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STATISTICAL OBSERVER



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The Statistical Observer is 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.

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Census Geostatistical Areas

The traditional function of the Census Division's Geography Section is to delineate the statistical areas for the collection and presentation of census data. The areas created or adopted are used in all publications and computer print-outs produced by the census. The object of the following report(1) is to show how a coherent system of statistical units was established at the national level, at the same time respecting the obligation to provide the provinces with data on as many types of areas as possible which they consider official.

Statistical areas can be classified in two ways: according to their hierarchical rank in the territorial subdivision; or, according to the extent of participation of Statistics Canada in determining their boundaries. In this report, we shall choose the first approach and, as we go along, specify in each case the degree of the bureau's participation.

Provincial Level

The most complicated data and cross-classifications are available at the provincial level. In addition, for certain more complex tables, and also for the breakdown of long tables into bulletins, Canada has been divided into six regions. Three of these regions, Quebec, Ontario and British Columbia, contain one province only. The Maritimes and the Prairies correspond to the traditional concept, and the last region groups the Yukon and Northwest Territories.

Multimunicipal and Intraprovincial Level

For census purposes, there are three main types of areal divisions in the provinces, all comprising individual municipalities. These areas are neither equivalent nor comparable to one another because they were established for different purposes.

(1) Electoral Purposes

Through the Representation Act, the federal government divides the provinces into electoral districts. These electoral districts serve as a base for the creation of enumeration areas which are used for the collection of census data. Thus, although electoral districts are not statistical areas, the census must recognize them and provide data for them. In fact, the "legal reason" for the decennial census is to determine changes in population distribution as a basis for the revision of the federal electoral map. The total count of population, and the population count of the previous census, within each electoral district will be published (catalogue number 92-703) so that an historical comparison can be made. Distributions of the population, on the basis of age, marital status, language etc. for each electoral district will be available at a nominal cost on special data sheets.

(2) Administrative Purposes

The provincial governments of Prince Edward Island, Nova Scotia, New Brunswick and Quebec have divided their territory into units called "counties". In British Columbia, a recent

revision of the administrative structure led to the creation of regional districts which are considered, for statistical purposes, as equivalent to counties. In Ontario, in addition to the traditional counties, there are "regional municipalities" and "district municipalities" which are treated as counties in the tables.

In some provinces, there is no administrative level between the province and the municipality. This is why Statistics Canada, in collaboration with the provincial governments, has created census divisions in Alberta, Saskatchewan, Manitoba and Newfoundland for which it provides the same data as for counties.

On the whole, counties and their equivalents are stable units which are very useful for the preparation of historical series. However, it will be impossible to make a comparison between the former divisions and the new regional districts in British Columbia, except for the total population counts.

(3) Statistical Purposes

Statistics Canada determines the boundaries of census *metropolitan areas and census agglomerations*. These are also multi-municipal entities which, unlike the others, exist only in major urban centres and their fringe areas. They are used in presenting data for urban areas where the municipal boundaries are too arbitrary for data by municipality to be meaningful.

Census Metropolitan Areas – A metropolitan area for census purposes is the main labour market for a densely built-up area with a population of 100,000 or more. It corresponds to the commuters' area. Since there was no place-of-work data available when the delineation was done, the following criteria were used as a basis: distance to the built-up area, structure of the labour force and population increase. Only complete municipalities or subdivisions are included in a census metropolitan area.

The systematic application of constant criteria within the country raised two problems: comparability and uniformity. The problem of comparability stems from the difference between 1966 and 1971 boundaries. However, a bulletin will give the population count of the previous census for the 1971 delineation.

The problem of uniformity stems from the reaction of local governments. More and more, large cities or urbanized areas have planning boards, which are large users of statistical data. These agencies would like to see their planning regions or areas recognized. However, the criteria for delineating planning regions differ from one area to the other. To compare data of one urban area with those of another, Statistics Canada had to use constant criteria, sometimes at the prejudice of local interest(2).

Many tables are available for census metropolitan areas. However, several breakdowns of these areas are adopted depending on the amount of detail in a given tabulation.

Often, only totals for the entire metropolitan area are given; sometimes a distinction is made between "urbanized core" and "fringe", that is, the remainder of the metropolitan areas; and, in some cases, statistics are shown for each municipality within the metropolitan areas. The publications provide more details by metropolitan area than by county (or division) but less than by province. There were 22 metropolitan areas for the 1971 Census, compared with 19 in 1966, the new ones being Chicoutimi-Jonquière, St. Catharines-Niagara and Thunder Bay.

Census Agglomerations – The census agglomeration concept closely resembles that of the census metropolitan area because it deals with urbanized areas only. However, the difference lies in size and in some delineation criteria. The population of agglomerations ranges from 2,000 to 100,000 whereas in metropolitan areas, by definition, it is 100,000 or more. For the delineation of census agglomerations, only the first step used for the delineation of census metropolitan areas is applied; that is, inclusion of the municipalities completely or partly located in the continuous built-up area. First, a study is made to determine whether, outside an urban municipality with a population of 1,000 or more and a density of 1,000 or more persons per square mile, there is a densely built-up area with a population of 1,000 or more and a density of 1,000 or more inhabitants per square mile. In such a case, the central urban municipality and the built-up fringe are considered as the urbanized core of a census agglomeration. Complete municipalities and, most of the time, complete subdivisions are included in census agglomerations.

In 1966, the delineation of agglomerations with populations ranging from 2,000 to 100,000 had already started. However, they had different names depending on their size. Agglomerations where the central city had a population of 25,000 or more were called "major urban areas" and their data appeared in the regular publications. Agglomerations with 25,000 or less were called "urban areas" and data were available in special tables, only by request. Furthermore, the 1966 urban areas were only parts of municipalities which made it difficult to make comparisons with data from sources other than the census.

For the 1971 Census, 86 agglomerations were delineated. Availability of data by census agglomeration depends on the size of the agglomeration. Data for agglomerations of 25,000 will appear in the regular publications. Data for agglomerations of 25,000 to 10,000 will be available in special tables in the form of computer print-outs and more restricted variables will be available in this form for agglomerations of fewer than 10,000. However, a special bulletin will give selected variables for all the census agglomerations in Canada.

Municipal Level

The census provides large amounts of data by municipality.

However, municipal boundaries often change from one census to another because of amalgamations and annexations. The "Historical" bulletin (catalogue number 92-702) gives the population count of the previous censuses for each municipality. For each census, the boundaries in effect at the date of that census are used for the population count. When boundary changes affect the comparability of data, footnotes give the explanation of the change that has taken place. In addition, the Geography Section publishes an annual report on the changes in municipal boundaries which gives the 1966 population and area of the annexed region. These two procedures tend to reduce the problem of the comparability of historical data by municipality.

(1) Cities, Towns, Villages and Other Municipalities

The criteria determining whether a municipality is a village, town or city vary from one province to another. Nevertheless, the census respects this distinction in its publications, although considering these three types of municipalities as equivalent. The same procedures apply to the five boroughs of metropolitan Toronto.

The municipalities to which departments of municipal affairs have not conferred the status of city, town or village have names which vary from one province to another. The following is a list of a few types of municipalities and the provinces to which they apply.

Parish:	Quebec, New Brunswick
Rural municipality:	Manitoba, Saskatchewan
Township:	Quebec, Ontario, Prince Edward Island
Improvement district:	Alberta, Ontario
Municipal district:	Alberta, Nova Scotia
Local improvement district:	Saskatchewan, Newfoundland
County:	Northwest Territories, Yukon
	Alberta (not to be confused with the county at the multimunicipal level).

For statistical purposes, all these municipalities are considered equivalent and their names synonymous.

Most of the tables published do not include all the municipalities because there would be too many. Tables are generally prepared for the cities, larger towns and villages, and other municipal subdivisions of similar size. However, in many cases, the data are available on request for the smaller subdivisions.

(2) Other Census Subdivisions

The term "subdivision" may sometimes have a more limited meaning than a municipality and describe a statistical area created by Statistics Canada in co-operation with the provinces. In some provinces or territories such as Newfoundland, the Yukon and Northwest Territories, there are vast areas which have not been organized into municipalities. Since it may not be sufficiently useful to give only a single total for such large areas, the bureau, in co-operation with the provinces, has subdivided these territories in some cases. The resulting subdivisions have neither administrative nor legal status but

serve as equivalents for municipalities for statistical purposes only.

Nova Scotia is a somewhat special case. In this province, each county contains cities, towns or villages but the rest of its territory constitutes a single municipality called a "municipal district". The bureau has also established subdivisions in these municipal districts of Nova Scotia in order to maintain comparability with the provinces which have a large number of rural municipalities or whose unorganized territory has been divided into subdivisions by the bureau.

Municipalities sometimes change boundaries from one census to another. The same phenomenon occurs, although less frequently, in the case of the other census subdivisions established for statistical purposes. Hence, the 1971 Census data will be based on new subdivisions in Newfoundland and British Columbia.

(3) Unorganized Territories and Indian Reserves

Most of the provinces – except New Brunswick, Nova Scotia and Prince Edward Island – have territories which have not been organized into municipalities. When this territory is not divided into other census subdivisions, the data will appear as a total for the "unorganized" portion of each county or its equivalent. To permit a more detailed study of these unorganized territories, the bulletin on unorganized townships gives data for areas which were originally established exclusively for surveying purposes in the Prairies and in northern Ontario and Quebec.

Indian Reserves have a special place in the hierarchy of census statistical areas. Indian Reserves do not have municipal status, but they are counted separately, even if they are located within the geographical limits of a municipality. In the published tables, data for all Indian Reserves in a given county or census division are combined and presented as for a separate "municipality".

Intramunicipal Level

Most of the statistical areas mentioned so far have been delineated by agencies other than Statistics Canada, but the bureau has adopted or recognized such delineations. Up to the 1941 Census, it was felt that the most detailed level for which statistics could be produced was the municipal level. Since then, there has been a trend toward giving increasingly more detailed information on areal units. This stems from the fact that users are conducting more and more detailed studies and wish to get away from the arbitrary framework of municipal boundaries. In considering the intramunicipal units, we shall proceed from the largest to the smallest.

(1) Census Tracts and Area Aggregates

Since 1941, metropolitan areas and other urban centres of 50,000 or more have been subdivided into census tracts – small statistical areas of comparable population, clearly defined physical boundaries, and homogeneous socio-economic characteristics. The boundaries of these tracts have varied from one census to another according to changes in population

The first population counts are made by enumeration area. However, no data are published on this basis: the data will be made available in the form of computer print-outs, special distribution and in highway and railway patterns. However, the 1971 Census saw the establishment of a numbering system which will make it possible, through suffixes, to integrate future changes and also to facilitate the preparation of historical series. Conversion tables have been prepared for previous years, which will make it possible to go as far back as the origin of census tracts. (For details on the definition, the method of delineation, and the role of local committees in the delineation of census tracts, see the *Census Tract Manual*, available from the Geography Section, Census Division.)

Each census tract is identified individually by the geographic code. For each census tract city or metropolitan area, a special bulletin will provide a substantial number of variables by census tract. (See the Census Tract Series in the *1971 Census Catalogue*, number 11-500.) There will also be special computer summary tapes for the census tracts as well as data on computer print-outs, particularly, a series for the new question on place of work.

The census tract is a purely urban statistical area. When summary tapes were prepared for the 1971 Census, it was realized that the enumeration area level would be too small to guard confidentiality in detailed tables. Nor could the problem be resolved by using the municipal level because some municipalities, especially in Quebec, contain only one enumeration area. Hence, there was a need to establish a coherent system of statistical areas at a level comparable to a census tract, but covering the whole country. Each unit, called an "area aggregate", has a population ranging from 4,000 to 6,000 just like a census tract. Its boundaries must respect a number of other statistical units according to lists provided by users, particularly by the provinces. They do not necessarily follow municipal boundaries but, in areas divided into census tracts, they will preferably follow such boundaries. The "area aggregate" may prove very valuable in the preparation of historical series, since the intention is to keep boundaries permanent.

No publication will give data for "area aggregates"; the sole purpose of this statistical area is the summary tape program.

(2) Enumeration Areas

The entire organization of the census is based on the delineation of enumeration areas. These areas usually represent the territory an enumerator can cover in the period assigned to him. Several criteria are considered in the delineation of enumeration areas:

- population: maximum of 200 households or 100 farms;
- boundaries recognizable in the field: waterways, railways, roads;
- homogeneous rural or urban character;
- easy accessibility to every part of the territory;
- respect for the boundaries of other statistical or administrative areas.

tables or microfilm. Another important dissemination medium will be computer summary tapes containing tabulated data by enumeration area, from which the user can build, with the use of a computer, the area required.

Although data are available for these levels, enumeration areas are nevertheless more operational units than statistical units, because they are not stable enough to permit historical comparability. At every census, the boundaries and the numbering of enumeration areas change since the essential factor of delineation is the population size in relation to the enumeration workload. The Geography Section is preparing conversion tables, in order to follow the enumeration areas from one census to another.

The boundaries of enumeration areas sometimes surround, sometimes include, unincorporated places of five or more dwellings within rural municipalities, known locally by a specific name but not officially delineated, or administered by a municipal council other than that of the neighbouring municipality. The data for these localities are not so precise as for the other statistical areas because the enumerators delineate their limits based on locally-recognized boundaries. Population counts will be available for unincorporated places of all sizes. For places with populations of 50 or more, data will be published in a special bulletin (catalogue number 92-771). The population counts of places with less than 50 people will appear only on an unpublished print-out. If an unincorporated place is large enough to comprise one or more enumeration areas, data other than population counts may be available as well.

Conclusion

The present article has tried to present a picture of the geographical and statistical areas used by the census for presenting its data. All the terms mentioned will be defined in the Dictionary of the 1971 Census Terms and will be used for access to information.

(3) Geocoding Units

The smallest statistical unit defined by the Geography Section is the block-face to which is assigned a centroid identified by co-ordinates where the data are stored. After describing the co-ordinates of a given area, all the centroids it contains can be determined and a number of data can be retrieved. However, data are never tabulated for individual block faces, and the centroids are, in reality, "building blocks" to define user-specified areas. This new system of building-blocks applies to only 14 urban centres in the 1971 Census. For the remainder of Canada, the basic geocoding unit is still the enumeration area.

(1) This article is taken from a paper by Dr. F. Ricour-Singh, Geography Section, Census Division, Socio-Economic Statistics Branch, Statistics Canada, Ottawa, K1A 0T7. More information on this topic may be obtained from

Chief of the Geography Section and/or the author.

(2) For further details on the criteria and their application in special cases, refer to the document "Census Metropolitan Areas, Revision of the Delineation, Concept and Criteria for the 1971 Census", available from Geography Section, Census Division, Canada, Ottawa, K1A 0T7.

Recent Developments in United States Federal Statistics

This description of United States statistical developments was taken from an article, entitled "Recent Developments in Federal Statistics", by Julius Shiskin of the Office of Management and Budget. The article first appeared in the December 1971 issue of The American Statistician.

There has been growing recognition of the need for better statistical information on which to base decisions required to conduct modern government and business activities. The increasing magnitude and complexity of government and of society clearly require more accurate, more prompt and more relevant data for economic and social policy formulation, for government program guidance and for internal government management.

About two and one-half years ago, a vigorous effort to develop a statistical program suited to the needs of the times was initiated. This article reports on the shape this program has taken and the progress to date. The focus is upon broad directions of the federal statistical program. Activities of the operating statistical agencies, which in many ways parallel and reflect the actions described here, are left for discussion elsewhere.

The broad approach has been to increase the overall budget for statistics and to improve the organization of federal statistical activities. The added funds in combination with an improved organization are intended to facilitate many specific improvements already underway or contemplated.

Program Content

The top priority programs in evaluating specific proposals for the budget are (1) to extend and improve the basic data required for the System of National Accounts (defined broadly to include national income and product, input-output, balance of payments, flow of funds, and national and sector balance sheets); (2) to improve the accuracy and timeliness of current economic indicators; (3) to organize a set of social indicators within a framework for developing a system of social and demographic accounts; and (4) to develop a more systematic and comprehensive program of state and local area data.

In line with the priorities, major improvements being sought in economic statistics include expansions and accelerated reporting of Census Surveys of Monthly Retail Trade and of Manufacturers' Shipments, Inventories and Orders. These will serve mainly to increase accuracy of measurement of consumption and investment, in addition to improving analysis of the current economic outlook. New work by the Office of Business Economics on the impact of federal activity will help improve fiscal policy analysis in the context of national economic accounts; extension of their work on balance of payments accounts will permit more detailed analysis of country-by-country trade and financial flows to and from the United States; and new studies will strengthen their capability to analyze current economic fluctuations.

Expansions and improvements in BLS (Bureau of Labour Statistics) statistics on prices and wages will provide the basis for improved analysis of inflationary pressures stemming from imbalances in prices, unit labor costs and productivity changes. Other improvements in labour statistics include a series on job vacancies, the first across-the-board collection of statistics on occupational employment in manufacturing industries, and more detailed wage, work injury and industrial relations information on the construction industry.

Major recent budget increases in the area of demographic and social statistics include a greatly augmented criminal justice statistics program in the Department of Justice, the initiation of a long-proposed annual housing survey sponsored by Housing and Urban Development, substantial expansions in educational statistics including development of longitudinal studies, and various innovations in the fields of income maintenance, disability, and population planning. Also provided have been funds for speeding up the compilation of vital statistics and other health data and for preliminary work in connection with the development of a co-operative federal-state health statistics system.

In mid-1969, the Statistical Policy Division of the Office of Management and Budget was assigned the task of putting together a compendium of strategic social indicators. It was intended that this publication would identify national social indicators and provide a focal point for the entire social statistics program. Criteria for the selection of social indicators were established and a large number of statistical series and special studies have been examined in the light of these criteria. Our goal is the publication of a statistical compendium of charts and tables, with detailed explanations of the data, but no policy-oriented interpretation, early in 1973.

Tools for Program Implementation

Co-ordinated Statistical Budget — A co-ordinated statistical program and budget reflect changing needs of policy and analysis was established in June 1969. This led to a comprehensive presentation in the annual budget of financial requirements for federal statistical programs. The co-ordinated statistical budget explicitly recognizes the fact that general purpose statistics are more importantly related to programs of broad national scope than programs specifically assigned to the particular departments collecting the data. Examples of such general purpose statistics are the national economic accounts, price, unemployment and other economic indicators and social indicators, such as size distributions of income, participation in higher education, life expectancy, and incidence of violent crime. This budget thus provides an effective focal point for considering the overall needs for statistics in the light of the multiple uses to which they are put and for balancing the merits of various statistical programs against one another in allocating funds. As a result, the trade-offs for budget for

statistical programs of the various departments are no longer made primarily in relation to their contributions to decisions required for national economic and social policy. The statistics required to guide decision-making in government action programs, such as manpower training, are also taken into account in preparing the co-ordinated budget.

Although there is no neat way of assigning appropriate weights to the general purpose and special program uses of statistics, nor of the various components of each of these categories, judgments of their relative importance must nevertheless be made. For all these reasons, simultaneous consideration of all federal statistical programs in a co-ordinated budget is advantageous.

Forms Clearance — A major opportunity for implementing the co-ordinated statistical program arises from the responsibility given to the Office of Management and Budget under the Federal Reports Act of 1942, requiring approval by OMB of collection of data from 10 or more members of the public. This Act requires the Director of OMB to co-ordinate federal reporting services, to eliminate duplication and reduce costs, and to minimize the burdens upon respondents of furnishing information to federal agencies.

New procedures for reviewing requests for clearance of documents requiring OMB approval were recently initiated. Previously, the review and clearance responsibility was exercised by the Statistical Policy Division, with consultation from other divisions in OMB. Agency proposals intended primarily to collect information for compilation and dissemination of statistics will continue to be reviewed by the Statistical Policy Division. Under the new procedures, however, other agency proposals justified primarily on grounds that the information to be collected would be required for regulation or for program administration are being reviewed by the program division having cognizance over the budget of the submitting agency, with technical assistance as required by Statistical Policy or other OMB staff. This will enable OMB program officers to have early impact on information to be collected for later use in program decisions.

Another development of major assistance in expediting the clearance function is the completion of a Clearance Office Manual. The form used by the agencies to support their request for approval of data collection has been revised to require more detailed explanations of individual report forms and the overall statistical programs.

Reorganization of Federal Statistical Activities

A major step which promises to improve the organization of federal statistical activities has recently been taken.

The need to improve the organization of federal statistical activities arises from the proliferation of statistical collection activities among some 40 different federal agencies, the wide disparities in the quality of data and the standards used by the

various agencies, noncomparability in the data from different sources, inflexibility of the present structure in meeting emerging data needs, operational inefficiencies and overlapping analytical activities and similar problems.

Under the present organizational arrangement for federal statistical programs, it is very difficult to correct these problems. This was recognized by the recent Ash Council, the President's Advisory Committee on Government Organization. For example, the report of that Council recommends that under the President's Departmental Reorganization Program, a number of major statistical programs be together under common direction in the proposed Department of Economic Affairs. Subsequent to their co-location, it is anticipated that realignments would occur which would help correct the deficiencies cited above.

The four departments (Agriculture, Commerce, Health, Education and Welfare, and Labor) with major statistical components have been requested by OMB Director Shultz to review immediately statistical activities as they are now performed in their agencies in order to identify and effect any changes of organization which would facilitate their transition into a more unified departmental system. The principles serving as guidelines for the review of statistical activities and as a model for proposed changes are, in brief:

- a. Determination of need and broad, general specifications for statistical and informational programs would remain decentralized, as at present, within the policy-making and program offices of the various departments and agencies.
- b. In each department, planning and analytical functions for general purpose statistics (population and economic censuses, unemployment, prices, wages, and other current economic indicators, and social indicators in the fields of health, education, environment, etc.) are to be centralized in an Office of Data Analysis.
- c. In each department, collection and processing of statistical data are to be centralized in a service-oriented data collection and processing center. (For this purpose, as well as for the data analysis office cited above, certain major subdivisions of HEW will be treated as separate entities.)
- d. OMB will continue its role of program co-ordination monitoring statistical activities.

Statistical Standards

Another major line of development toward improving the quality of the statistical product of the federal statistical system has been continued attention to standards. Among the important measures recently taken in this direction has been the issuance of guidelines for striking a balance between the accuracy and timeliness of the principal economic indicators. The first objective of these guidelines is to indicate a standard of acceptability of final figures for principal monthly and quarterly economic indicators. The second objective is to set a standard for the accuracy of preliminary estimates. The third objective is to limit the number

of preliminary estimates of final figures. The final objective is to consolidate revisions occurring for various reasons, such as benchmark and seasonal revisions, and replacement of "preliminary" by revised figures. These guidelines are expected to reduce the total number of figures released on a current basis for principal current economic indicators, as well as raise standards of accuracy for both preliminary and final figures.

Another important step in improving statistical standards is the forthcoming revision of the standard Industrial Classification (SIC) now undergoing the most comprehensive review and revision since the 1957 edition of the Manual. All proposed amendments by government agencies and non-government interest groups have been evaluated by a Technical Committee under the Chairmanship of the Statistical Policy Division of OMB, and a revised edition of the SIC Manual, to become effective on January 1, 1972, will be published. Also, the first report on a standard Occupational Classification has been completed under the direction of an interagency committee. Classifications for professional and technical occupations were incorporated in the 1970 Census classifications, and later work included classifications for clerical workers as well as indexes for both groups. Classifications for managers, service workers and operatives are being worked on currently.

Criteria used to designate and define Standard Metropolitan Statistical Areas have been reexamined in detail during the past five years by a federal committee. There has been widespread participation of private organizations and individuals in this review. As a result, a number of changes in the criteria have been adopted, and, accordingly 20 new SMSA's have been created. Revisions in the definition of some SMSA's is also likely to come about as a result of a review of all SMSA's in the light of 1970 Census data. This review is now in process and is expected to be completed by July 1972.

Credibility of Federal Statistics

Recent developments also include steps to safeguard the credibility of government statistics. It is essential to constructive discussions of economic policy that all participants use and trust the same basic statistics. For this reason, government statistical agencies must continually strive to maintain neutrality and objectivity in the presentation of statistics. In order to achieve this objective, the statistics must be released promptly, on schedule, and in a highly professional manner.

Efforts to improve the timeliness of economic indicators received a major impetus from President Nixon's directive, issued only three weeks after his taking office, requiring the issuance of monthly and quarterly statistics "without unnecessary delay." The Director of OMB, who has responsibility for carrying out the President's directive, issued guidelines to attain this objective and, through the staff of the Statistical Policy Division, has monitored this program. Consequently, one

third of the releases of the principal economic indicators are issued by the major statistical agencies more promptly than before the President's directive. In the case of other federal statistical reports, the proportion is even larger — 70 per cent. The seemingly more modest speedup for the principal economic indicators is partly accounted for by the fact that over the years a greater effort has been made to release the principal economic indicators promptly, and therefore in recent years it has been more difficult to reduce the release time.

Advance target dates for the release of about 120 principal indicators have now been published for almost two years. During 1971, the target dates have been met in about 75 per cent of the cases, 12 per cent of the series were released before the target date, and 13 per cent were late. Steps recently taken are expected to increase further the percentage meeting the target dates.

Another major principle observed in order to maintain a high credibility level is that the statistics releases be prepared separately and issued at a different time from policy oriented commentary. All government departments now follow this pattern, with the statistics issued by the principal statistical officer in charge, in a written press release, and without a press conference.

President's Commission on Federal Statistics

A commission of distinguished American citizens was appointed by the President a year ago to recommend further improvements in federal statistics. We expect their findings and recommendations to provide a further impetus toward statistical improvements.

Concluding Remarks

This summary indicates the several directions of recent efforts to improve federal statistical activities. These pave the way for, but by no means guarantee, a better statistical program. The success of these first steps depends upon how well they are built upon in the future and supplemented by other measures, including some to extend the activities of the Statistical Policy Division beyond economic and social statistics.

With steadily increasing reliance on statistical information for decision-making and policy formulation, we face a greater challenge than ever before to take measures necessary to meet the needs of government and the private sector for accurate, timely, and relevant statistics.

NEW PROJECTS

Revision of Central List

Statistics Canada Central List of Companies and Establishments comprised all those businesses that reported data to statistical surveys conducted by the bureau on a continuing basis, at least once each year. Coverage was dependent on the requirements of the various statistical series: in some industrial sectors, the bureau tried to attain full coverage, and in others, data were collected only from firms of a certain size. The end result was a list of approximately 200,000 records, about one third of the total number of businesses operating in Canada, accounting for more than 70 per cent of the total economy. At the end of 1971, a project was started to extend coverage to some 450,000 entities, consisting of incorporated and unincorporated businesses with one or more employees.

Over the past years, surveys conducted by Statistics Canada and in particular surveys connected with employment and unemployment have had as their base a universe of employers who registered with the Unemployment Insurance Commission and who made contributions to the Unemployment Insurance Fund in respect of any employees eligible for Unemployment Insurance Benefits.

This collection function was transferred from the Unemployment Insurance Commission to the Department of National Revenue on January 1, 1972. This latter department now affects collections to the Unemployment Insurance Fund under the same procedures as contributions to the Canada Pension Plan or tax deductions at source. In addition, arrangements have been made to provide to Statistics Canada the name and address of any employer who opens up a tax deduction account with that department. Therefore, this tax deduction file will represent not only an employer universe as previously defined by the Unemployment Insurance Commission but a larger universe of additional employers who may make collections in respect of the Canada Pension Plan or tax deductions at source, and who were previously exempt from unemployment insurance contributions.

Through joint efforts of the Department of National Revenue-Taxation and Statistics Canada, an intensive effort has been put forth to relate the UIC contribution accounts with the tax deduction accounts and so far we have been able to detect about 300,000 of such relationships. In each of these cases, we have been able to assign an industrial code and a geographical code to the tax deduction account. However, there remained 240,000 tax deduction accounts which could not be identified with or related to the UIC contribution points. Since both an industrial code and a geographical code must be assigned to these remaining tax deduction accounts, it was necessary to mail out the form entitled "Employer's Nature of Business Report".

The results of this survey and the completion of the identification of tax deduction accounts will give a complete list of companies in Canada. This new central list is expected to be ready for use by mid-1972.

Additional information on the central list revision may be

obtained from F.H. Smith, and G.W. Swartzen of Central Registers Section, Central Classification and Company-Establishment Integration, Integration and Development Staffs, Statistics Canada, Ottawa K1A 0V7.

Manitoba Bureau of Statistics

On March 1, 1972, the Manitoba Government established the Manitoba Bureau of Statistics. The enabling legislation is modelled after, and is compatible with, the federal Statistics Act. Although the Manitoba bureau is empowered to conduct its own statistical surveys, it is anticipated that activities initially will be centered on the use of data collected by Statistics Canada and other provincial agencies in Manitoba.

Cansim to be Available to Federal Departments

Effective May 1, 1972, the time series data bank and system programs of CANSIM (Canadian Socio-Economic Information Management System) will be on-line at the Computer Services Bureau (CSB). Initially, only federal government departments and agencies will have terminal access to CANSIM; however, in the future, this service may be extended to include other users.

As of March 1, 1972, the data bank contained 26,000 economic time series, including all series published in the *Canadian Statistical Review*. Major blocks of series now in the data bank are as follows:

National Accounts (Income and Expenditure Accounts, Balance of Payments, Index of Real Domestic Product)	4000 series
Labour	5000 series
Prices	3500 series
Agriculture	6000 series
Industrial Corporations	3500 series

All series are updated regularly when current or revised information is released. Most series are updated nightly; however, a core of most used series will be updated via terminal in prime time. Customers will be able to call upon the system daily to identify series which have been updated or revised.

The CANSIM data entry program is available to federal government agencies which may wish to store and maintain series of private interest. The retrieval program will retrieve data for manipulation on a random access device or on magnetic tape. Manipulative programs initially available with CANSIM at CSB will be the MASSAGER, FANTOM, MATOP and the X-11 seasonal adjustment. Outputs are also available on printouts or cards.

Access to CANSIM is arranged by the General Time Series Staff of Statistics Canada. *For more information on this project or on CANSIM, contact M. Lennox, Chief, General Time Series Staff, Economic Accounts Branch, Statistics Canada, Ottawa K1A 0Z8.*

Methodology and Systems Branch Projects

Survey of Community Health in Ottawa – The Department of

Epidemiology and Community Medicine, University of Ottawa will conduct a household survey in the metropolitan area of Ottawa during 1972, among married and single persons between the ages of 15 and 45, to study attitudes and characteristics related to family planning. A questionnaire, containing more than 100 questions, is provided for each female and male household member in the age range.

The Methodology and Systems Branch of Statistics Canada is giving professional advice in selection, estimation and variance estimation and directly supervising sample selection.

Two frames were employed for the sample, (a) the 1970 *Might's* Ottawa City Directory for the selection of addresses and (b) a list of apartment buildings with more than six units. About 3,000 addresses and apartment suites were selected with the sampling rate in buildings of six floors or more at twice the rate for addresses other than apartments and the rate for units in smaller apartments.

The sample having been selected, it remains to clear up estimation problems where non-response must be compensated for and to derive approximate variance estimation formulas. Apart from this, the role of Statistics Canada in the survey is almost complete.

For more information on the above, please contact G.B. Gray, Senior Mathematical Advisor, Methodology and Systems Branch, or V. Tremblay of the same staff, Statistics Canada, Ottawa K1A 0T6. For subject matter problems, please contact J.M. Last, M.D., or W. Litven, Research Director, Department of Epidemiology and Community Medicine, Royal Ottawa Hospital, Ottawa.

Cost and Variance Studies in Labour Force Survey – For purposes of studying the efficiency of the allocation of the sample in various stages of sampling in the Labour Force Survey, a complex cost and variance study program has been set up. The overall objectives of the sample allocation studies are two-fold: i) to assess the present sample allocation, and any slight modifications, by stages before and after redesign based on the 1971 Census results; and, ii) to set standards for cost of enumeration (considering time spent in enumeration and travel) and for contributions to the variance by stages after redesign to maintain full control of the sample on a continuing basis.

The Labour Force Survey is carried out by enumeration of households every month selected in a multi-stage sample of two to four stages, the number depending upon type of area. Each stage contributes sampling variance to the total variance as a component of variance for which both a theoretical formula and an estimation formula have been derived. The estimates of the components are to be obtained in several runs during 1972 by means of a components of variance system of computer programs for major characteristics. The data will then be analyzed and transformed into variance functions in terms of the sampling ratios and sizes of the units at various stages. Provision is also made to adjust parameters in the various terms of the function as updated measures of size are employed. This is to be accomplished by adjusting population variances in

the variance function which have taken into account the varying size measures.

Each stage of sampling also contributes to the cost of the field operation of enumerating, travelling, or listing, although the components are not necessary additive by stages of sampling. For a given allocation, the cost can be easily split up by stages of sampling and this has been accomplished with a detail layout of each interviewer's operations during enumeration week. Each of about 800 interviewers across Canada recorded in detail the times and miles taken for each operation during the interview week of one month selected in the interval July to November, 1971. Special time and mileage forms were drawn up and distributed to the interviewers for this study. The time and mileage data for the various operations (enumeration, contacting households, travelling between segments or clusters, etc.) are being coded and tabulated for various levels (individual interviewer, type of areas, regional office, province, national levels) and the operation should be completed in the spring of 1972. Upon imputation for unreasonable or incomplete data, the staff will derive a cost function in terms of similar variables, as the variance function and the analysis to be carried out will be largely similar to that for the variance function insofar as the two broad overall objectives are concerned.

No attempt will be made to derive an optimum allocation by sampling ratios and sizes of sampling units as it will vary from characteristic to characteristic. Practical considerations limit the possibilities to only about a dozen or so alternatives for sampling ratios and to only small variations in the sizes of delineated units with some interaction between size and sampling ratios so that the number of possibilities is not multiplicative. As a result, the study will be confined to only these possibilities for the cost function and for the variance function, considering a few major characteristics.

For further details and the mathematical developments, readers may contact G.B. Gray, Senior Mathematical Advisor, Methodology and Systems Branch, Statistics Canada, Ottawa K1A 0T6.

1971 Census of Merchandising and Services Now Underway

In March 1972, the Merchandising and Services Division of Statistics Canada mailed out the questionnaires for its part of the 1971 Census. Unlike the population, housing and agriculture phases of the 1971 Census, the merchandising and service businesses census cannot be conducted until 1972 since it attempts to measure actual business activities for a complete financial year.

This business census has two main purposes: to provide a wide range of users with a detailed picture of distributive and service trades; and to serve as a benchmark for a broad program of intercensal surveys covering the same areas.

Because of the significant institutional changes in the merchandising and services areas during the past few years and

also because of the increased extent and complexity of user requirements, it was decided to change the basic reporting unit for data collection from an "establishment" to a "merchandising reporting unit" (MRU). An MRU is defined as "the smallest unit that is a separate operating entity capable of reporting all elements of basic industrial statistics necessary to the calculation of net operating profit."

The MRU recognizes the realities of modern corporate accounting practices and therefore enables the respondent to complete the census form more easily and more accurately, *as well as enabling the Merchandising and Services Division to collect data at a more detailed level than ever before.*

Examples of the information to be sought in the 1971 Census include: form of organization; business personnel; net sales and receipts; opening and closing inventory; purchases; cost of goods sold; gross margin; operating expenses; non-trading income; and accounts receivable. In addition, respondents have been asked to supply detailed information on sales (or receipts) by class of customer and by class of commodity or service.

In addition to MRU statistics, the census will also collect and publish a limited range of data on business locations necessary to the calculation of consumer expenditure statistics for small geographical areas and widely used by market analysts. The "location" defined in general terms as "the place in which the business activity is conducted" does not necessarily coincide with the MRU nor is there any hierarchical relationship between MRU's and locations. However, location data are not intended to be additive with other Statistics Canada series but primarily serve outside users whose interests are focussed on small geographical areas below provincial level.

Two features of the 1971 Census deserve special mention. First, this is the most highly automated survey ever to be undertaken by the Merchandising and Services Division. In order to satisfy the primary objectives of a higher and consistent level of quality and increased timeliness, an integrated automation package has been developed within which the computer system plays a major role — by influencing the contribution of the supporting sub-systems and by providing many of the controls necessary to the census operation.

The 1971 effort is also noteworthy in the sense that considerably greater attention has been paid, in the planning function, to the visual impact of the questionnaire on respondents and to the use of colour as an editing tool of some importance. The census questionnaires are all colour-coded and the printing used is large and easy to read. In addition, great pains have been taken to ensure that respondents clearly understand the meaning and importance of the various questions through the use of "instruction booklets" which are also colour-coded.

Three years of planning and consultation for the 1971 Census are now completed, and the collection of data is now underway. The editing and processing procedures to produce usable information from the collected data are just beginning. The first publications of results of the 1971 Census of

Merchandising and Service Businesses are expected in the third quarter of 1972.

Readers interested in more information are invited to contact G. Snyder, Director, Merchandising and Services Division, Economic Statistics Branch, Statistics Canada, Ottawa K1A 0V8. A detailed paper on this topic appeared in the February 1972 issue of the Canadian Statistical Review, Statistics Canada catalogue number 11-003.

CONFERENCES

Annual Meeting of Social Scientists

The Allied Social Sciences Association, a federation of the major social science groups, such as the American Finance Association, the Econometrics Society, the Association for Social Economics and many others, meets each year to discuss research developments in the social sciences. The 1971 meeting was held December 27-30 in New Orleans. Among the Statistics Canada participants was S.D. Khosla of the Econometric Research Division, Integration and Development Staffs. Mr. Khosla and Mr. R. Agarwala, formerly of the Economic Council of Canada, presented a paper entitled "A Neoclassical Analysis of Post-War Inflation in Canada". The paper outlined is based on the results of research carried out for a medium-term macroeconomic model, done in conjunction with the Economic Council of Canada. The ideas presented in the paper are the views of the authors and do not necessarily represent the official positions of the institutions with which the authors are associated. The following is an abstract of the paper.

In the early post-war period, the discussion of inflation was dominated by ideas of inflationary gap which, as an *ex ante* concept, was not perhaps suitable for statistical testing from *ex post* data, and it did not survive long in econometric models. Most of the subsequent discussion was in terms of Phillips curve approach. In recent years, however, doubts have been accumulating about the validity of this approach, except for a very short-run analysis. Arguments from a *a priori* point of view, advanced by M. Friedman and E. Phelps, suggest that the trade-off between inflation and unemployment may be only a temporary one. We advance statistical evidence in support of the above argument. More specifically, we argue that statistically fitted Phillips curves usually contain a serious defect and they do not provide an explanation of trend rates of growth in wages or prices. Secondly, we demonstrate that the post-war movements in wages in Canada can be explained reasonably well by a productivity theory of wages. However, since our wage equation assumes an absence of "money illusion" in the labour market, it determines only the ratio of money wages to prices and not their absolute levels. For analysis of absolute price levels, we utilize a monetary approach. We allow for the openness of the Canadian economy by considering the direct impact of U.S. money supply on Canadian money income by constructing a "composite" money supply variable. We argue that this approach is consistent with Keynes' view on inflation in high employment situation, and that a combination of stable monetary policy and active fiscal policy may be the way to achieve stable growth with price stability.

Readers interested in more detail on this paper are invited to contact S.D. Khosla, Econometric Research, Integration and Development Staffs, Statistics Canada, Ottawa, K1A 0V7.

Seminar on Social Indicators

The Canadian Council on Social Development recently sponsored a two-day meeting to discuss the need for, and development of, social indicators. Participants in the seminar, held in Ottawa,

January 13 and 14, 1972, included economists, statisticians, social welfare specialists, sociologists, lawyers, urban planners and demographers, from the academic, government and private sectors.

The aims of the seminar were to modify the general climate of secrecy surrounding work on social indicators by allowing for open discussion, particularly of methodological and conceptual problems, and to encourage responsible bodies to develop their verbal commitments into practical work, in line with the basic aims and resources of their organizations.

The seminar heard and discussed six main papers: Social Intelligence and Social Policy, by Dorothy Walters, with the response Let's Look Before We Leap by Gail Stewart; Problems in Developing Indices for Well-Being in the Northern Territories, by Scott Wood; Habitability and Livability - Urban Indicators, by John Page and Norman Pearson; The Need for Social Indicators - the Alberta Case by Earle Snider; and Statistical Development of Social Indicators by Hans Adler, Jenny Podoluk and Leroy Stone.

The seminar divided into four work groups for discussion of the four broad areas of urban indicators, welfare indicators, technical problems and philosophical issues.

Proceedings of the seminar will be published by the Canadian Council on Social Development. *Inquiries may be directed to Ms. Novia Carter, Program Director, Social Policy Unit, Canadian Council on Social Development, 55 Parkdale Ave., Ottawa K1Y 1E5.*

NEW REPORTS

New Retail Prices and Living Costs Service Bulletin

The Prices Division of Statistics Canada has released the first issue of the *Retail Prices and Living Costs Services Bulletin*. This bulletin is designed for the timely release of information about family expenditures, consumer prices and national and international living cost comparisons, for users in various levels of government, in business and industry, in labour and consumer groups and the general public. It will be published at intervals determined by the availability of useful information, anticipated to be at least ten times a year.

Contents of the bulletin will be special articles and tabulations which might not otherwise become generally available, or extracts or abbreviations of information released in advance of regular publications; for example, the first issue will contain information from the large-scale national family expenditure survey. It is planned to include in future issues articles on the impact of changes in indirect taxes on the movement of the Consumer Price Index, comparisons of domestic fuel and utilities costs among major Canadian cities, international comparisons of retail price conditions, and periodic reviews of medium- or long-term price movements in consumer goods and services.

The first issue of the *Retail Prices and Living Costs Service Bulletin*, catalogue number 62-005, was released in February 1972. Copies are available from Publications Distribution, Statistics Canada, Ottawa K1A 0T6. Inquiries about the bulletin may be directed to H. Segal, Assistant Director, Prices Division, Economic Statistics Branch, Statistics Canada, Ottawa K1A 0T6.

Education in Canada's Northland

Issues concerning the education of children are vital in any community. The geographic, demographic and cultural dimensions of Canada's northern territories accentuate these concerns. Consider, for example, questions of school location and transportation in land of 1.5 million square miles, with a scattered population of 52,000 people. What about language of instruction where the majority group of 13,000 Eskimos speak 20 different dialects?

A recent publication of the Statistics Canada Education Division, *Education in Canada's Northland*, presents statistics showing how some of these questions have been answered, and documents some of the changes during the decade from 1960-61 to 1969-70.

Contained in the publication are statistics on enrolment in public elementary and secondary schools, public trade schools and federal schools; teachers' salaries, experience, province of origin of certificate and educational level; and sources and allocation of funds.

Copies of *Education in Canada's Northland, 1960-1970*, are available for \$1.00 from Publications Distribution, Statistics Canada, Ottawa K1A 0T6. Questions concerning the contents of the publication should be directed to Dr. Miles Wisenthal, Director, Education Division, Socio-Economic Statistics Branch,

Statistics Canada, No. 5 Temporary Bldg., Ottawa K1A 0Z5.

Three OECD Studies

In 1968, the Organisation for Economic Co-operation and Development set up an Expert Group on Computer Utilization. The following reports are two of the studies prepared for this group.

Computerized Data Banks in Public Administration — This publication, prepared by A. Thomas, draws attention to a number of policy issues facing OECD member governments as a result of the increasing demands made on their administration and the potential of modern computer technology for solving some of their data management problems.

The study describes some of the technical characteristics of automated data management and gives indications of the kind of policy problems which have arisen with respect to the use of these techniques in public administration. It also reports on some of the recent developments in member countries.

Although the report is aimed more at describing the problems of computerized data banks than at giving solutions to such problems, some items to be considered in the development and use of automation in data management are presented. For example, the report suggests that the development of automation should be sufficiently open and available for both decision makers and the public to ensure adequate control. And that changes in public administration are needed to meet new conditions in order to make full use of the potentialities of modern data management techniques.

Digital Information and the Privacy Problem — In all countries, the government demand for information is increasing. This demand is enhanced by the ability with the use of computers, to process such information. In this study, G. Niblett, focuses on the danger to privacy arising from these information demands. His remedies are divided into four groups — professional standards of people handling the data, technological safeguards, administrative practices and legal sanctions.

Another OECD study on the general topic of information examines the needs for scientific and technological information and how these needs can be met through changes in structures, technologies and policies. The report, entitled *Information for a Changing Society — Some Policy Considerations* examines current information policies and practices in national and international organizations and outlines a set of goals to be used in formulating national policies on scientific and technical information. In addition, the implications for public policy of information policies are discussed.

These three publications are available for \$2.25, \$2.00 and \$1.75 respectively from Information Canada, Ottawa and Information Canada bookstores across the country.

New Report on Social Sciences

In mid-April, 1972, the Education Division of Statistics Canada released the publication *Federal Government Expenditures on the Human Sciences*. This report is the first step by statistics

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Canada toward the development of a comprehensive statistical series on the state of scientific activities in the field of social sciences and the humanities. A clear and accurate account of the resources devoted to these disciplines has become necessary not only because of their rapid development and growing importance but also because of the variety and complexity of problems faced by social scientists.

(Corresponding information for the physical sciences appears in the Education Division publication *Federal Government Expenditures on Science*, catalogue number 13-202.)

Material in this report was gathered in a survey of federal government departments and agencies which devote resources for the support of activities in the social sciences. Data were collected for the following activities: research and development, general data collection, scientific information, education support, and operations studies. The report contains information on manpower and expenditures allocated to internal activities as well as financial assistance for activities carried out in other sectors — such as provincial and municipal governments, educational institutions, non-profit organizations, business enterprises, etc. A discussion of concepts and methodology used is also included.

Copies of this report, catalogue number 13-545, are available for \$0.75 from Publications Distribution, Statistics Canada, Ottawa K1A 0T6. Inquiries about material in the publication may be directed to F. Gagné, Science Statistics Section, Education Division, Socio-Economic Statistics Branch, Statistics Canada, No. 5 Temporary Bldg., Ottawa K1A 0Z5.

1971 Census Catalogue

Enormous volumes of data collected in the 1971 Census will be released in a variety of formats during the next few years. The *1971 Census Catalogue*, released in January 1972, by the Statistics Canada Census Division, provides a convenient reference for users of data from the population, housing and agriculture phases of the Census. The Catalogue lists and briefly describes the kinds of information available, the form in which it will appear and the expected date of release.

Copies of the 1971 Census Catalogue, number 11-506, are available, free of charge, from the Publications Distribution Unit, Statistics Canada, Ottawa K1A 0T6.

Bank of Canada Review

In December 1971, the Bank of Canada began publishing its new monthly statistical magazine, the *Bank of Canada Review*. The *Review*, which replaced the *Statistical Summary* offers revised and increased statistical coverage in chart and tabular form. New features are an analytical table showing growth rates for key series and the addition of comprehensive explanatory notes for tables.

As well, the *Review* contains a new section devoted to analytical articles by Bank of Canada officers.

Subscriptions to this new bilingual publication are \$10.00 a year. Information may be obtained from the Bank of Canada, Ottawa K1A 0G9.

Staff Changes

Computer Systems Development Division — Former Director of the Computer Systems Development Division, **Mr. N.G. Anderson**, retired in February 1972. Mr. Anderson joined the bureau for the 1931 Census, and, except for military service during World War II, has been employed with Statistics Canada since then.

Replacing Mr. Anderson as Director is **J.I. Weldon**, formerly Co-ordinator of the General Survey Systems Staff. Mr. Weldon is well-known for his pioneering and successful efforts in geocoding and has also developed several user-oriented generalized programs.

The new Assistant Director of Computer Systems Development is **T.W. Hobbs**. Before joining Statistics Canada, Mr. Hobbs worked for a consulting firm, Urwick, Currie and Partners Ltd., where his most recent project was the development and implementation of computer systems for the Quebec medicare program.

In addition to these staff changes, the General Survey System Staff is now part of the Computer Systems Development Division, Economic Statistics Branch.

Merchandising and Services Division — **Mr. I. Altman**, former Chief of Retail Trade Section, Merchandising and Services Division, has been appointed Chief of the Research and Development Section in that Division. The new Chief, Retail Trade Section is **A.R. Tanner** who previously worked as a statistician in the section.

The former Chief of the Research and Development Section, **F.L. Torrington**, is now Assistant to the Director of the Merchandising and Services Division.

Another change in the Division is the resignation of **E.P. Cannon**, from the position of Chief, Integration and Response Analysis Section. Mr. Cannon is now with the Royal Trust Co., Montreal.

Other Appointments

E.A. Hubley has been named Chief, Integration and Development Section, CALURA Division. He was formerly Head of the Taxation and Financial Statistics Unit of this Division.

R.E. Rose has been appointed Director of Production Planning and Control for Statistics Canada. He will be responsible for the implementation of production planning and scheduling systems throughout the bureau. Mr. Rose has recently completed a CAP assignment with DREE, involving the development of a Management Consulting Services Organization in the department.

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