. There have been numerous complaints voiced by critics in current literature about this pronouncement. It has been said that F.A.S.B. No. 8 has been the cause of unsound corporate decisions, stock price actions, and unfavorable monetary trends. A restudy and revision is forthcoming in the near future.

A rather important aspect of financial statement presentation abroad is the prevailing 'form over content' approach. In many countries, for example, if a lease is so labeled, it is considered an operating lease item for accounting purpose and not a capital item. This practice is based solely on the word 'lease' and not the content of the lease contract. In addition, many jurisdictions do not use combined income and retained earnings statement approach. Even though turnovers may be required, relating to income statements, many countries do not require presentation of 'sales' and 'cost-of-sales' figures. Such is the case in France.(AICPA, 1975)

There are considerable differences in accounting for combinations and consolidations. Views in the U.S. on this subject are not accepted in numerous other countries. Or, if accepted in theory, are not followed.

There seem to be major differences in valuation bases among various countries. Some have conservative historical cost bases (some even below cost). Others recognize appreciation of values in the accounts, in one way or another. Revaluations, or monetary corrections, a common practice in a number of countries, is exemplified by Argentina.(AICPA, 1975) Here, the difference between computed values (based on government-provided correction coefficients) and original cost less accumulated depreciation is capitalized. The offsetting reserve is divided into two equal credits, one part to a permanent capital reserve, and the other part to a reserve for future losses.

Inventory valuations methods vary in practice throughout the world. In some countries, 'direct costing' is permitted. Lifo, popular in the U.S., is not viewed with favor in many countries even though the replacement cost basis (approximating Lifo) may be used. The practice of stating inventories at less than the lower of cost-or market is prevalent in The Netherlands.

The allowance for the bad debts provision is arbitrary in some instances. The provision, made according to tax statute is used for financial reporting. For example, in Brazil it is calculated at three percent of outstanding accounts receivable as of end of fiscal year, whether such provision-amount is needed or not.

Depreciation accounting may result in excessive high charges in some countries. In Germany, for example, tax law prevails and accelerated depreciation on fixed assets (as well as inventory reserves up to twenty percent on selected imported items) are provisions of the law.(AICPA, 1975) Furthermore, to have this tax advantage, these provisions must be used in financial statement reporting.

Numerous instances of ignoring selected accruals on the financial statements are found in some countries. Included in this group are those accruals relating to severence pay, pension benefits, and vacation provisions. These countries seem to be on a cash-basis with regard to such items.

As a result of a number of practices, mentioned above, there are 'secret reserves' in the Balance Sheets of some companies in many countries. The magnitude of such reserves depends upon the degree of asset understatement, of course, or the balance between asset understatement and liability understatement. Many countries require the accumulation of profits into a 'legal reserve,' based upon a certain percent until it accumulates to a reserve account of a percent of issued capital. In the contingency reserve area, we find the offsetting charge to income in some instances. In others, to 'surplus.' It is common practice, in Japan, to charge various voluntary reserves to income. Here, these reserves are booked primarily because they are acceptable for tax purposes.

As a result of variations in accounting practice throughout the world, financial statement analysis techniques used in the U.S. are not applicable when analyzing foreign statements.

Auditing

The following is adapted from "The International Dimensions of Auditing," an unpublished paper, by H. F. Stabler, Professor of Accounting, School of Accountancy, Georgia State University, March 24, 1980. It covers the profession of accounting and auditing in three selected countries, Egypt, Brazil, and The Netherlands.

Egypt is relatively undeveloped and its industrial sector is small in comparison to that in the other two countries. It has comparatively lower levels of literacy and education, and is a socialist country both politically and economically. The situation in Brazil is somewhat in between that of Egypt and the Netherlands. It has a rapidly developing economy, has a

somewhat higher level of literacy and education, and politically is a military junta but with a capitalistic orientation. On the other hand, the Netherlands has a highly developed economy and a highly literate and well educated population. There is virtually no government ownership and very little regulation of business.

The differences in the environment of these three countries are clearly reflected by their accounting and auditing professions. In Egypt, one finds a uniform, highly standardized accounting system which has as its major purpose reporting to the government for centralized planning and control purposes. More 'social' information must be reported than in Brazil or the Netherlands. As is to be expected, the situation in Brazil lies somewhere between that of Egypt and the Netherlands. There exists a two-tier system of accounting, with one tier relating to the large, publicly owned companies and the second tier to all others. The profession, as it relates to publicly held companies, is similar to that of the United States whereas the second system is considerably different. In the latter case, one finds considerably less disclosure and regulation with probably not as accurate a reflection of financial position and operating results. Since there is considerable inflation in Brazil, both systems are faced with the necessity of adjusting the financial statements to give effect to it. The most advanced accounting profession, in comparison, is found in the Netherlands. Accounting practices are tailored to the individual firm and, as long as they reflect "sound business practices," they are considered to be "generally accepted." Many companies employ replacement cost or current value accounting, and there is a high level of disclosure.

Management Accounting

The following is adapted from "International Dimension of Internal Accounting: A Synopsis," an unpublished paper, by Yezdik Bhada, Professor of Accountancy, Georgia State University, December 1979. This adaptation presents practices and problems in selected management accounting areas for the multi-national corporation (MNC).

Product costing. One of the few areas where the impact of an international environment is not much different from that of a domestic setting is that of product cost accounting. It can be said, with little reservation, that product cost accounting concepts have universal applicability. Thus, cost accumulation systems (e.g., job-order, process), cost concepts (e.g., full costs, direct costs), and cost analyses (incremental, C/V/P model) have as much applicability for MNC's as they do for a purely domestic organization.

Responsibility accounting. The same ease of adaptation is all but missing when we get into the responsibility accounting and management control phases. Not only are all the general problems related to responsibility center definitions carried to the MNC environment, but several additional complexities are added. These additional problems are related to the fact that subsidiaries may be set up for varied strategic reasons, for example:

-to take advantage of lower labor, energy, or other production costs
-to secure sources of raw material
-to circumvent tariff barriers

-to create new markets for products and services
-to keep in step with competition
-to utilize old but functional equipment

The fact that certain subsidiaries are set up for peculiar strategic reasons is not a problem in itself, for even domestic subsidiaries are often created for special needs. What does create the problem is the treatment of such foreign subsidiaries as one kind of responsibility center (e.g., cost center for a sub-assembly plant in a low labor cost area) for performance evaluation purposes and the need to treat it as another form (e.g., profit center for foreign country tax purposes) for statutory reasons.

Profit planning. Given the above constraints, it is safe to say that most foreign subsidiaries are treated as some form of profit or investment center. Planning and control for profits is also fraught with differences that need to be adapted for. William W. Cain has provided a thought-provoking list of differences between planning for domestic units and for international operations.(Cain, p. 58) Understanding these differences is essential for effective budgeting and profit planning, and hence, this list is reproduced below:

	Domestic Planning		International Planning
1.	Single language and nationality	1.	Multilingual/multinational/ multicultural factors
2.	Relatively homogeneous market	2.	Fragmented and diverse markets
3.	Data available, usually accurate, and collection easy	3.	Data collection a formidable task, requiring significantly higher budgets and personnel allocation
4.	Political factors relatively unimportant	4.	Political factors frequently vital
5.	Relative freedom from government interference	5.	Involvement in national economic plans; government influences business decisions
6.	Individual corporation has little effect on environment	6.	"Gravitational" distortion by large companies
7.	Chauvinism helps	7.	Chauvinism hinders
8.	Relatively stable business environments	8.	Multiple environments, many of which are highly unstable (but may be highly profitable)
9.	Uniform financial climate	9.	Variety of financial climates ranging from over-conservative to widely inflationary
10.	Single currency	10.	Currencies differing in stability and real value
11.	Business "rules of the game" mature and understood	11.	Rules diverse, changeable, and unclear
12.	Management generally accustomed to sharing responsibilities and using financial controls	12.	Management frequently autonomous and unfamiliar with budgets and controls

Performance evaluation. Research seems to indicate that some variation of the investment center approach is the most widely used measure for performance evaluation of MNC subsidiaries.(Robbins and Stobaugh, p. 82) This treatment is understandable when one recognizes the predominance of that approach in the domestic environment. It is common knowledge that the investment center approach utilizes measurements that are dangerous, and that the problems of effective usage are many. It would be safe to say that those problems are at least doubled in magnitude when the investment center approach is used for control of foreign subsidiaries. In the first place, it is assumed that a unit has a relatively high degree of decision-making autonomy for it to be treated as an investment center. This assumption is often not valid for the MNC subsidiaries, especially for ethnocentric organizations. In such cases, treating a subsidiary as an investment center when control of key variables is centrally maintained would be inappropriate. Next, calculating "return" involves some peculiar difficulties. Aside from the horrendous problems of transfer pricing (to be pointed out later), there are other problems of determining profits. For example, should currency exchange rate fluctuations be adjusted for in measuring performance? Should all income be recognized or only that portion that can legitimately be considered transferable? What adjustments should be made for central allocations (or lack of them) as they may affect foreign and home taxes? Another complexity relates to the way income is defined. Various arrangements might exist in order to circumvent tax repatriation and tariff regulations. What combination of earnings, royalties, fees, dividends, rentals, interest, commissions and export profits should be included in the "return" calculation? Last but not least is the troublesome problem of defining "investment." Fluctuating currency exchange rates, general and specific price level changes, differences in value of investments to parent and subsidiary are examples of fairly complex adjustments that need to be made.

The above discussion should lead us to the conclusion that a flexible system that permits adaptations for the myriad of variables would be best suited for MNC's in the contemporary environment.

Transfer pricing. Undoubtedly the most vexing problem for MNC control is that of deciding on the proper transfer pricing policy where goods and services are transferred between divisions and between home office and divisions in other countries. Here again the generally recognized difficulties of arriving at the proper policies in a domestic organization have to be multiplied several times to arrive at the level of complexity that can exist in the multinational environment. The ramifications are much more significant since there are more intra-company transfers that take place for MNC's than in purely domestic organizations and there are no theoretically optimum or operationally superior solutions.

The normal difficulty of having a transfer pricing policy that can meet the criteria of goal congruence and performance evaluation is further strained by the desire to centrally control functions of tax planning and cash coordination. Differential tax rates is only one variable that can affect the transfer pricing policy. It is interesting to note that there are several other variables, each of which could cause the transfer pricing policy to be dysfunctional if not adequately accounted for. Some of these variables are:

-strategic reasons for establishing the foreign division
-different types of taxes
-tariffs and custom duties
-fluctuating currency values
-differential inflation rates
-restrictions on fund transfers
-political risk and expropriation considerations
-cultural differences

In fact not only would each of these factors independently affect transfer pricing policies, but they may cause an even more complex impact through their inter-relationships. Weighing all these tradeoffs is by no means an easy assignment.

The Georgia State Experience

A Faculty Task-Force, a committee of six professors, working closely with representatives of Touche Ross, developed a program for the implementation of internationalization into curriculum. Headed by two of these professors, one having a double academic appointment in both International Business and Accounting, as Co-Chairman, the remaining four committee members divided the accounting courses into four recognized fields, Financial Accounting, Auditing, Management Accounting, and Taxation. It was decided to integrate the international aspects into each applicable course rather than elaborate upon only one course, an already-existing course entitled "International Accounting."

Within a period of two quarters each course was evaluated so as to include appropriate changes in the course outlines. Some of the courses had covered the subject adequately, but most needed extensive revisions. Through the use of seminars, the entire faculty of the school was informed about the progress of the project. In-put from the entire faculty, as well as practitioneers was sought and gratefully received. Through constant revisions, tentative course outlines were designed.

During the following quarter, these revised outlines were put into use. The committee continued to function during the quarter in a resource, as well as advisory capacity. At the end of this first experience, an evaluation of its effectiveness, as perceived by both students and faculty was made. Nearly 1,000 students and 41 faculty members completed a questionnaire. Some major observations can be made from this initial implementation.

Student Evaluations

1. 66% of all students felt the international material was as interesting (52%) to more interesting (14%) than the non-international material.

2. 49% of all students expressed a desire to learn more about the international aspects of accounting.

3. 68% of all students felt the instructors' ability to explain the international material was good (50%) to exceptional (18%).

4. Only 3% of all students expressed an unfavorable reaction to the international material, while 7% were highly favorable, 41% favorable and 9% were indifferent.

5. In terms of relevance, however, only 2% of all students felt the international material was more relevant, and 39% as relevant, while 48% felt it was less relevant. This comparatively low assessment of relevance was undoubtedly heavily weighted by the responses of the two undergraduate principles courses.

6. There appeared to be some significant differences between undergraduate and graduate student assessments. In general, graduate students reacted more favorably to the international material in terms of interest, overall reaction and relevance.

7. There were also significant differences in assessment by course, reflecting different degrees of international content and treatment in each course.

Faculty Evaluations

1. The amount of international material taught by the faculty overall was low, less than one lecture equivalent in 66% of all the courses. Here again, there was a significant difference between graduate level courses and undergraduate courses. 57% of the graduate courses as a whole had moderate amounts (1 to 2 lecture equivalents) compared to undergraduate (19%).

2. Lectures were the principle method of covering the international content (30%), followed by anecdotes (24%), readings (12%) and cases (11%).

3. There was roughly a 50-50 split among the faculty concerning the appropriateness of the international material for the particular courses taught. Again, the particular assessments were largely a function of the particular course: more appropriate for graduate level courses and/or certain specific courses regardless of level.

4. As to whether or not the international content should be increased or decreased subsequently, the majority of faculty (68%) felt it should be left unchanged. However, on closer examination by specific course and instructor, this overall assessment is difficult to analyze. The main reason was that a "left unchanged" response could be checked by one professor who covered a lot of international material as well as by a professor who covered very little international material.

5. 82.5% of the faculty were clear as to the purpose of the project in general and 59% in terms of what was being sought to be accomplished in the specific course. However, 66% indicated that they could have used more specific information and assistance as to how to add the international content to their specific course.

6. 58% of the faculty indicated that the "mini-seminars" had been helpful (44%) to very helpful (14%).

7. In terms of subsequent teaching, 37% indicated plans to increase the international content and 54% to leave it unchanged. Once again, these responses to be meaningful had to be compared with the degree of international content inserted by the specific instructor during the Winter Quarter.

8. 82% of the faculty considered their own personal background in international as being slight (45%) to moderate (37%), and had obtained their international knowledge largely from reading (31%), travel (16%) and teaching (15%).

9. 69% of the faculty indicated that they had become more interested in the international aspects of accounting as a result of the project.

10. 70% of the faculty indicated that they planned to further their own personal background on the international aspects of accounting as a result of the project.

In general, the project team was pleased with the overall results for the Winter Quarter. At a minimum our objectives had been to increase the amount of international content in all courses, and to spark student and particularly faculty interest and enthusiasm for the international aspects of accounting. These objectives were achieved. The path to internationalization is not a short nor easy one, and we believe we have made a good, in fact better than expected start. There remains much work to be done, however, to keep the momentum going and on target.

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Universite du Quebec a Montreal

Philip Creighton
Faculty of Administrative Studies
York University

THE FARMERS' LOAN & SAVINGS COMPANY--AN EARLY ATLANTIC ACCEPTANCE

Land speculation was and is a favourite activity of Canadians. No matter that "boom" is, inevitably, succeeded by "bust". This concerns no one. Each generation of Canadians, undeterred by the experience of its ancestors, rushes to make its fortune on the certainty that, as the country is growing rapidly, vacant land will shortly be required, nay demanded at a high price as sites for new houses or factories. The price at which each generation hopes to sell is, of course, substantially in excess of the buying price. And it may be that, if one ignores totally the steady deterioration of our currency, the optimistic speculators are right that vast profits can be made in trading in land. The reverse may be equally true that great sums can be lost in the same speculation. But usually this tends somewhat to be ignored.

In the period covered by this paper, 1873 to 1900, the Canadian economy cycled from "boom" to "bust" and back again twice. The seventies were depressed. The slump was well on its way in 1873 but it lifted, miraculously, in the summer of 1879. The eighties, in contrast, were boom times. The older suburbs of Toronto, such as the Junction, and the City of Winnipeg were created by the boom. They were, of course, nearly destroyed in the bust that followed in the nineties. However, by 1897 that had cleared away and a new boom was in the making.

Neither the speculators, the developers or the ultimate users of the land had capital enough to finance their operations. Most of the capital employed in land development in Canada was borrowed. To provide such funds created the Canadian financial community.

The savings and loan company was a commonplace in Canada in the latter half of the nineteenth century. These companies financed a substantial part of the development of Canada by providing a domestic source of mortgage loans. The banks were, as yet, precluded from loaning money on the security of real property. The life companies did loan money under mortgage but their limited resources were inadequate to supply the needs of a rapidly growing Canada. For land development and speculation with the impetus of the immigration inflow were two of the major occupations of Canadians throughout the nineteenth century. The savings and loan company existed then to provide capital, under mortgage security, for the development of either raw land or subdivisions.

The savings and loan companies got their capital from the public in a number of forms. First of all, there were the shareholders

with an interest in the equity of a particular company. There were some fourteen savings and loan companies which were public institutions. Their shares were traded on the Toronto Stock Exchange. For some of them, at least the larger ones, a bid and ask price existed and was reported regularly in the financial press. The number of shares passing on the exchange was, by modern standards, very small. The shares were all par value. It is clear that the holders thought of them in terms of fixed income securities. Thus the semi-annual dividend was more important than capital appreciation. The value of the shares did, of course, fluctuate in accordance with the economy and fortunes of the individual company but it seems reasonable to assume that few of the investors in any particular savings and loan company were there for speculative purposes. The tendency was rather for the investor to stay with his company.

Each loan company was, typically, formed by a group of friends and associates, each of whom took a substantial position in the new company. Some of the minority shareholders might be relative strangers to the group. In all probability, substantially the same group of investors would own, in perhaps varying amounts, a life insurance company, a bank and perhaps a fire or general insurance company. There might even be a trust company proper in the group. However, as the shareholdings were all personal the affiliation would be through the group of individuals rather than in inter-corporate relationships. The savings and loan companies were just that. They were separate and distinct from trust companies. The combination of the two is a product of the mid-twentieth century.

The savings and loan companies received deposits from the public. These were kept in passbook savings accounts paying interest and permitting withdrawals under certain conditions. In the 1850s to 1870s when most of these companies were created the majority of the money was raised through passbook savings accounts. However, by the time the 1890s arrive the vast bulk of this kind of money had been converted to debentures.

In 1859 one of the savings and loan companies started to solicit loan capital in Edinburgh, Scotland. The average rate of interest in the United Kingdom was substantially lower than could be obtained in the various colonial situations. The lawyers of Edinburgh did a big business in funnelling such money into the Canadian savings and loan companies. There, for what appeared, to contemporaries, to be only a modest increase in risk a substantial increase in interest rate was obtainable. By the mid-nineties the total of such investment had reached over $50,000,000 (The Monetary Times, 32, 270). It was not uncommon for an Ontario savings and loan company to have over half, and perhaps even as high as two thirds, of its total capital from these Scots sterling debentures.

The Scots debenture money was ideal as far as the savings and loan companies were concerned. There was lots of it, redemptions seem to have been low, with the average debenture being simply rolled over at the end of its term. And the Scots were willing to accept a

lower rate than needed to be paid on the rest of the invested capital. It would appear, for example, in the late nineties that when the Scots debenture holders were getting 3½%, the local Canadian dollar debenture holders were getting 4% or a bit better, and the typical company was paying 6% on its equity. Perhaps the only difficulty with the Scots money was that it was channelled through a relatively small group of people, the law firms in Edinburgh, who had, therefore, the power to limit, divert or increase the supply of funds to Ontario. But that danger was surely more apparent than real, for in the forty years up to the turn of the century during which Canadian companies had been borrowing in Edinburgh, the investor there had suffered at worst, and that only very occasionally, a slight reorganization in his repayment. There had been no default, no scandal. No trouble of any sort, just a harmonious borrower-lender relationship.

The affairs of the savings and loan company were managed by a board of directors. This board met fairly regularly. It would, however, be very unusual for the members of the board to be active continuously in the affairs of their company. The board would be unpaid but with their substantial investment as individual shareholders the interest of the directors could be assumed in the affairs of the company. The concept of the outside director without substantial interest in the company seems to have been unknown. The board delegated its supervisory powers to a president and a vice-president whom it elected from its members. The president and the vice-president received honoraria for their services. These officers would, typically, have substantial other activities, although in the larger corporations such as the Canada Permanent the job might approach a fulltime one. However, in a company the size of the Framers' Loan & Savings, with assets under $2,000,000, the officers were parttime distinctly.

The operation of the company was under the control of the managing director. But it would be wrong to think of him as a managing director in today's sense. The officer in question was a chief operating officer, not a chief executive officer. Underneath the managing director would be the senior administrative officers of the company, the cashier who looked after the assets and the accountant who kept the records. Then there would be staffs of inspectors, valuators and bookkeepers. The average company would also have two auditors, who would probably be shareholders. They would probably be accountants or bookkeepers in another non-related entity. They would not likely have more than one, or at the most two, audits which they would do on a moonlighting basis.

The Farmers' Loan & Savings was formed in 1873 by a group of investors associated with the then newly created Dominion Bank. Peleg Howland was the first president. One of Peleg Howland's associates at the Dominion Bank was Robert Henry Bethune who had a younger brother who was looking for an opening. George Strachan Cartwright Bethune had all the obvious qualities required to manage a savings and loan company in Toronto. He had been to the right schools, his father was the Anglican bishop of Toronto and as his name suggests he was related by blood or marriage to a good part of the old Family

Compact of Upper Canada. He was twenty-three when he got the job. He lived with the bishop. His prior business experience seems to have been restricted to a part year he spent as a salesman at Bryan, Ewart & Murray, wholesale grocers.

Peleg Howland retained the presidency of Farmers' Loan and Savings while he continued to devote his major attention to the Dominion Bank. There he was one of the senior officers. Howland died in 1882 and was replaced by Sir William Mulock, a noted Toronto lawyer, financier and prominent liberal politician. He continued as president until he moved to Ottawa in 1897 following his appointment as Postmaster General in the Laurier cabinet. J.D. Laidlaw succeeded him as president in the same year. Mulock, however, retained a seat on the board.

George S.C. Bethune was the only manager the Farmers' was to have. He was raised to the board in 1892 and given the title of managing director. The Farmers' seemed, to contemporaries, to be a respectable if not exciting small loan company. For example, in commenting on the 1892 results The Monetary Times of Toronto said:

> The Farmers' ... has passed its twentieth year, and the twentieth annual report shows it still earning its dividend, and still adding something to reserve ... The company is carefully looked after, and its progress, if not rapid, is steady. (The Monetary Times, 25, 1453).

Sometime in 1883 Thomas Pinkney, fresh from school, joined the Farmers' as a stenographer. He next became the bookkeeper and in 1890 reached the dizzying rank of accountant. That position he occupied for the rest of the Farmers' existence. Pinkney's father was a shoemaker and young Thomas moved away from the family home as soon as possible after he started to work. In 1893 Pinkney achieved a house, on the then newly fashionable Bedford Road in Toronto.

In 1882 Andrew Park Scott moved to Toronto with his father John. The latter seems to have been a lawyer with private means. Andrew got a job as a teller with the Imperial Bank. During 1884 he moved to the Farmers'. In the late eighties he was promoted to cashier. He continued in that position until 1897 when the company crashed.

The auditors for the Farmers' Loan & Savings, for the twenty-five years of its existence, were W.E. Murray and Benjamin Parsons. Murray was a partner in Bryan, Ewart & Murray, the wholesale grocers who had provided George S.C. Bethune with all his severely limited commercial training. The firm disappeared in 1878, perhaps as a result of the deepening depression. During the eighties Murray acted as a commission and manufacturer's agent. In the nineties he was agent for the Canadian Sugar Refining Co. Somewhere in the late eighties he acquired a new home in the fashionable suburb of Deer Park.

Parsons, the other auditor, was, throughout the period, the accountant of the Canada Company, the big immigration and land development company.

Late in October 1897 one of the Toronto directors of the Farmers' called on Sir William Mulock, while the latter was in Toronto, with some disquieting information. This was a rumour that the company was unsound and the the results of operations and the financial condition as reported by the financial statements were, in fact, false. Mulock agreed with his other unknown director that the half-yearly dividend normally payable in the fall should not be paid. Further the two concurred that Mulock would see E.B. Osler, M.P., who, both personally and on behalf of others, as a stockbroker and a financial agent, had a substantial interest in the company. Mulock invited Osler to interview Bethune and try to appraise the company's condition.

Within a week Osler reported to Mulock that the Farmers' "... affairs were in a very unsatisfactory condition". (The Monetary Times, 31, 1128-29).

By November 12, 1897 The Monetary Times reported that the directors had recommended liquidation.

> The reasons given for this step are the continued depression in real property in Toronto and its suburbs, where a large share, probably the larger share, of the company's loans have been made, and the reduction of the margin of profit in the mortgage loaning business. The former is, perhaps, the reason which has most influenced the present decision, but the latter is not without weight. Of late years, private capital and the money of insurance companies and trust companies has come into competition with the loan societies in Canada in loaning on mortgage and has narrowed the field. Hence, and by reason of "boom" losses, the reduction of their dividends of late and the suggestion heard here and there for the amalgamation of too numerous companies, which are not likely to earn in the future any such dividends as they paid in earlier years.
>
> We have every reason to believe that the company's liabilities to bondholders and depositors will be paid in full, as those of Canadian loan companies have always been.
>
> (The Monetary Times, 31, 632)

Osler was appointed interim liquidator. He began his serious investigation in mid November. He very rapidly discovered that the Farmers' was in serious trouble. When he read his interim report before the court on December 15, his hearers plainly disbelieved their ears. His report reads, in part, as follows:

> The position of the company is due to total disregard and ignorance of the first principles of accounts. No balance sheet has been taken off since the inception of the company. No attempt has been made to keep a proper ledger. Yearly accounts and balance sheets had apparently been arrived at by lump sum entries. The fact was overlooked that a very large amount of the company's assets brought in no revenue.
>
> The method of arriving at profits was to take the total amount of capital stock, reserve fund and borrowed money, assume that it brought from 7% to 6%, take this total as profit, charge the amount up to investment account, and credit investment account with the money actually paid in.
>
> Years of this method of bookkeeping has resulted in the company's having taken credit for more income than was earned, and consequently paying out more than it received for revenue.
>
> This system, I am convinced, has been the result of absolute ignorance and not a fraud, and I doubt much if ever any of the officials of the company had any idea as to the position of the company until very recently.
>
> (The Monetary Times, 31, 793-794)

Then Osler goes on to discuss the problems of failure to record monies received in the depositors' accounts, the enormous difference of some $361,000 between the mortgage security lodged in the Registry Office and that as carried on the books of the company, the enormous portion of the company's assets that was in the form of mortgages on vacant land, and the large concentration of the investments in the Toronto Junction area where the real estate market had collapsed worse than it had in the rest of Canada. Not unnaturally the shareholders, depositors and debenture holders of the Farmers' thought that they had been hard done by. The financial statements for the previous year had reflected the usual satisfactory condition and results. The worst that had been forecast had been the possibility that the Farmers might

be forced to merge with some other company and that the shareholders would then lose a little of their equity. The situation was rather complicated because of the $1,000,000 worth of share capital outstanding. Approximately $500,000 of this was fully paid up and, of the other $500,000, only 20% had been called and most of that had been received in cash.

The senior officers of the company having slipped across the border to the United States, there were very few people left on whom the angry shareholders, depositors and debenture holders could vent their wrath. The directors, however, were still in the country and the meeting went for them with a will. Aside from the general charge of incompetence and abrogation of the director's general duty to supervise the affairs of his company, the specific charges were directed principally toward Sir William Mulock. He was charged with

1) reducing, substantially, his interest in the Farmers',
2) unloading the bad debts that he and his family had made onto the Farmers' and
3) using the resources of the Farmers' in some discreditable way to speculate in lands in Toronto Junction.

At this meeting and the one the following week, Sir William Mulock was at some pains to refute these charges. This he was able to do, at least to the satisfaction of the financial press of the time. However, he went further and offered to have his personal liability as a director subjected to judicial review straightaway and, without waiting for the results of such review, to provide substantial sums in the $100,000 to $150,000 range for a fund to benefit those depositors and debenture holders who had lost money in their investment. In a characteristically Victorian move some part of this was to be a "widows' fund" which, although it was never in fact established, would have provided for such poor persons who had lost their little all in the collapse of the Farmers'. The plight of the small investor is a concern which was constantly before the financial press of the time. Mulock also put up some $20,000 which represented the uncalled portion of his partly paid shares.

After a great deal of spluttering the Master-in-Ordinary appointed J.W. Langmuir, the managing director of the Toronto General Trusts, as the permanent liquidator for the Farmers' Loan and Savings. The accounts and records of the Farmers' must have been in a real state of shambles because the Toronto General Trusts moved, and got permission from the Master-in-Ordinary, to hire extra expert accounting help, extra valuators and extra clerks in order to re-create the proper records that did not exist. When Langmuir read his report in February of 1898 he said much the same as E.B. Osler had earlier, except that in Langmuir's case he had more facts and was able to paint a dimmer, darker picture. Summing up the report, the editor of The Monetary Times said in an editorial:

> If the language of the interim liquidator, Mr. Osler, was strong in condemning the ignorance, carelessness and mismanagement which characterised the company's administration, that of Mr.

> Langmuir, who has looked more fully into its affairs, is far stronger. Dishonest practices and defalcation by the officers have been discovered; shameful negligence by the directors if manifest, and the question now is as to proceeding against them; then as to the auditors, a more astounding disregard of the reasonable functioning of such officers has rarely been heard of.
>
> When a depositor asked whether the auditors had made an examination of the books of the company, Mr. Langmuir replied that they had not.
>
> "He had questioned them and they had told him that they had never asked for, nor seen, vouchers of any kind. They had always wound up by saying that they had placed absolute confidence in Mr. Bethune ... and had taken his word for everything."
>
> The whole thing, Mr. Langmuir said, was so rank that it could scarcely be expressed. Such conduct of business is not to be condoned. To prevent its recurrence, punishment ought to be given where it is due. It is not fitting that in a commercial community this sort of maladministration could go on with impunity.
>
> (The Monetary Times, 31, 1089)

Among other achievements of the auditors was their certification of two different sets of accounts for both the '96 and '95 year ends. The office cash drawer was found to be full of worthless IOU's and cheques from the officers. The officers' deposit accounts were overdrawn to the tune of $12,000. The fidelity bonds were inadequate amounting to less than half the officers' unauthorized overdrafts. There were multiple irregularities in the customers' deposit accounts. When the liquidator took over, the Farmers' was in that classic condition of the company which has suffered from gross management fraud while a series of small personal defalcations take place under the cover of the major fraud. Langmuir, the liquidator, formed the opinion, on what evidence we do not now know, that the defalcation did not commence prior to 1894. It is interesting to speculate that Pinkney's need for additional funds, arising from his fashionable new home which he purchased at that time, started the defalcations. However that may be, Bethune certainly participated. The losses attributable to him were about twice those of either Pinkney or Scott.

Out of a welter of suits and countersuits the following decisions emerged. Agreement was reached with the directors that a payment of $170,000 would discharge the directors' responsibility. How much of this was Sir William Mulock's is not immediately ascertainable. The courts decided that the shareholders were not liable for the uncalled 80% of their shares. They were, however, liable for the unpaid portion of the 20% which had been called. The auditors were not proceeded against, perhaps, because Benjamin Parsons died in early 1898.

The Province of Ontario was forced, eventually, to pass a special act to curtail litigation designed to create a preference for debenture holders and so to permit the liquidator to distribute the assets to the creditors. The creditors, deposit, debenture and general got two payments amounting to 75% of their claims. Langmuir made a trip to Scotland to pay off the sterling debentures. The shareholders got nothing.

The reaction of the rest of the loan companies was interesting. Depending in large part on how much of their capital was in the form of sterling debentures the companies strove, in their annual reports for the 1897 year, to prove:

1. their assets were fairly, and better yet conservatively, valued,
2. their income had been received in cash,
3. the directors had direct, personal knowledge of the condition of the accounts and the underlying securities, and
4. the Farmers' Loan & Savings was simply a badly managed company in no way representative of the industry as a whole.

The Agricultural Savings and Loan Company, with somewhat less than 11% of its capital provided by sterling debentures, did not defend its own position. Rather it took, in its annual report, a broad view and spoke of the industry generally.

> The unfortunate embarrassment of one of the companies doing business in Toronto has caused us some little uneasiness lest it might affect the credit of all loan companies who place their debentures on the British market. There is certainly no cause for alarm: the well managed companies that have come not only safely but prosperously through a long period of depression, who have year after year increased their business and strengthened their position by adding substantial sums to their reserves, and the great bulk of whose mortgages, unlike those of the Toronto company referred to, are placed on the best farmlands in western Ontario, offers to investors as safe a security as any obtainable, and that fact is fully recognized by Canadian capitalists, who are placing such large sums in the debentures of such companies.
>
> (The Monetary Times, 31, 1137-39)

It is perhaps unnecessary to add that the Agricultural Savings and Loan was based in London, Ontario.

The British Canadian Loan and Investment Co., Limited of

Toronto, whose sterling debentures amounted to nearly two thirds of the total capital invested, discussed its policy relating to interest income on its mortgages receivable.

> The payments of principal and interest on the company's investments has been greater during the past year than usual ... The net profits however have been less owing partly to a reduction in the volume of business done, but more especially from not taking credit for the past due interest on some of the borrowers' accounts, a policy which has been rigidly enforced for the past three or four years than was previously considered necessary.
>
> (The Monetary Times, 31, 1029)

British Mortgage Loan Co. of Stratford which had no sterling debentures contented itself with a eulogy by its president of the conduct of the directors during the past year. Note how the president stresses his personal knowledge of the events.

> The president, in moving that the reports and statements be adopted, said that while the reports of some companies of late had unfortunately been proven by subsequent events to be unreliable, he knew from his personal knowledge that the report of the directors and the audited statements signed by the manager, just read, were true and accurate accounts of the position of this company. The directors had discharged their duties in no perfunctory manner, but had followed their usual painstaking practice of verifying the correctness of the value of each security.
>
> (The Monetary Times, 31, 1029, 1030)

Building and Loan Association of Toronto, with one third of its funds received from sterling debentures, thought it necessary, in its annual report, to discuss the company's policy relating to the recognition of interest income and the condition of its real property taken from mortgages under default. As to vacant lands in Toronto and suburbs, which was the cause of the downfall of the Farmers' Loan and Savings, Building and Loan had only $50,000 out of total assets of $1,7000,000. The vacancy rate on repossessed houses had fallen dramatically and

> that 87% of the interest taken credit for during the year had been received in cash over the counter, whilst the ultimate payment of the remaining 13% is considered unquestionable.
>
> (The Monetary Times, 31, 1095-96)

As in the case of other companies the president stresses his personal knowledge of the events.

> The management has been most energetic, and could not have been more efficiently or more carefully conducted. For this I can personally vouch, having occupied a desk in the office, and devoted most of my time to the affairs of the Association throughout the past year.
>
> (The Monetary Times, 31, 1095-96)

Canada Landed and National Investment Company of Toronto had some 60% of its funds provided by sterling debentures. The president, in his annual report, treated the question of income recognition.

> Where did all the money come from to pay all expenses, all interest on debentures, and the dividends? The answer is, not by bringing into the balance sheet amounts of interest that may never be collected, but solely from money actually received for interest on the company's liquid, active investments.

He continues:

> I have been led to speak of these particulars, not only because they are of interest to the shareholders of this company, and to all who are interested in its prosperity, but also because of the failure of the Farmers' Loan & Savings Company in the case of which the conduct of its affairs has been carried on with an apparent disregard of all sound business principles, and in such a way as to make failure inevitable. In contrast with that company, I can confidently affirm that your company is conducted on most conservative lines, the books and accounts are kept in the most perfect manner, and every department of the business is well and firmly kept in hand.
>
> (The Monetary Times, 31, 993-994)

The Canada Permanent Loan and Savings Company of Toronto, one of the really big companies in the field, had 46% of its investment in sterling debentures. The company chose to discuss, in its annual report, a special examination which it had made into the condition of its investments. The report is interesting because it demonstrates the desire of the directors to point out their personal involvement in the management of the company's affairs.

> A special examination into the state of our borrowers' accounts was instituted by the directors in the latter part of the year. In addition to the usual examination made by our auditors, schedules were prepared by and under their direction, at the two branches as well as at the head office, showing the sum originally advanced, the amount now at debit, and the increase or decrease of each individual account in the company's ledgers. These schedules were placed in the hands of a committee of four directors, two of whom spent a large portion of every day for several weeks in making careful examination of them, scrutinizing each account and the security held therefor, and when it appeared in any wise doubtful, and calling upon the superintendent, inspectors and any other officers, for any information they desired. It will be gratifying to the shareholders to know that the directors are perfectly satisfied with the results of this investigation. The committee report that they found interest to be generally well paid up, that there were no accumulations of unpaid interest in the books of the company, no interest having been charged on any account where there existed a reasonable doubt of its being paid. A large portion of the accounts show not only that interest has been paid but also that the principal sum advanced has been considerably reduced thereby improving the security. The committee also report that the officers in charge were thoroughly conversant with the condition of each account, and with the security held therefor, and that throughout their long and minute inquiry they did not find one account which had been overlooked or neglected. The state of our customers' accounts is conclusive evidence that the revenue out of which interest, expenses and dividends have been paid is not a mere bookkeeping estimate, but has been actually earned, and either received in cash or stands charged on good active mortgage loans.
>
> (The Monetary Times, 31, 1129-1130)

The Western Canada Loan and Savings Co. responded energetically to the failure of the Farmers'. The sterling debentures, sold principally in Scotland, provided, at December 31, 1897, some

two thirds of its loan capital and almost 44% of the total capital employed. Further, as the sterling debentures were being rolled over at 3½% interest that year and as the Western was still paying dividends of 6% to its shareholders, in spite of five years of severe agricultural depression, it is easy to see why it was so desperately important to retain the confidence of the Scots debenture market.

The Western used its auditors in its attempt. They were W.R. Harris, a senior accountant with the Province of Ontario, and A.E. Osler, a stockbroker. Their reports appear below. The regular audit report is first. It is representative, if a little fuller than the usual loan company audit report of the time. Note, in passing, the restriction in scope due to the reliance on other auditors.

Toronto, 10th Feb. 1898

To the shareholders of the Western Canada Loan and Savings Company:

> We beg to report that we have completed the audit of the books of the Western Canada Loan and Savings Company, and a detailed inspection of the securities (with the exception of the business of the Manitoba branch, which has been audited and inspected by the local auditor), and certify that the above statements of assets and liabilities, and profit and loss, are correct, and show the true position of the company's affairs. The bank balances and cash are certified correct.
>
> W.R. Harris
> A.E. Osler
> Auditors

The president and shareholders of the Western Canada Loan and Savings Company, Torontp:

> In view of the current comments, through the press and otherwise, upon the duties of auditors of loan companies and the work performed by them, we deem it advisable to lay before you, in detail, as fully as possible, the method adopted and the work performed by us in connection with the audit of the books of your company, and would ask for suggestions from you, if in your opinion further scrutiny be necessary. Authority for making all loans is required either by the production of the minutes of the board authorizing same, or the authority of the president or vice-president,

indicated on the application form. Vouchers for payments of amounts charged to mortgage accounts and for payments of insurance premiums, taxes, etc., are seen and stamped by us. Before the annual statement is prepared each individual mortgage, bond or other security, is seen by us and compared with the amount at which it is taken as an asset, and initialled. Vouchers for all moneys disbursed are examined and stamped by us. All coupons for payment of interest are seen and stamped, as are all bonds paid or replaced by renewals. Totals of cash receipts and disbursements, as shown by cash book, are checked, and balance on hand verified. The posting of entires of all kinds from the cash books and journals to the ledgers, are called over and checked by us. At the end of each year the balances of all ledgers are brought forward and compared. The figures composing the annual statement are prepared from the general ledger, and subsidiary books are fully gone into, and balance in banks and cash on hand verified.

Yours faithfully,

(Signed) W.R. Harris
A.E. Osler
Auditors

(The Monetary Times, 31, 1130-32)

But the Western went further. A firm of Scots accountants were retained to visit the firm's offices in Toronto and Winnipeg and in this manner to soothe the fears of the sterling debenture holders. This report is reproduced below:

Toronto, 2nd March, 1898.

At the request of the directors of the Western Canada Loan and Savings Company, we have visited Toronto and Winnipeg, and made an examination of the company's affairs, with the view, mainly, of reporting as to the sufficiency of the security afforded by the company to its debenture-holders and depositors, and we have to report as follows:-

1. System of Book-keeping - For the purposes of the company's business the system in use is as complete as could be desired — information on any point connected with the

accounts can readily be got from the books.

2. Revenue - We have satisfied ourselves that the revenue account is made up on proper principles and that it may be relied on as correct.

3. Balance Sheet - Detailed lists of the assets are kept. These we have gone over with care, and it appears to us that the balance sheet, as published in the annual report, gives a true representation of the company's affairs, and that the assets afford good and sufficient security to the debenture-holders and depositors for the amount of their advances, without taking into account the uncalled capital of £308,219.

We may add that full information was given to us on all points on which we desired explanations, and that we were pleased with what we saw of the management, both at the head office and Winnipeg.

Lindsay, Jamieson & Haldane
Chartered Accountants, Edinburgh

(The Monetary Times, 31, 1195-97)

The Western was one of the weaker of the loan companies. It merged, in the early twentieth century, with the Canada Permanent.

Just how necessary or how successful this attempt to reassure the Scots debenture holders was, is difficult to determine. There is no doubt that the amount of sterling debentures outstanding decreased during the nineties. The demand in Canada softened, while investment opportunities in Great Britain seem to have brightened considerably at the same time.

The Farmers' Loan & Savings was cited as a horrible example when the Bank Act was amended in 1913 to require bank auditors to be approved by the Minister of Finance.

But what moral can we, in 1980, derive from the Farmers' collapse? There are three, I think.

1. Nothing improves financial disclosure so well, in the rest of the industry, as does the spectacular collapse of one of its member companies,
2. Management incompetence, with or without megalomania and venality, always leads to financial disaster,
3. Weak or inadequate auditors facilitate careless or fraudulent management, and so encourage that disaster.

It is sad that the lessons seem to be forgotten so easily. The Farmers' is followed a quarter of a century later by the Home Bank. Our own times have produced two marvellous examples in Atlantic Acceptance and Revenue Properties. I wonder what the eighties can do?

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Université du Québec à Montréal

Charles W. Schandl
School of Business
Dalhousie University
Halifax, Nova Scotia

ON THE THEORY OF CONTROL AND FRAUD

In the dictionary we find the following explanation for the verb and noun "control".

(a) Verb:
(1) to exercise authority or dominating influence over, to direct, to regulate,
(2) to hold in restraint; to check
(3) to verify or regulate (a scientific experiment) by conducting a parallel experiment or by comparing with some other standard,
(4) to verify (an account for example) by using a duplicate register for comparison

(b) Noun:
(1) Authority or ability to direct, regulate or dominate.
(2) A restraining act or influence; a curb
(3) A standard of comparison for checking or verifying the results of an experiment
(4) (usually plural) - An instrument or a set of instruments used to operate, guide or regulate a machine or vehicle.

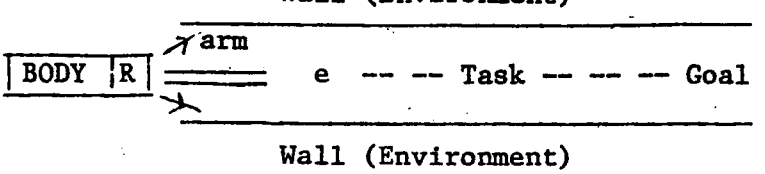
We are interested in meaning (1) of both the verb and noun: to exercise (verb) the dominating influence (noun) on some event, person or persons, or instruments.

Years ago I came across two illustrations of "control":

One was the situation of a blind man trying to get to the end of a long corridor. He had legs, able to carry him ahead, to the left, or to the right and he could stop them too. His "brain", the "controller" gave the orders to his legs, and the legs followed those orders. In his outstretched hand he carried a stick, feeling the environment ahead, to the left and to the right. Feeling the resistance on the stick his nerves in his arms transmitted data about his position in it's relationship to the walls. The brain, interpreting the messages received from the arm could

adjust the orders to the legs: to the right, left, stop or go.

We may illustrate the whole system in the following diagram.



R = Brain, organically bound to Body

e = legs, the "effectors"

Arms and Sticks, the "sensors"

Task = route necessary to bring Body to Goal.

And here we introduced two terms used in literature on information systems: "effector", and "sensor.

Effector, or effectors are instruments, living or not living that provide the necessary work ordered by the Brain to achieve a certain goal. In our example they are the legs.

Sensor, or sensors are instruments, living or not living communicating the position of the Body to Goal, the desired situation.

Our little example has to be considered as a system. Within the system the Goal and the Task are given. They are not subject to Control by the Brain. They are established by recognizing the need to move the Body to the Goal. The recognition and the decision to move are part of the activity called Planning.

The interrelationship of Planning and Control is an interesting one. Planning produces the Plan, the Plan has to incorporate Controls for proper execution, but Planning and Plans have to be Controlled and evaluated, in order to prevent disasters. We have here another of the chicken and egg type of dilemmas. Which one came first the hen, laying the egg, or the egg in which the chicken, who became the hen laying the egg was formed.

Is there a difference between the relationship of the chicken and egg and that of Planning and Control. I can Plan and even execute my plans without controlling plans and executions, and can "Control" without a framework determined by the Plan. There are such things as control without intentional planning. Just as a Plan without evaluation and control can exist. It may be a poor Plan, one that never will lead to the situation desired in the future, the Goal, but it is still a Plan.

On the other hand the concept of "Control" pre-supposes a system of criteria, or system or norms determining the framework within which the controlled person or instrument has to act, or the activity, the process

has to be evaluated, but again, those elements can emerge without intentional planning.

Let us consider again our example: The Task is to move the Body and parts attached to it to the Goal. To achieve it the Body has to use the "effectors", the legs. The legs are following orders given by the Brain. They have no independent decision making capacity, as long as they can move the Brain has command (control) over them.

The Brain knows, and accepts (it is programmed) the task. It knows that in order to achieve it, it has to avoid the Body from bumping in the walls. In addition to command over the Legs it has also command of the Sensors, the Arms, and is in the position the data received from the Sensors. By reaching to the data and information received from the Sensors the Brain "Controls" the position of the Body. It exercises the domineering influence on the position of the Body.

The Brain "Controls" the achievement of the Task, with the help of the Legs and the Sensors. The Brain receives data from the Sensors, makes the decisions about the orders to be given to the Legs. The legs execute the orders received, within their limitations and move the Body. The Sensors perceive the distances to the walls on the right and left. The Brain has the capacity to compare the data received from the Sensors to data received previously, and infer from the differences the changes in the relationships to the walls.

The Brain also receives data (feedback) from the legs that they are executing it's orders, they move the body in the direction they were ordered to move it. And the Brain has the ability to evaluate the data received and be able to give the proper command to the effectors, the legs.

Now we described the entire "System of Control", necessary to achieve the Goal.

We have a Task adopted by the Brain, the decision maker, effectors - the legs, sensors, the arms, and channels for communications between Sensors and Brain, Brain and effectors.

It is the simplest control system.

A few words about Systems.

About two decades ago, when the "Systems Theory" was born we read about new claims that if we understand Systems Theory and the interrelationship of parts within a System, we know everything. This idea of our times was the rebirth of the claim of the Pythagorian school of mathematics, about 27 centuries ago, that with the help of the study of mathematical models we can understand and know everything. The only difficulty with this beautifully simple and clear idea is that Systems don't exist in the world surrounding us.

The world surrounding us exists, but we don't know how, and we don't

know too much about it. Systems, just as mathematical models, exist only in our imagination. We know about the world only what we can perceive with our sensors, our senses, and with a few instruments expanding the capacity of our senses. All the rest, the concepts, the interrelationships, the models, systems are the product of our imagination. As such they are extremely useful for communications, learning, analysis and in general for our intellectual survival.

We developed component parts of a "Control System", by going down one step on the abstraction ladder of the Semantic School of Philosophy.

Now let us move up the abstraction ladder, to higher level general concepts, - to see how the Control System fits in another, higher level system.

Our Control System contains an element: the Task. The task is determined by a Goal. The achievement of the Goal will produce a situation desired by somebody, - let us call him the Manager.

The Manager sets the Goal, assembles or selects an instrument to achieve this Goal. If in our case the Body would have no legs, no "effectors", the Manager could not expect the Body to move, so he would assemble some legs to the Body, make the reception of orders from the Brain possible. Otherwise he could not expect the achievement of the Goal. Now we can construct a System that contains our original Control System. We may call it "Management System".

The Manager exists. He recognizes that he can evoke a situation on the future which is more desirable than the one probably emerging in the future without his input.

By reviewing the instruments available for him, he may come to the conclusion that several actions may be within the realm of his capacities. If he read the literature on decision making he will build several decision models, D1, D2, D3 -- Dn.

Next he projects the decision possibilities in the future, and he will have Prediction models, RD1, RD1a, PD2, PD3, -- PDn.

He compares, measures and evaluates the results of the prediction models and adopts one. The one adopted will be related back to the appropriate decision model and the Decision will be made.

The Decision is now made, and Action has to be taken, - the decision has to be implemented.

The Action means: (a) Assembling the instruments available into units capable of fulfilling their tasks, (b) Coordinating the activities of the assembled units in space and time, by setting their tasks, (c) Controlling the state and the activities of the units, in order to eliminate breakdowns due to unforeseen circumstances inherent in the units or unforeseen external events and misjudgements, (d) Evaluate the Goal achievement.

Eventually we may classify (a) and (b) as Planning activity within the Management or Action System.

This broader "Management System contains our "Control System", in addition to the Organizing, coordinating (task setting) and evaluation systems.

All those subsystems have a remarkably similar structure. They are determined by a Goal, and by the acting center the Brain. They are in effect nothing else but the interrelationship of the Brain, the acting Mind and a Goal. The Brain (or Mind) has certain instruments in his possession. He anticipates the effects of the manipulation of the instruments, activates the instruments, adjusts the commands given to the instruments according to the changing inputs received from the Sensors. It is the basic activity or work system.

By hanging different terms, using different terminology, we considered the same elementary work system as Management System, Control System, etc.

It was nothing else but intellectual cheating. We pushed our example up on the ladder of abstractions and finally we achieved the merger of all "activity" systems.

Boy wants girl, girl wants boy, they don't get each other. In one sentence we described Shakespeare's Romeo and Juliette. One step up and we can state that every work of literature consists of a basic system: somebody or something wants somebody or something and meets success or failure.

We got away from all the "unimportant" details, we understand the problem, but we abstracted away all the variety, all the horror and beauty of the world around us.

Did we not do the same with "Control"?

We did it. To correct our approach let us turn to an actual, well known case, and see the concept of control in a more realistic down to the earth context.

We can understand and analyze the concept and system of control much better if we look at it in it's absence in it's violations.

The essential prerequistes for the operation of the control system are: (1) Task, (2) Sensors, programmed to collect data and report to Brain, (3) Actual communication between Sensors and the Brain, (4) Brain, being abel, (5) To trigger, (6) The effectors.

Social institutions, government agencies may have also channels for unprogrammed, additional Sensors, as occasional information from other institutions, citizens or groups.

If I want to beat a control system I can do it through the Sensors, the Brain or the Effectors.

Data perceived by the Sensors can be manipulated or disturbed, as it happens in cases of cheating and frauds.

Next the Brain can be immobilized, destroyed, by sheer force or other influences, as it happens in cases of political pressures, revolutions and wars, thereby immobilizing or destroying the whole system.

Last, the Effectors actions can be countered, as in mutinies or other forms of resistance, eventually by taking over the authority over the effectors. Eventually the authority of the Brain over the Effectors can be destroyed, and the Effectors may be forced to obey another authority.

In our daily life we are subject to several interacting control systems, most of them informal and loosely organized, as groups, organizations, etc. Our life in society is multidimensional. We are members of family, of Church, of groups of friends, or professions, institutions, political parties, communities. Every group has its "frame of reference", a "norm system", prescribing the expected behavior of it's members. If you violate those norms you will be penalized in one or another way by the other members of the group. The penalty can be considered as a corrective action by the control system, operated collectively by the group, to eliminate behavior endangering the task performance expected by the group.

As we mentioned we can understand the control systems better if we approach it from it's negative side, in it's violations.

We will review it by telling first the amazing life story of Philippo Musica, who was born in Naples, Italy, in 1877. In 1883 his father, Antonio, with Mamma Maria moved from the slums of Naples to the slums of New York's lower East Side. His father acquired a small shop in the Italian, Irish neighbourhood, and the family continued to grow in numbers, adding 2 sisters and 3 brothers to the oldest Philippo.

Antonio Musica's closest friend was Fernando Costa, the owner operator of a small print shop, and Philip spent some time as apprentice in the shop. He liked the attractive letterheads, business forms, and his fascination accompanied him throughout his life.

Around 1902-3 Philippo persuaded his father to enter into a joint venture as importers of Italian food products, cheese, sausages and pasta. When shipments were received the original invoices and shipping documents were exchanged by new ones, prepared by Philippo. A custom's inspector was bribed to exchange the documents, and A. Musica and Son paid duty on the reduced weight. They were able to undersell the competition, and the business flourished. They achieved a turnover of half million pre 1914 dollars, the family moved to Brooklyn to an estate with stables, horses and carriage house. Philippo Musica acquired some social polish, dressed carefully, was a frequent visitor to the Metropolitan Opera in those years of riches. The scheme worked for nine years, but in 1909 the exchange of invoices in the Customs House was discovered and the Musicas were indicted. Philippo took the blame for everything, and was fined $5,000, in addition to a sentence of one year in Elmira Reformatory.

If we analyze the scheme we can see that Philippo had no control over his activities. Actually he tried and for years succeeded in evading the control exercised over Custom's operations. The Sensors of custom's control were programmed to collect data on documents and to reconcile actual cash receipts to cash to be received according to the documents. It seems that somebody actually handling the imported merchandise realized some material and evident discrepancy between the packages handled and their weight shown in the documents. He was not on the payroll, and he reported the discrepancies. It took nine years for Custom's control system to be alarmed and move the effectors into action.

After this experience Philippo continued in the import and false documentation business. He imported human hair from Naples. He got loans from 22 bank branches on phoney shipping documents, and misappropriated $600,000. It was a naive project, the banks did their investigations pretty fast, and as the result Philippo Musica spent three years in Tombs prison.

That was the end of Philippo Musica, the twice convicted swindler. Next, in his middle forties Frank Costa was born.

It was the second year of the Prohibition. Frank Costa with the help of his mother's $8,000, a partner and their congressman obtained a federal permit for 5,000 gallons of alcohol per month, to manufacture hair tonic, dandruff removers and furniture polishes as "Adelphi Pharmaceutical Manufacturing Corporation". The product could be run through any ordinary still to remove the easily removable additives, and one gallon could be converted into two gallons of fine old whisky, "just off the boat", naturally with the help of additives of a different nature. The trouble was that one of his partners, Joe Brandine felt cheated on an occasion, and threatened Frank Costa "to beat him to a pulp". So Frank tipped the Treasury Department's Alcohol Tax unit to the true nature of Adelphi's business, and the permit was revoked.

It is an old social truth that if action demands the cooperation of several persons they cannot have different objectives, and complete harmony and discipline is required if they want to beat a control system. This principle is the background for one of the most important practical rules of internal control: the division of authority and functions. The probability for keeping secrets decreases exponentially with the number of persons in possession of the secret, especially if the secrets are necessary to beat a control system's sensors. You cannot continue a scheme if somebody is expelled from the group. See the Equity Funding case and the role of the dismissed employee.

It seems Frank Costa learned from this experience and in his next project he relied only on members of his family.

In 1928 Frank Costa emerged in Mount Vernon, N.Y. as F. Donald Coster. With this change of name he had to change location. He continued in the business of alcoholic medicament production in a two-storey rented brick structure under the firm name of Girard & Co. The owner was an elderly chemist, P. Horace Girard, who did not exist, but Mrs. Girard existed. She

was the widowed mother, Maria Musica, who moved to Nestbury, Long Island and with her younger daughter, assumed the name of Mrs. P.H. Girard. P.W. Girard was later put away, but his widow Maria Girard kept his name and was buried as Maria Girard.

By now F. Donald Coster was not alone. His younger brothers came to age. Arthur Musica became George Vernard, agent for a fictitious firm called W.W. Smith. George Musica became George Dietrich and Coster's right hand, while Robert, the youngest son, now 23, kept his Robert and became Robert Dietrich.

We have no records to indicate how P. Horace obtained his licence to buy alcohol, who had to be bribed and how, but F. Donald Coster was able to get it for him.

The operations of Girard & Co. were similar to those of "Adelphi Pharmaceutical". Some respectable wholesalers were among their best customers. Many of them carried on thriving back door traffic with the bootleg world. The big difference was the biggest buyer: W.W. Smith. It consisted of a one man office in Brooklyn, occupied by George Vernard and a typist. The alcohol flowing through the Girard factory was delivered to warehouses designated on W.W. Smith & Co. orders, then it was picked up by the bootleggers' trucks. W.W. Smith & Co. collected in cash on delivery, while they paid Girard by check. Meanwhile George Vernard produced detailed documents showing that the merchandise had been shipped all over the world.

So George Dietrich, the Controller of Girard could show the order books and complete delivery receipts with clean conscience to the visiting inspectors and to the police of Mount Vernon.

Two layers of false documents at different levels of operations in the hands of 4 brothers are adequate proof. The set-up remained untouched by suspicion or investigation, and during this period $8,000,000 passed through George Vernard's bank account.

In just a year and a half of operations, Girard & Co. was so successful, that F. Donald Coster got bigger ideas. His first move was in December, 1924 to invite Price Waterhouse & Co. to audit the financial statements of his corporation. Most important in the audit was that Coster and Dietrich learned very well what the auditors do. They found that the auditors did not inspect the physical inventories, they satisfied themselves by checking the inventory records and the tally sheets of the count, and the documentation was perfect. With the help of the audited financial statements, showing assets of $279,000, gross sales of $252,000 and net profits of $33,300 (in 1924-25 dollars). Coster approached the local bank for a loan of $100,000. It was an amount in excess of the capacity of the local bank, but the bank manager introduced Coster to a Wall Street investment advisor, Julian Thompson. They first met in Coster's office: on the walls the forged diplomas of Coster (a Ph.D. and a M.D. from the University of Heidelberg), and the conservative, business-like Coster made a strong impact on Thompson, who later joined the Company as Controller. He had authority over all U.S. operations. Overseas operations were handled by Vice-President Dietrich, who kept also the connections with W.W. Smith.

With the help of Thompson, Coster obtained an $80,000 loan from the Bridgeport City Trust Co., and the lender added $27,500 to buy 275 shares of the Company. Coster captured the bankers in Bridgeport. Girard & Co. moved to Bridgeport, increased it's permit to 15,000 gallons of alcohol a month. In 1925 sales jumped to $1,000,000, profits to $250,000 and the bank loan was repaid.

Coster was an imaginative and dynamic man. He had to grow. He had the idea of integrating the locally owned and operated wholesale houses controlling the drug markets in the U.S. into one nationwide chain. To start with, he purchased McKesson and Robbins Co., a small firm, established in 1833 and still existing in 1980. A stock issue was floated, with the help of Thompson, and Coster paid $1,000,000 for the Company, which merged with Girard & Co. By 1927, the annual audit showed him as President of a manufacturing Co., McKesson Robbins Co., with $4,100,000 in assets, earning $600,000 in the year, and using 25,000 gallons of alcohol per month.

But the nature of the swindle has changed. Now it was not necessary to use W.W. Smith & Co. to launder the money from illegal sales to bootleggers. W.W. Smith was used to show non-existent assets, profits, and as an instrument to withdraw cash from the increased drug manufacturing and selling operations.

Dietrich was in charge of the phoney transactions. During his 11 years of service he never missed the opening of incoming mail, he never missed a day of work. The typical phoney transaction consisted of purchases, stocks and sales. Five non-existent Canadian warehouses and one fictitious bank in Montreal were used. Dietrich would make out a McKesson Robbins purchase order to P. Pierson & Co., Montreal, one of the five non-existent Canadian firms he used, to buy some crude drugs. He documented the purchase by filing an invoice on printed P. Pierson form, make out a receiving slip, and a receiving ticket, acknowledging that the goods were stored for McKesson Robbins by Pierson. The slips and tickets were duly recorded in MacKesson's Inventory and Accounts Payable. Then Manning & Co., a fictitious bank in Montreal was instructed to pay Pierson. Next a memo received from Manning was added, stating that Pierson was paid. As the result, the books of McKesson Robbins owed to the non-existent Manning & Co. thousands of dollars for non-existent goods in a non-existent warehouse.

The goods had to be sold. Dietrich notified W.W. Smith that his company wanted to sell the merchandise, say for $100,000. W.W. Smith & Co. thereon sent a form to Dietrich that the merchandise was sold. Dietrich built up the detailed documentation in the same detail as the purchase of the goods, ending with the memo from Manning & Co. that the purchaser paid the $100,000 on McKesson Robbins bank account. Dietrich would then send a check for $750 as sales commission, representing $\frac{3}{4}$ of 1%. The check was cashed, and George Vernard gave the cash to Coster. A lot of documentation, but by the end of 1938 the stolen commissions added up to $2,900,000 (about $30,000,000 in 1980 dollars). Another $5,000,000 in W.W. Smith's bank account represented actual sales to bootleggers. George Vernard kept one office for W.W. Smith in Brooklyn, and another for Manning & Co. in Montreal. The latter for answering the requests of Price Waterhouse about verification of inventories.

By 1929 the integration of local drug wholesalers by Coster was so successful that he was in control of a $80,000,000 corporation, composed of forty-nine jobbing houses in the U.S., a $5,000,000 manufacturing division, producing 238 different products, and a crude-drug division based totally on fraud. After the repeal of the Prohibition Act, a liquor division was organized which became the largest liquor distributing agency in the U.S.

Coster himself was a hard worker, lived modestly. He drew a relatively modest $40,000 a year salary and was not interested in social climbing. He lived and thrived on frenzied manipulations. In October 1929, when "Black Friday" hit the greatest bull market on Wall Street, he was close to total ruin. He had to pay $654,000 in 3 days, to satisfy his debts on margin buying. By increasing his firm's phoney inventory he was able to meet his obligations. In the days following the stock exchange collapse, the phoney inventory actually saved McKesson Robbins & Co. The Balance Sheets looked solid and stockholders, creditors maintained their faith in the Company. The Company and Coster survived the Great Depression. The smaller recession in 1937 doomed Coster and his brothers.

The directors of the Company, mostly representatives of the integrated and absorbed jobbers and wholesalers decided that the $21,000,000 inventory of crude drugs in Canadian warehouses was too high, it should be reduced by minimum $2,000,000. To reduce the $2,000,000 non-existing inventory Coster needed cash. To get the cash, he decided to borrow $3,000,000 purportedly for various improvements.

Thompson, the controller and treasurer, the only non Musica family member on the top was supposed to arrange for the bank loan. The bank asked for an affidavit from Thompson. He was supposed to declare under oath that the financial statements represented assets owned by the company and were properly valued, not subject to encumbrances. By chance, he discovered that although the Company had $21,000,000 worth of drugs in five Canadian warehouses, there was no insurance coverage on this part of the inventory. Coster told him that W.W. Smith took care of the insurance. Now he wanted to know more about W.W. Smith Co., and Dun and Bradstreet did not know about W.W. Smith. It turned out that Dun's report on W.W. Smith, which was on file to satisfy the auditors' curiosity, was a forgery. Learning that the report was a forgery he went to Montreal, then to George Vernard's Brooklyn office. After 15 years of association he found out the truth.

Coster tried to persuade him to sign the affidavit to save the Company. He did not sign the affidavit, but went before a Committee of the Stock Exchange and to the S.E.C.

A few days later, on December 16, 1938, F. Donald Coster committed suicide in his Fairfield house. His widow had his body laid away in an ornate mausoleum on Long Island, and on the marble slab the carving says: "F. Donald Coster, 1884-1938". Philippo Musica never existed.

But he was a skillful man to evade controls. First he had to fight the control exercised by the so called moral standards. The moral standards, the norms to be followed are inherent in every individual (-more or less-).

For his success he needed the cooperation of Thompson, the Controller. Thompson acted as a Sensor, to communicate his alarming findings to the authorities. There was a world of coherent surrogates, indicating a reality that was not reality. Coster tried to organize the Corporation so that the phoney transactions shall be accessible only by his group, by his brothers. Just one slip, the absence of a pre-arranged phoney insurance policy was the clue that triggered Thompson's investigation.

On the other hand, Coster failed in his control of Thompson. He knew that Thompson discovered the frauds, but he had no authority to stop him from going to the authorities. He was an imaginative and active theif, but not a murderer.

Control and controls exist only by their violations. If they are not violated, and therefore they are not detected and perceived, how do we know that they exist?

This feature of the Control makes it difficult to evaluate it, to see if it is there in a situation, or it is not there.

But the Evaluation of the Control is already a different topic. We shall leave it perhaps for another occasion.

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CAAA 1980 Conference
Université du Québec à Montréal

T. Ross Archibald
School of Business Administration
The University of Western Ontario
London, Ontario

ACCOUNTING FOR PENSION COSTS AND LIABILITIES[1]

Introduction

This research study was commissioned by the Canadian Institute of Chartered Accountants because of the need, as perceived by the Accounting Research Committee, to revise the prevailing recommendations on accounting for pensions in Canada, Handbook section 3460. In order to concentrate the study on the high priority accounting issues associated with an imminent revision, the primary problem area selected for intensive investigation was accounting for defined benefit pension plans by large companies operating in the private sector. Naturally, it was anticipated that the analysis and study recommendations would have applicability well beyond this relatively narrow focus. However, by targeting on the unresolved accounting issues in the selected area it was possible to address a considerable number of open questions about the financial reporting of pensions by large public companies operating in our Canadian economy.

Study Objectives

The explicit goal of the study was to consider, analyse, interpret and explain accounting theory, as it applies to the economic events underlying actuarial calculations and reports, in order to establish appropriate accounting and disclosure guidelines for pension costs and liabilities.

The main objectives specified in the terms of reference are:

1. Analyse the nature of pension costs and liabilities.
2. Interpret actuarial science for the accounting community.
3. Assess the implications of the actuarial outputs for proper accounting and disclosure.

The Essential Actuarial Task

The essential task of the actuary can be thought of as a process of advising client pension plan sponsors how to accumulate sufficient funds over an employee's working career to be in a position, at retirement, to provide a life annuity which will fulfil the pension benefit promise.

In performing the necessary calculations and developing his report, the actuary has at his command two large families of actuarial valuation methods, the accrued benefit and level contribution methods, plus a large number of

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[1] The Conference presentation concentrated on the highlights of a CICA research study entitled, Accounting for Pension Costs and Liabilities. The subject areas presented are summarized on the following pages.

assumptions such as mortality, turnover, salary growth and interest. The day-to-day professional work of the pension actuary entails numerous subjective estimates and judgements which he weaves together in a integrated set of assumptions and methods to develop the actuarial quantities appropriate to the sponsor's pension plan requirements.

Behaviour of Various Actuarial Methods Over Time

The study's principal illustration of the behaviour of actuarial quantities over time is based on a single individual who survives in service until retirement. The calculations reveal material differences among the various actuarial valuation methods, even when plan benefits are identical.

Level contribution valuation methods are shown to have heavy initial funding, allocating much of the eventual benefit to the earlier employee working years. On the other hand, accrued benefit valuation methods backload funding payments, allocating the larger benefit proportions to the later years. These features of differential benefit allocation by period are, of course, reflected in the actuarial obligations. Further insights about the underlying characteristics of the actuarial valuation methods are revealed in the magnitude of the differences between the respective actuarial obligations over the years to retirement even though, in the single individual case, all methods must all eventually arrive at the same amount. However, to the extent that the assumptions used in simulation are realistic and common, and they were selected with these criteria in mind, one can expect similar patterns to prevail in large employee groups over time.

Personal Conclusions

On the basis of my research into pension costs and liabilities, the key features of which have been presented here, I have arrived at the following personal conclusions:

No single actuarial method should be required for accounting purposes, certainly not at this point in time and perhaps never.

Going concern values, not wind-up values, are relevant in determining pension quantities for accounting purposes.

The proper target for accounting allocations is the total benefit earned by the employee.

Pension quantities should be predicated on salary projections.

Unfunded past service obligations qualify as true accounting liabilities.

The actuarial method most compatable with accounting requirements is an accrued benefit method with salary projection.

Level contribution methods are generally incompatable with conventional accounting characteristics.

Disclosure should be substantially augmented.