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STATISTICAL OBSERVER

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Now It's Statistics Canada

On August 2, 1971, the Dominion Bureau of Statistics became Statistics Canada. Authority for the name change was included in the 1971 Statistics Act, proclaimed May 1, but the actual conversion to the new title for Canada's 53-year-old statistical agency was delayed to allow time for the many other changes associated with acquiring a new name.

Concurrent with the name change was the introduction of a common design approach for Statistics Canada publication covers. On each cover, there is a large block of solid colour, each colour denoting a specific subject area. The new federal identity logotype, which consists of a bar and the maple leaf from the Canadian flag, followed by the name Statistics Canada, is also incorporated in the cover design.

STATISTICAL OBSERVER

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The Statistical Observer is a publication designed to contribute toward informing economists, statisticians and related professionals throughout Canada about selected statistical and research developments undertaken in Statistics Canada, in other federal departments and agencies, in provincial departments, in universities and in business and independent research organizations.

Suggestions, contributions of articles for publication, and requests for subscriptions should be addressed to the Editor, Statistical Observer, Statistics Use and Information Services Group, Statistics Canada, Ottawa, K1A 0T6, Canada.

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Some Management and Research Considerations in Improving Timeliness

Several Statistics Canada staff members presented papers at the thirty-eighth session of the International Statistical Institute, held August 10-20, 1971 in Washington, D.C. One of the papers, by W.E. Duffett, Chief Statistician of Canada, and S.A. Goldberg, Assistant Chief Statistician of Canada, dealt with planning and co-ordination in a central statistical agency, and will be published in a future issue of the Canadian Statistical Review *(Statistics Canada catalogue number 11-003). Another paper by S.A. Goldberg and C.D. Hodgins (Department of Finance) dealt with some management and research considerations in improving timeliness. Dr. Goldberg presented at the meeting an oral summary of this paper. The summary is reproduced below.*

In a session devoted to the improvement of timeliness, it would be superfluous to dwell on its importance. By the same token, it appears worthwhile to make the following two points to place our views on the matter of timeliness in some sort of perspective. First, although promptness enhances the value of statistics, often immeasurably, reliable data which are late in coming are nonetheless useful for current analysis. The second point is related to the first: the decision-making process can, of course, be greatly assisted by early release of the latest results. However, good decisions are not, or should not, be based only on the latest figures but on a set of expectations about the evolving situation. A solid view on the outlook can be established only by an analysis of the historical record, extending over many months or years. The latest results may or may not confirm one's expectations about emerging events. While early data may reduce the amount of guesswork required to form a view about economic performance and the outlook, they are certainly no substitute for perception and sound judgment. Thus, the frequently quoted assertion that timeliness is important because "statistical information is a highly perishable commodity" is an oversimplification. Similarly, the analogy of late statistics to "last year's train schedule" is rather misleading despite the element of truth it contains.

Within this perspective, the issue of timeliness is of enormous importance. The image and effectiveness of the statistical office in the eyes of users of statistics and of the public at large is greatly affected by the timeliness of its output. This is because the notions of *timeliness* and *relevance* are so closely identified. The pressure for quickening the release of data is indeed growing in the degree to which statistics are being used in decision-making. To an increasing extent, users have manifested an understandable impatience with explanations of why it has not been possible to issue certain series earlier, however valid these explanations may have been.

Our paper is essentially a progress report of a timeliness program that has been under way in Statistics Canada during the past four years. We have tried to draw some generalizations from our experience but the generalizations may not be valid in circumstances different from our own.

The timeliness program was initiated in response to a strong concern, inside Statistics Canada and among our users, about our timeliness performance. The impressive record of our close neighbour, the United States, had contributed to raising the level of expectations of users in Canada.

In embarking on our timeliness program, we had to specify a set of goals. We started out with what might be called something of a slogan, "Monthly data before the end of the subsequent month; annual data before the end of the subsequent year". This has served, in fact, as a long-run goal, from which we are still quite a distance away, but it was not very helpful as a basis for immediate action. For this, we required targets which were, on the one hand, within our reach within a reasonable time and, on the other, would provide impressive payoff. We reckoned that such payoff would have a beneficial impact on the further development of the timeliness program in terms of internal morale and relations with users and respondents.

We therefore decided on a phased approach, covering a period of some three years. During the first year, we set as our main target the early release of the index of industrial production and a selected number of other important economic data; for the second year, the main target was the quarterly national accounts. Apart from their use in policy analysis, the index and the accounts embody a large range of statistics. They can, therefore, serve as an effective basis for rallying the timeliness of a large variety of current statistics. We had intended to give attention in the third year to other monthly and quarterly data and to annual statistics. For reasons I will mention later, we ended up with a "wait and see" policy in the third year.

We also had to decide on whether we should aim to release the earlier data in the full detail published hitherto. We felt that, in order to satisfy the needs of our users, we should begin by attempting to do so, keeping in mind that we were aiming at earlier statistics of comparable quality. The alternative of solving the timeliness problem merely by making available earlier summary statistics only, is, of course, much easier. This alternative is, at any rate, open as a possibility wherever the more ambitious one is not practicable.

We ended up publishing the earlier production indexes, the quarterly national accounts, imports, exports, and a number of other series in the full detail previously available. In a number of cases, notably employment and payrolls and the balance of payments, the earlier releases contain summary statistics only. The index of industrial production is now published after an interval of 6 weeks compared with the previous 9, and the quarterly accounts after 8 weeks compared with the previous 13.

Having indicated the goals, I shall describe briefly some of the procedures we used to reach them.

In the light of our experience, not much *sustained* progress can be made until the emphasis on timeliness has become firmly entrenched in the attitudes and practices of the personnel of the statistical office. This we describe in the paper as the problem of producing a "timeliness presence". This, we found, is difficult to

achieve, in part because those involved in producing statistics have to cope with a wide range of problems and pressures, ranging from administrative and operational problems to problems associated with user needs and supplier requirements. In these cross-currents, the issue of timeliness had tended to become submerged and to be treated as a residual. It also appears to be the case that statisticians who would be distressed to have to publish data they consider too inaccurate for the uses they are intended to serve tend to take a more tolerant attitude to lateness in publication. Moreover, in some sections of Statistics Canada, an accounting approach to accuracy was in evidence, whereby relatively small adjustments arising from additional coverage delayed the release of the results, without due regard to other sources of error, or to the cost in terms of timeliness forgone.

To help establish the timeliness presence, we have endeavoured to replace the accounting approach with a guideline expressed by the following question: "If the information already in hand were to be published, would it throw more light on a situation, for which decisions are being made anyway, than if the information is withheld until coverage is more complete? " Clearly, no unequivocal answer can be given to this question. Nevertheless, we found that it can serve as a meaningful point of departure for considering different cut-off dates. It also focuses the issue in a way that tends to affect attitudes about timeliness as a major goal of the statistical office.

To implant the timeliness presence, the goal of achieving prompt release of data of acceptable quality must be established as a top priority one and be given the most senior sponsorship. Having defined the goals in specific and realistic terms, no diversion from it can be permitted – barring, of course, factors beyond one's control, such as postal strikes. It is also desirable to make public commitments that these goals will be met within specified time periods. Such commitments strengthen the credibility among the staff that it is the intention of management to do everything possible so that the goals are met.

Moreover, we have found it necessary to overcome initial reactions of some supervisors that a drive for improving timeliness, through adding further pressures, would affect adversely the morale of the staff. As a matter of fact, our timeliness drive has had the opposite effect – the morale of the staff improved. Contributing to this was the fact that we involved the clerical as well as the professional staff in fulfilling the timeliness objectives. Morale rises – and so does the quality of the work and hence the statistics – as clerical and other ranks are imbued with an awareness that the results of their efforts are not only wanted but wanted with impatience. Strategies for improving on previous months' targets can be planned jointly with the staff: a degree of healthy competition between sections can be installed. When important gains are achieved, this should be publicized and duly acknowledged by senior management. We have attempted to do these things.

Of great importance in achieving the timeliness goals is, of course, the respondent. He too must be imbued with the timeliness presence. We have attempted, through publicity and personal interviews, to make respondents fully aware of our timeliness goals and the vital role they play in achieving them. Furthermore, we have made determined efforts to locate the person in the responding organization who is actually responsible for filling our questionnaires, in order to be able to contact him directly and quickly when necessary. In the case of series based on skewed distributions, it is necessary to establish a list of "must" respondents, that is to say, respondents whose returns must be in before earlier cut-offs are practical. These are usually the large respondents and those whose activities tend to be volatile so that imputation for them is difficult. Personal visits, as well as the telephone, are usually required to achieve the right results.

All the efforts outlined above can only result in frustration if time-wasting bottlenecks occur in the internal production flow – in typing, in the computer center, in printing, etc. In the case of Statistics Canada, one of the first steps in planning the timeliness program was to establish a set of time schedules in the areas selected for immediate timeliness attention. These schedules indicated the time intervals involved in each link in the production chain and were used to minimize bottlenecks. In some areas, notably trade statistics, a basic reorganization in the methods of processing the primary material was involved.

Quite a bit of progress in timeliness, without loss in quality, can be achieved with management devices such as just described. Furthermore, before any serious trade-offs between timeliness and quality have to be faced, the research instigated by a timeliness program can develop ways and means of quickening output without impairing the results. In the first place, more can be done by way of producing monthly indicators, where previously only quarterly or annual data were available. Thus Statistics Canada, following a lengthy period of research and experimentation, began last year publishing monthly indexes of gross domestic product by industry which earlier had been available only quarterly.

Secondly, effective methodological shortcuts and improved imputation procedures can be spurred by a timeliness program. Thus, improvements in imputation procedures in the Statistics Canada monthly employment and payroll statistics, triggered by the drive for timeliness, have helped to give rise to estimates of comparable if not better accuracy, despite earlier cut-offs. The introduction of sampling of documents containing small values has enabled us to accelerate our import statistics considerably and, at the same time, to improve their quality.

Sensitivity about the reliability of the statistics tends to be heightened by a timeliness program. This is conducive to inconsistencies being pursued with vigour and corrected. In order to minimize the risks involved in issuing earlier information, the statistician is stimulated to carry out more intensive analyses which, in turn, lead to a better appreciation of the characteristics

of the primary data and ultimately to their improvement.

We judge that, to date, most of our timeliness gains have been made through the various procedures just described so that the gains in timeliness were not accompanied by an overall deterioration in their quality, that is to say, we believe that the earlier data are of comparable quality to those published previously. However, these gains did not come entirely free – they involved some commitment of scarce skilled resources to accommodate the needs of the timeliness program.

This was particularly so in the case of the quarterly national accounts. Because of their great importance for policy analysis, we undertook an intensive review of the primary information flow. This review suggested that, partly as a result of the timeliness gains in the primary data, a time lag of six to eight weeks was reasonable and that these early estimates should, on the whole, be comparable in quality with the preliminary estimates of the quarterly accounts preceding the timeliness drive.

In addition, we made an analysis of two estimates for the same quarter – one, for use as a "dry run" only, after six and one-half weeks following the reference quarter; and again after 13 weeks for regular publication. Resource and other constraints made it impracticable to carry out this double estimating procedure for more than one quarter. Hence, we could only examine the level of the two estimates rather than the change. The latter would, of course, have been more relevant. Keeping in mind this limitation, the analysis of the two estimates, in the light of the historical record of revisions, again suggested that early publication was warranted. We decided, in the end, to lengthen the time interval of the early estimates from six and one-half to eight weeks after the reference quarter, to provide some insurance.

More definitive appraisals than have been possible to date of what, if any, loss in overall quality the earlier quarterly accounts and the other series entail will have to await further feedback from users and the cumulation of additional estimates and revisions. We are aware, however, of the fact that it is extremely difficult to isolate the effect of better timeliness on the estimates and revisions from all other factors affecting them. This is particularly true in Statistics Canada because, simultaneously with the program for the acceleration of the data, we initiated programs for extensive automation of a number of our surveys and the tapping of new or improved data sources. These programs are, of course, also conducive to changes in the estimates and revisions.

As I indicated before, our timeliness goals during the first two years were to speed up the release of the indexes of production, the quarterly accounts, and numerous other current economic statistics. We actually took about two and one-half years to accomplish this. We were hoping that our limited gains would have a general beneficial impact on timeliness elsewhere in Statistics Canada. In fact, little overall gain in the timeliness of our annual data was evident. In a few cases, a deterioration of timeliness of some quarterly series, not specifically included in the accelerated program, appeared. It became clear that, to extend the limited gains we have achieved, through the improved management and research devices outlined, to the broad range of Statistics Canada output, a more comprehensive program of production improvement was called for.

Accordingly, we decided to call in an expert group from the Bureau of Management Consulting of the Government of Canada, to work with a Statistics Canada team, to develop a well-defined system of production planning, scheduling and control. This group made a detailed review of our production procedures and problems. Their report, completed recently, contains comprehensive recommendations which we have begun to implement. More particularly, we are taking steps to establish in Statistics Canada a central production planning and control group whose function will include forward planning, monitoring and control of the work flow, in collaboration with the subject matter divisions. In this way, we expect that the momentum of our timeliness program will proceed in a comprehensive and systematic manner.

In conclusion, it is only fair to add that, although I have referred to our timeliness gains to date as limited, we take some pride in having achieved them. Aside from providing earlier data of comparable quality for an important range of current economic intelligence, the timeliness program I have described has been instrumental in establishing the timeliness objective as an integral and vivid element in our total operations. We were fortunate in having been able to assign to this program a number of competent people who were not only themselves fully dedicated to the timeliness program but had the talent for inspiring others in our organization to devote themselves to this task with vigour.

I wish to express, also, our gratitude to our colleagues in the United States who have permitted us to study their timeliness experience and problems with characteristic generosity and openness. This has helped us, especially in the early planning stages, to formulate realistic goals.

Ambitions with regard to timeliness improvement should be pushed to the point where further benefits from improved timeliness are outweighed by a loss in quality as reflected in larger revisions. The first task of those charged with managing a timeliness improvement program is to determine how far the system can be pushed to produce data more quickly without a loss of quality. This is essentially a management problem of optimum resource allocation and resource use although a good deal of research spawned by a timeliness program can contribute to its resolution. The second task is to be able to appraise any loss in accuracy, at least qualitatively, if and when it arises so that reasoned decisions can be taken as to its advisability. The Statistics Canada experience during the past few years suggests that the determined pursuit of these efforts can yield fruitful rewards.

However, it bears emphasizing that both timeliness and quality improvement are *moving* targets. As the user gets accustomed to prompter data, he typically wishes still earlier information. At the same time, the computer has made it possible for users to manipulate quickly much larger quantities of detailed data, and this requires increasing attention to their quality. Thus it is essential to establish ongoing research programs designed to quicken further the output while at the same time protecting or improving accuracy. This is the direction in which we are proceeding in Statistics Canada.

NEW PROJECTS

New Monthly Communication Survey

Telephone statistics are now collected on a monthly basis by the Transportation and Public Utilities Division of Statistics Canada. Previously, statistics on the telephone industry were collected only on an annual basis.

The monthly survey provides data on operating revenue and expenses, employees, salaries and wages, construction expenditures, number of telephones and number of telephone toll messages for this billion-dollar segment of the communications industry. Survey results are published in the *Communications Service Bulletin* (catalogue number 56-001).

Telephone companies participating in this survey are the fourteen members of the Telephone Association of Canada.
Inquiries should be directed to Mr. J.R. Slattery, Transportation and Public Utilities Division, Statistics Canada, Ottawa, K1A 0T6.

Provincial Accounts for Alberta

A system of provincial accounts is currently being developed by Mr. B. Klippenstein of the Alberta Bureau of Statistics. This program was initiated in 1969 under the direction of B. Gustafson. Publication of material resulting from the current program is not expected for at least two to three years. The concepts and format used for the Alberta series will parallel as closely as possible the system of national accounts. Where Statistics Canada data are not broken down or are felt to be inadequate for provincial purposes, alternative sources of information will be developed. This may require the development of surveys of provincial information sources by the Alberta Bureau of Statistics.
For more information on this project, contact the Alberta Bureau of Statistics, Rm. 1529, Centennial Building, Edmonton 15, Alberta.

PROJECT PROGRESS REPORTS

Job Vacancy Data Released in November

The Labour Division of Statistics Canada has been conducting monthly sample surveys covering all sectors of the Canadian economy, except agriculture and households, to obtain information on the number of job vacancies. First results of these surveys were expected to be released in November 1971.

The survey's main function is to provide a measure of the *demand* for labour in Canada. This information will become an important tool in economic analysis, especially when used in conjunction with the labour force survey's measure of the labour supply. Job vacancy data will be useful to business and industry in making plans for recruitment and training; to governments in formulating immigration policies and planning retraining and other educational programs; and to individuals in determining career plans or considering job changes.

For purposes of the survey, job vacancies are defined as:

- unfilled jobs at any occupational level which have existed for at least the full reference day shown on the questionnaire.
- only those jobs that are available to workers outside the firm.
- only those vacancies that the firm has been actively seeking to fill within the four weeks preceding the reference day.
- jobs available immediately or at some *specified* future date.

They will not be considered vacancies if they are:

- held open for laid-off workers.
- held open for employees on special leave.
- created through an industrial dispute.
- to be filled from within the firm.
- jobs for which new workers have been hired but are scheduled to start work at a later date.

Data gathered in the surveys will be published in *Monthly Report on Job Vacancies*, a joint publication of Statistics Canada and the Department of Manpower and Immigration. The first report will contain monthly data, for the period from June 1970 to July 1971, on vacancies by duration, by industry and by region. Included in this first issue will be a technical section (The Canadian Job Vacancy Survey: Technical Appendix) giving a detailed description of the survey, with notes on the concepts and methodology.
More information about the Job Vacancy Survey is available from the Job Vacancy Section, Labour Division, Economic Statistics Branch, Statistics Canada, Ottawa, K1A 0V3.

Farm Input Price Indexes

A new set of farm input price indexes has been constructed by the Prices Division of Statistics Canada, following a comprehensive revision of index weights and price samples. This new series is on a 1961 time base. Quarterly and annual indexes for the period from 1961 to the third quarter of 1971 inclusive will be published in the September issue of *Prices and Price Indexes* (catalogue number 62-002). A description of concepts, the weighting diagram, and index methodology will be included. (This description will also be published separately as a technical paper, catalogue number 62-534.) Current indexes will be available in *Prices and Price Indexes* and in the quarterly

publication, *Farm Input Price Indexes, 1961 = 100* (catalogue number 62-004).

The basket of goods and services (the weighting diagram) for the revised price indexes is based on information from the 1958 Farm Income and Expenditure Survey, the most recent source of sufficiently detailed data. The 1958 data have been modified to reflect 1961 prices and conditions.

The Farm Input Price Indexes (1961 = 100) replaces one of the two major component indexes in the previously published series, *Price Index Numbers of Commodities and Services Used by Farmers (1935-39 = 100).* The latter index, which was suspended early in 1970, was composed of a Farm Family Living Index and a Composite Index Exclusive of Living Component. The new Farm Input Price Indexes replaces the Composite Index Exclusive of Living Component from 1961. The Farm Family Living Index has not been revised at this time and publication remains suspended.

More information on this subject is available from R.T. Richards, Prices Division, Economic Statistics Branch, Statistics Canada, Ottawa, K1A 0T6.

Statistical Developments in the Provinces

Within each provincial government in Canada, there is one office or agency which represents the province at meetings of the Federal-Provincial Conference on Economic Statistics and often at other statistical meetings as well, and whose function it is to perform, to various degrees, the duties of a central or co-ordinating statistical agency. There have been some recent developments concerning the operations of, or legislation governing, these "focal points". The following is a brief listing of these offices and a summary of these developments.

Newfoundland – The Government of Newfoundland and Labrador passed an Order-in-Council in 1971 establishing the Fiscal Policy Division of the Treasury Board as the statistical "focal point" for the province. Consideration is being given to the drafting of new provincial statistics legislation.

Prince Edward Island – The "focal point" for P.E.I. statistical activity is the Office of the Secretary, Treasury Board. The Province does not have a specific Statistics Act at present.

Nova Scotia – In April 1971, the Legislative Assembly of Nova Scotia passed a new Statistics Act. The provincial act makes provision for a statistical agency which is intended to be in the new Department of Development. Until the new agency is set up, the Economics and Development Division of the Department of Development is Nova Scotia's statistical "focal point".

New Brunswick – This province does not have a Statistics Act or agency at present. The Director of Research in the Office of the Economic Advisor acts as a co-ordinator for statistical matters.

Quebec – The Quebec Bureau of Statistics in the Department of Industry and Commerce is the long-established and large central statistics agency for the province and it operates under a Statistics Act.

Ontario – The Economic and Statistical Services Division of the Department of Treasury and Economics is responsible for co-ordinating statistical activities. The Ontario Statistical Centre, which reports to the Executive Director of the Division, operates under a Statistics Act.

Manitoba – A Statistics Act was passed by the Manitoba legislature in August 1971. The Act provides for the establishment of an agency. Until the agency is operative, the statistical "focal point" for the province is the Secretary, Economic Development Advisory Board.

Saskatchewan – This province does not have a Statistics Act, but the Director of Federal-Provincial Relations, Budget Bureau, Department of Treasury, acts as a general statistical "focal point".

Alberta – The Alberta Bureau of Statistics, Department of Industry and Tourism, operates under a Statistics Act and is the general statistical center for the Province.

British Columbia – In this province, the statistical "focal point" is the Economics and Statistics Branch of the Department of Industrial Development, Trade and Commerce. The Branch operates under a departmental act which is also a Statistics Act.

The Statistical Observer is considering publishing a detailed description of each province's statistical activities and the organizational structure under which these activities are carried out. Would this information be useful to you? Please send your comments to M.A. Norman, Editor, Statistical Observer, Statistics Use and Information Services Division, Statistics Canada, Ottawa, K1A 0T6.

CONFERENCES

International Association for Research in Income and Wealth

The twelfth meeting of the IARIW was held in Ronneby, Sweden, from August 30 to September 4, 1971. The following report is a description of the association and an account of the 1971 meetings.

The International Association for Research in Income and Wealth is a private independent organization, founded in 1947, for the purpose of research into concepts, frameworks, data and empirical analysis relating to the flows of income, income size distribution and the nature and distribution of wealth. Also included in the area of interest of the Association are such fields of study as price indexes, productivity, conditions of human welfare and efforts to measure the so-called quality of life. Its membership consists of leading economists and statisticians in the areas of interest described above and encompasses persons engaged in academic work in universities and private research foundations as well as those employed by governments.

The membership of the Association is world-wide, although a large proportion is drawn from European countries with the North American continent also having a substantial representation. The Association meets every two years and, with the exception of the eleventh meeting which took place in Israel, all the meetings have been held in Europe. The meetings are usually held in some secluded location where the members can form a working group for the full week of the meeting. Intensive discussion and intellectual stimulation thus takes place, not only at the official sessions, but also in informal exchanges outside the conference room. The papers are generally organized around three or four principal topics and are introduced by invited discussants who provide brief resumés of the papers as well as their own critique. The authors are free to join the general discussion of their papers and are given the opportunity for a final comment or rebuttal.

Until 1962, the Association was largely financed by the Rockefeller and Nuffield Foundations, and membership in the Association was by invitation and without charge. Since 1962, major financial support has been provided by the Yale Economic Growth Center, and it was the prospective termination of this support by 1971 which, in 1965, prompted a fundamental change in the organization of the Association. Considerable difficulty and delays had resulted from the practice of publishing papers in book form, and it was decided to institute a quarterly academic journal, *The Review of Income and Wealth,* which would be the vehicle for papers delivered at meetings of the Association as well as others in its field of interest, and from the sale of which some revenue would also result. In addition, membership fees were instituted, although these also include a subscription to the journal. As a replacement for the financial support of the Yale Economic Growth Center, the Association is seeking to develop a broad base of institutional membership, largely among governments, and the approaches so far have produced encouraging results. At present, there are approximately 250 individual members of whom about 150 attended the meeting in Sweden, and it is proposed to increase this number to about 300 during the next two years. The Association is governed by a Council which determines the topics for conferences, the selection of organizers for sessions, the appointment of the editors of *The Review of Income and Wealth,* and the general policies and administration of the Association. Dr. S.A. Goldberg, Assistant Chief Statistician of Canada, has just completed a two-year term as Chairman of the Council, and his successor is Mr. Z. Kennessey of the U.N. Statistical Office. The Secretary of the Association is Professor Nancy D. Ruggles of Yale University.

The Meeting in Sweden

The 1971 meeting in Sweden consisted of four sessions. Approximately 50 papers were discussed. These papers cannot be individually summarized in a brief article, but an attempt is made below to describe some of the main arguments presented and the points brought out in the discussions. The summary will deal only with the first three sessions, namely, those on systems of socio-demographic accounts and social indicators; on total factor input and productivity; and on international price comparisons. The fourth session, which consisted of contributed papers, was typically too heterogeneous to lend itself to any unified treatment.

The papers and discussion on systems of socio-demographic statistics and social indicators arose from three broad types of questions which have been of concern to economists and statisticians working in the fields of income and wealth during the last few years. There has been some success, albeit still fraught with many shortcomings, in measuring in an aggregative, integrated and purposeful manner those phenomena of production, expenditure and wealth which pass through the market (or quasi-markets) and which have become embodied in the general system of national accounts. The question arose whether a parallel methodology could not be applied to social and demographic statistics to integrate them into an overall system which would provide a broader capability for dealing with the totality of social problems.

Two broad approaches seem to be emerging on this question. One is directed to the creation of structured socio-demographic models within which the variables can be analyzed by econometric and other formal techniques. The second is concerned with the development of a capability by which disaggregated data bearing on related phenomena can be brought together as so-called micro-data sets to permit the searching analysis of particular problems. The essence of such a system is its flexibility and capacity for speedy response. This imposes very exacting requirements on the elements of the various data files which must be uniformly described and classified and conceptually consistent. It also presupposes sophisticated computer technology for the required storage and retrieval capability.

The second broad concern in the first session was the growing realization by economists and statisticians as well as the general

public that the measurement of growth and production, as reflected in the system of national accounts, takes no account of the *social desirability* of the goods and services concerned – whatever this term might mean. There is a vast range of goods and services which no doubt contribute to an increase in the general quality of life and the enjoyment of intellectual and material benefits. On the other hand, there are products and services which may be somewhat less socially desirable. In addition, there are external costs such as pollution and congestion which are created by the very act of producing those things which we all desire. How to measure these aspects of economic activity, and how and whether they should be integrated into the system of statistics which reflects mainly the mechanics of the market place, are extremely complex problems.

The second session of the meeting at Ronneby dealt with problems of the relationships of total factor inputs and outputs, that is, total factor productivity. In the past, many productivity studies have restricted themselves to analyzing the relationship between real product and the corresponding labour input. Somewhat less emphasis was given to the contribution of capital – largely because of data difficulties – either in its own right or in conjunction with labour inputs. This session devoted a good deal of attention to the combination of these factors in creating output and a number of very interesting empirical studies were presented. The session, however, went much further than this and presented a number of path-breaking developments. The first was an attempt to develop a fairly detailed system of classification of growth determinants. Such a classification would have very significant potential for analytical and diagnostic studies of the causes of growth and will probably also contribute to the understanding of international comparability, which was the topic of the third session.

The third type of question arises from the increasing concern as to whether the forces of growth and change are being effectively harnessed toward the goals of society. The problem is of course aggravated by an ambiguity as to what the goals are or should be. It is a pervasive problem, which is dramatized by the continuing growth in the spending program of governments. There is general recognition of the need for the analysis and evaluation of the effectiveness of these expenditures, and this has led to a search for a system of quantitative indicators for monitoring the ultimate social conditions which the expenditures are designed to influence. The research underlying the developments of these quantitative indicators is often referred to as the social indicators movement, and the session provided a useful summary of the state of this as yet relatively undeveloped art as well as pointing to some promising lines of future development.

The second session was the pivotal session of the whole meeting because it also provided very strong linkages with the preceding session through the notion of measuring, as a contributing element to economic growth, not only the conventional concept of capital investment, but also society's investment in human capital, including the costs of rearing children, educational outlays, relocation costs etc. It seems clear that, if these aspects of the human condition can be related to productivity and growth, a major gap between socio-demographic and economic factors can be closed. This question was considered so important by the meeting that it will constitute the subject of a complete session at the next IARIW meeting to be held in Budapest in 1973.

The third session may be said to have been of a somewhat more pragmatic nature than the two preceding sessions. It was concerned mainly with a description and progress report of the effort to achieve international price comparability in the measurement of GNP and related totals. A major effort toward international price comparability has been initiated under U.N. auspices at the University of Pennsylvania. This undertaking is designed to review, expand and carry forward, on a world-wide basis, work of this nature which took place in the late 1950's in the OECD with respect to several of its member countries. This is a technically very difficult problem, the solution of which is likely to be expensive in terms of human and financial resources. In an attempt to reduce this difficulty, a good part of the discussion was addressed to the feasibility of shortcut methods to achieve similar aims. It is obvious, however, that a really meaningful evaluation and testing of the validity of the various so-called shortcut methods must await the completion of and comparison with full-scale studies. This is still some time away. *This report was contributed by H.J. Adler, Senior Advisor on Integration, and D.A. Worton, Director, Central Planning and Programming Staff, Statistics Canada, Ottawa, K1A 0T6.*

Workshop on Chemical Statistics

A new development in the continuing process of liaison between Statistics Canada and the users and providers of statistics was the workshop co-sponsored by the Canadian Chemical Producers Association and the bureau. "Statistics for the Chemical Industry" was the name of the two-day session held in Ottawa, May 19 and 20, 1972, to foster "communication, understanding and co-operation" between the CCPA and Statistics Canada.

The meetings were attended by more than 60 representatives of the chemical manufacturers. Many divisions of Statistics Canada participated – Manufacturing and Primary Industries, Central Classification, Agriculture, Prices, External Trade, CALURA, Labour, and National Output and Productivity.

The workshop was opened by W.E. Duffett, Chief Statistician of Canada, who pointed out the importance of the opportunities provided by meetings of this type for Statistics Canada and the chemical industry to learn of each other's needs. V.R. Berlinguette, Director General of the Economic Statistics Branch, gave the meeting a detailed introduction to Statistics Canada, describing the organization and some of the major concepts and standards that the bureau uses and some of the issues faced by the bureau in fulfilling its role. The next three speakers, G.W. Andrews, Director, Manufacturing and Primary Industries Division, D.A. Traquair, Director, Business Finance Division,

and W.L. Porteous, Director, Agriculture Division, outlined the specific activities of Statistics Canada pertaining to statistics for the chemical industry.

For the first "workshop" session, delegates were divided into small groups, with some "data users" and some "data providers" in each group, to discuss and enumerate the problems that the industry has had in dealing with Statistics Canada. This session was followed by a panel discussion on the problems that Statistics Canada has had in dealing with the chemical industry.

There were seven subject matter workshops devoted to specific areas of activity in chemical statistics. The topics discussed were classification and survey methods, production and consumption, employment and wages, prices, external trade, general economics, and financial statistics. Each of these sessions was co-chaired by a Statistics Canada subject matter specialist and a CCPA representative.

As a result of this meeting, the Statistics and Information Committee of the CCPA has set up subcommittees, one to deal with each subject matter area discussed, to pursue those issues arising from the workshop.

First Canadian Conference in Applied Statistics

Industry, government and universities were represented at "Statistics '71 Canada", the first Canadian conference in applied statistics, held in Montreal from May 31 to June 2, 1971.

The objectives of the conference were:

(1) to facilitate the exchange of ideas and experiences among Canadian statisticians, and thereby to make statisticians more aware of the scope of statistical activity in Canada;
(2) to emphasize the contribution of statistics and the statistical profession in the Canadian context;
(3) to explore the needs of the business, government and academic communities for statisticians and statistical information; and
(4) to provide the basis and initial momentum toward the development of a Canadian statistical organization and a professional journal of statistics in Canada.

Topics of the more than 50 papers presented to the conference ranged from discussions of the uses of statistics in management and education to descriptions of new concepts and techniques in statistical methodology.

Many Statistics Canada staff members took part in the conference. T. Gigantes of the Economic Statistics Branch participated in a panel discussion on the "Misuse of Statistics in Public Media, Business, Industry and Governments". A. Sunter of the Methodology and Systems Branch gave a paper entitled "Some Special Problems of Business Surveys". The subject "Variance Components and Variance Functions" was discussed by G. Gray, also of the Statistics Canada Methodology and Systems Branch. A. Ashraf, R. Platek and P. Timmons of the same branch presented a paper on "Some Methodological Aspects of the 1971 Canadian Travel Survey".

The proceedings of this conference will be published by the Sir George Williams University Press in 1972.

NEW REPORTS

Income Statistics

The Consumer Finance Research Staff is continuing its publication program of the data collected in the survey of Consumer Finances taken in the Spring of 1968. The basic statistical report, *Income Distributions by Size in Canada, 1967* (catalogue number 12-534), was released in January 1971, and reports on special topics are being published now.

Statistics on Low Income in Canada, 1967 (catalogue number 13-536), was released in June 1971. According to the estimates in this report, 39 per cent of unattached individuals and 18 per cent of families had incomes in 1967 below the low income cut-off levels. (These cut-off points are the limits established to analyze the 1961 Census data, adjusted for the increase in the Consumer Price Index.)

The 832,000 families in the low-income category comprise approximately 3.3 million persons of whom 1.4 million were children less than 16 years old. In 1967, 37 per cent of these families reported that the family head worked on a full-time basis all year. Average family income for this group was $2,615, and average family size was 4.6 persons of whom 2.3 were children. Forty-five per cent of all low-income families lived in rural areas, but almost 18 per cent lived in large metropolitan areas with populations of more than 500,000.

In addition to the low-income families, 582,000 unattached individuals (221,000 males and 361,000 females) had incomes less than $1,740 – the low income cut-off for one-person units in 1967. Almost half of these individuals were elderly, with a particularly high proportion of women over 65 in the group. Most unattached individuals with low incomes resided in urban areas: only 19 per cent lived in rural areas.

Data published in *Earnings and Work Experience of the 1967 Labour Force* (catalogue number 13-535), also released in June 1971, showed that the 1967 average earnings of full-time male workers were $6,415, almost double the average earnings of $3,746 for female full-time workers. (Full-time workers are those who worked for 50 to 52 weeks, mostly on a full-time basis.) Eight per cent of *all* male workers earned $10,000 or more in 1967, but only .4 per cent of females reported earnings in this bracket.

Comparison with earnings data of 1961 indicates that family incomes in 1967 were less dependent on the earnings of the family head than in 1961. Thirty-three per cent of the total average family income was contributed by other family members in 1967 compared with 20 per cent in 1961.

Family Incomes (Census Families), 1967 (catalogue number 13-538), will be released shortly. This report contains the only published data available since 1961 on the income distributions for the family as it is defined in the Canadian Censuses. A Census family consists only of parent(s) and never-married children; whereas, the "economic family" – the definition used in the income distribution statistics compiled from the Surveys of Consumer Finances – includes other relatives living in the same dwelling.

Average family income for Census families in 1967 was estimated at $7,366, slightly less than the average income of $7,602 for families as defined by the Survey of Consumer Finances.

The two million people who were excluded from the Census definition of a family had an average income of $2,959 in 1967. In comparision, the average income of the 1.5 million unattached individuals (those who did not share a household with relatives) was $3,257.

Substantial real income gains accrued to Canadians between 1965 and 1967, according to data published in *Comparative Income Distributions, 1965-1967.* This report (catalogue number 13-539), which is expected to be released soon, shows that average family income (in 1961 constant dollars) increased from $6,091 to $6,591 between 1965 and 1967. The proportion of families with incomes of less than $3,000 (1961 dollars) decreased from 5.7 per cent in 1965 to 4.6 per cent in 1967; whereas, the proportion of families receiving more than $10,000 rose from 25 per cent to 31 per cent during the same period.

However, the inequality of income distribution remained largely unchanged as illustrated by the fact that the share of the total income received by families in the lowest quintile of the income distribution was 6.2 per cent in 1965 and increased only slightly to 6.4 per cent in 1967. Similiarly, the income share received by families in the highest one-fifth of the income distribution changed by only one-tenth of a percentage point – from 39.0 to 38.9 per cent.

Inquiries about these reports may be directed to Mr. B. Mazikins, Assistant Chief, Household Surveys, Consumer Finance Research Staff, Statistics Canada, Ottawa, K1A 0T6.

Background for U.S. National Accounts

United States national income statistics have undergone a great transformation during the last two decades. A recent publication of the United States Department of Commerce, *Concepts and Methods of National Income Statistics,* is a collection of articles giving an historical view of this transformation. These articles, reprinted from various sources, describe the basic conceptual structure of national income and productivity statistics and show the changes that have occured since 1954, both in the basic concepts and in the statistical methodology and procedures used to produce the statistics.

Concepts and Methods of National Income Statistics, United States Department of Commerce. Available from the National Technical Information Service, Springfield, Virginia, U.S.A. 22151.

Economic Statistics for Ontario

The 1971 issue of the *Ontario Statistical Review,* an annual reference publication supplementing the bi-monthly *Ontario Economic Review,* was released in July. Its purpose is to provide an historical perspective for the economic indicators in the *Ontario Economic Review,* and to bring together a wide range of information about Ontario's economy.

The report is divided into four sections. The first section presents a series of economic indicators covering the 1949-70 period. Part two contains the three basic tables for Ontario's input-output model. In the third section, selected regional economic measurements are presented, covering the province's ten development regions and their major urban centers. The last part of the report contains annual estimates of the major components of the Ontario Gross Provincial Product for the period 1957 to 1969.

Ontario Statistical Review, Economic Analysis Branch, Economic and Statistical Services Division, Department of Treasury and Economics, Frost Building, Queen's Park, Toronto 182, Ontario.

Design for Decision-Making

The *Eighth Annual Review* of the Economic Council of Canada focuses on the processes of government decision-making with particular emphasis on human resources policies.

The first part of this Review discusses briefly the increasing role of government. Then, the major aspects of government decision-making processes, and possible ways to improve them, are examined. In the third section, the authors illustrate these processes, and possible improvements, with reference to the main programs of federal manpower policy: training, mobility, job placement, etc. The decision-making processes of provincial governments are examined using as an example educational policies and programs. The final chapter of the Review sets out some conclusions about government decision-making.

Copies of the Economic Council of Canada Eighth Annual Review, September 1971, Design for Decision-Making, catalogue number EC21-1/1971 are available from Information Canada, Ottawa, and Information Canada book stores, for $3.00.

OECD Study of Output

During the last two decades, the economies of most of the countries of the world have grown steadily and at unprecedented rates. A recent study by the Organisation for Economic Co-operation and Development, titled *The Growth of Output, 1960-1980,* analyzes this growth rate and gives projections for the supply during the next decade. The publication also examines demand management policies in relation to growth, as well as other aspects of economic policy relevant to the increase in, and most efficient use of, supply.

The special aspects of growth in developing countries are illustrated by a review of the performance, prospects and problems in four OECD member countries (Greece, Spain, Portugal and Turkey).

The final section of the report formulates the conclusions of the study and discusses problems for future analysis.

The Growth of Output, 1960-1980, Retrospect, Prospect and Problems of Policy, December 1970, Organisation for Economic Co-operation and Development, France, catalogue number 1170021. Available in Canada from Information Canada, Ottawa. Price: $8.75.

ANNOUNCEMENTS

Two Economic Accounts Branch Officials Working with International Organizations

Mr. D.K. McAlister, Chief of the Balance of Payments Section of the Balance of Payments and Financial Flows Division, was invited to participate in the revision of the third edition of the *Balance of Payments Manual* prepared by the International Monetary Fund. The purpose of the Manual is to guide member countries in the construction of balance of payments accounts. The Manual provides a standard for compiling statistical series that can be conveniently compared both from country to country and with related series prepared in conformity with other international standards. It is not intended to enforce standardized recording of balance of payments where the character and relative importance of items for any individual country indicate otherwise, but the Manual does provide guides to definitions, coverage and concepts.

Mr. W. Mackness, Chief of the Financial Flows Section of the same Statistics Canada Division attended the tenth meeting of the Organisation for Economic Co-operation and Development (OECD) Ad Hoc Group of Financial Statisticians in June 1971. The group has compiled a set of comparable member country financial statistics, including financial flows, interest rates and security issues, which the OECD is now publishing. The group is now considering extensions to the published series to cover financial statistics of non-financial corporations, financial institutions and rest of the world sector within the financial flows framework.

Appointments

C.D.P. Bernier, formerly Chief of the Provincial Government Section of the Governments Division, Financial Statistics Branch, was promoted to Assistant Director and Chief of the Consolidation and Co-ordination Section of the same division.

D.R. Buchanan has been appointed to the position of Survey Integration Co-ordinator, Economic Statistics Branch. One of his major functions will be a study of the extent of duplication in industrial surveys. Mr. Buchanan was formerly with the Statistics Canada Labour Division.

E.A. La.S. Fisher has resigned from his position as Co-ordinator of Systems and Development in the Education Division and is now working with UNESCO in Paris.

Ross Grenier is the new Co-ordinator of Systems and Development in the Education Division of the Socio-Economic Statistics Branch. Mr. Grenier was formerly Associate Registrar (Records and Scheduling) at the University of Waterloo.

P. Hicks, has been named Assistant Director, Labour Market Statistics, in Labour Division of the Economic Statistics Branch. Mr. Hicks is continuing to carry out the duties of his former position as Chief of the Labour Force Survey Section.

K. Holt was appointed to the position of Assistant Director, Subject-Matter and Research, Judicial Division. Mr. Holt was formerly Head of Integration and Analysis in the Judicial Division, Socio-Economic Statistics Branch.

G. Labossière is now Director General, Administration, for Statistics Canada. In this position, he has responsibility for personnel, finance, administration, accommodation, the bilingual program and management consulting services.

P. Legaré has joined the Statistics Use and Information Services Division as the Statistics Use Development Officer for the Montreal Region. Prior to this appointment, Mr. Legaré worked in economic research for the Private Planning Association and Canadian Pacific.

B. Lynch has been appointed to the position of Assistant Director, Employment, Payrolls and Pension Statistics, Labour Division. Prior to this appointment, Mr. Lynch was Assistant to Mr. V. Berlinguette, Director General, Economic Statistics Branch.

W.C. MacIver has been appointed Director of Statistics Canada's Financial and Administrative Services.

C. Pless has joined the Integration and Development Section of CALURA. Mr. Pless was formerly with the Essex Jewelry Co. Ltd. in Montreal.