INTERNATIONAL LABOUR OFFICE

EMPLOYMENT, UNEMPLOYMENT AND LABOUR FORCE STATISTICS

A STUDY OF METHODS

Report prepared for the Sixth International Conference of Labour Statisticians (Montreal, 4-12 August 1947)

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PREFACE

The Sixth International Conference of Labour Statisticians was held in Montreal from 4 to 12 August 1947 under the auspices of the International Labour Organisation and adopted Resolutions setting international standards for the compilation and publication of statistics of employment, unemployment and the labour force, cost of living and industrial injuries.

The present report on employment, unemployment and labour force statistics, including proposed Resolutions, was printed and circulated in advance to the Governments. As the report, although prepared primarily for the Conference, may be of general interest as a study of the subject, it has been reprinted separately from the account of the proceedings of the Conference itself. The present report is as submitted to the Sixth International Conference of Labour Statisticians except for a few minor corrections.

The Resolutions as finally adopted, together with a résumé of the discussions in the several Committees dealing with the different topics on the agenda of the Conference will be found in the General Report of the Conference, which is issued in a separate publication. [1]

[1] Studies and Reports, New Series, No. 7, Part 4.

INTRODUCTION

The subjects of employment and the labour force have become a major focus of economic and social policy in all advanced countries. In part, this is the result of the heavy demands of war: in the belligerent countries all industries were combed to provide the manpower needed in the armed forces and in the civilian production industries which were necessary for their support. In consequence of these demands, attention was drawn to the need for statistical data on employment, unemployment and the labour force. Apart from the influence of the war, the need for full data on employment and employment policies has been more and more recognised, because of the growing realisation that employment and employment policies are of fundamental concern to the economy. The impact of the depression in the 'thirties and its long duration forced economists and social planners to consider long-run policies in terms of employment for the working population. Full employment has become the objective of those who hope to prevent economic depression and to raise the level of welfare of the population as a whole.

All these developments emphasise the need for adequate and accurate statistics of employment, unemployment and the labour force. It is of interest in this connection to note the shift of emphasis from unemployment as a major social problem — in the period following the First World War — to employment as a major task for sound economic planning.[1] The change includes an extension of the concept of the problem to cover not only employment as such, but also the development of methods of fitting the available labour force to employment opportunities in a manpower budget plan.

[1] This is reflected in the relative number of statistical series on the two subjects. In 1924, when the International Labour Office began the publication of current series on labour topics, only 4 series were included for employment, as against 19 for unemployment. The 1941 edition of the I.L.O. *Year Book of Labour Statistics* included 32 countries in the employment tables as compared with 31 in the unemployment tables.

Other aspects of the developing interest in employment may be touched upon briefly. The trends of economic development are reflected in employment trends: countries advancing on the road towards industrialisation can trace their course in the statistics of the shift in the distribution of the gainfully occupied from agriculture to manufacturing industries, and in the increased proportion engaged in commerce and other services. Estimates of employment in different countries are useful in indicating the trends of business and in forecasting prosperity and depression.

The measurement of employment, unemployment and labour force and of their fluctuations is now recognised as vitally important for the period of reconstruction and for the post-war world, where problems of full employment and the reduction of unemployment to a minimum are in the forefront of interest.

Labour Force Statistics at Previous International Conferences

Employment.

The Second International Conference of Labour Statisticians, held in April 1925, included the topic of unemployment statistics on its agenda. One Resolution urged the collection of information on the state of employment, to be "published periodically, if possible monthly, based on returns made by a representative number of employers ". [1]

Unemployment.

On the subject of unemployment statistics the Second Conference adopted a series of Resolutions with respect to standard definitions, procedures and comparability. These Resolutions are reprinted in the appendix to this report.

The Gainfully Occupied.

At the First International Conference of Labour Statisticians, held in Geneva in October 1923, the problem of classifying the

[1] See *International Standardisation of Labour Statistics*, Studies and Reports, Series N (Statistics), No. 25 (Montreal, 1943), p. 68. In addition, statistics of employment were treated as a necessary element in calculating percentages of unemployment on the basis of the sum of employed and unemployed.

gainfully occupied by industry and occupation was discussed. The topic was taken up subsequently at the Second and Third Conferences, and as a result a list was drawn up by the International Labour Office for use in classifying and arranging industries for purposes of presenting labour statistics in a uniform arrangement.

In this connection mention should be made of the minimum nomenclature of industries drawn up by the Committee of Statistical Experts established in pursuance of the International Convention Relating to Economic Statistics. The minimum nomenclature was drafted for use in classifying the gainfully occupied according to industry in censuses of population. [1]

In this connection also, the work of the International Conference Relating to Economic Statistics called by the League of Nations in 1928 should be mentioned. This Conference adopted a Convention which provided for the taking of statistical surveys or censuses of industrial establishments, including among other data the "number of persons of each sex employed therein; and distinguishing, so far as possible, such persons according to categories of their employment, and distinguishing adults from young persons, the age at which this distinction is made being stated. An estimate shall also be made, if possible, of the number of persons employed in establishments which are not included in the survey." [2]

The Sixth International Conference of Labour Statisticians

In view of the increased importance of employment statistics, the International Labour Office proposed that the Sixth International Conference of Labour Statisticians should be convened to consider the means and methods by which adequate statistics

[1] LEAGUE OF NATIONS, Studies and Reports on Statistical Methods, No. 1: *Statistics of the Gainfully Occupied Population. Definitions and Classifications recommended by the Committee of Statistical Experts* (Official, No. C 226 M. 128-1938 (C.E.S.127) Appendix I; Ser. L.O.N. Pub. II, Economic and Financial, 1938 II A. 12).

[2] LEAGUE OF NATIONS, International Conference Relating to Economic Statistics, 26 Nov.-14 Dec. 1928 (C.606 (1), M. 184 (1), 1928 II (C.S.O. 73), p. 4 of Article 2, V (A) (1)). In addition, provision was made for "Statistical series in the form of either absolute figures or relative figures referring to a period taken as a basis of comparison, at regular intervals, if possible quarterly or preferably monthly, showing the variations of the industrial activity of the most representative branches of production." (*Ibid.*, Article 2, V (C).)

of employment and unemployment and labour force might be developed on a basis of maximum international comparability in the different countries.

The Governing Body of the International Labour Office, at its 100th Session in October 1946, decided to convene this Sixth Conference, and placed the topics of employment and unemployment statistics on the agenda in the following terms:

(1) Employment and payroll statistics; methods of obtaining an overall picture of the volume of manpower and employment, as well as its fluctuations, in the economy as a whole and in the major branches of economic activity; the methods and uses of payroll statistics which are obtained in conjunction with employment data.

(2) Unemployment statistics; methods of obtaining statistics of the numbers and proportions of workers unemployed, and the fluctuations in these, in the economy as a whole and in the different economic sectors.

A considerable expansion in the statistics of employment and unemployment took place during the war. Among important recent improvements and statistical techniques has been the development of the population sample survey. A further expansion of these statistics is in process or in prospect in many countries. It will be the task of the Sixth International Conference of Labour Statisticians to further this expansion by establishing a common ground of definition, procedure and presentation.

Preparatory Meeting

In connection with the calling of the Conference, the Governing Body of the International Labour Office authorised the convening of a small preparatory meeting of statistical experts for a preliminary discussion, with especial reference to the definition of the topics to be included. At this preparatory meeting, which was held in Montreal from 4 to 7 March 1947, drafts were submitted of the various reports on the different items on the agenda. The report as presented here has been revised in the light of the discussions at this preparatory meeting, which also recommended that the questions of employment and unemployment statistics should be combined in a single report. In accordance with this recommendation, therefore, this report includes the discussion of both questions. [1]

[1] The Office wishes to express its thanks to the experts who participated in the preparatory meeting for their most helpful criticisms and suggestions. It should be pointed out, however, that the Office assumes full responsibility for the proposals submitted in this report to the Sixth International Conference of Labour Statisticians.

Sources of Materials

In preparation for the Sixth Conference the Office asked the Governments of a number of countries to prepare monographs describing the statistical methods used in their statistics of employment and unemployment. Separate standard outlines were drawn up for the different types of statistics of employment and unemployment, namely, establishment statistics, industrial censuses, sample surveys, social insurance systems, unemployment insurance and employment exchange data, the two last mentioned referring to unemployment statistics. Monographs were received covering each type of statistics and presenting answers to a series of questions on the specific methods used in compiling data. These monographs have been used in the preparation of this report and the materials furnished have been invaluable as a basis for drafting the proposals contained in it. The Office wishes to express its thanks to the different Governments which contributed these monographs.

Payroll Statistics

It was found impossible to treat the subject of payroll statistics adequately on the basis of the information received. Furthermore, from many points of view it seemed preferable, instead of treating payroll statistics as a single independent source of earnings data, to broaden the inquiry to include the whole subject of wages and earnings as derived from all sources. The preparatory meeting, in considering this question, recommended the omission of payroll statistics from the agenda of the present Conference. The Sixth International Conference of Labour Statisticians, however, may wish to suggest that the topic of the statistics of wages and earnings should be placed on the agenda of a future session, and a proposed Resolution to this effect is included (No. II).

PART I

I. OBJECTIVES

Many important purposes may be served by statistics of employment, unemployment and the labour force. In any detailed study of international procedures and standards it is useful to keep them in mind. A brief review of these purposes is offered in the present chapter.

During the war years extensive and detailed information on the labour force was collected in most of the belligerent countries. Such data served to indicate where potential reserves of labour might be found; how these reserves were tapped and drawn into the labour market; and how the limited supply of labour was allocated to various civilian industries. Only on the basis of such information was it possible to apportion workers between the armed forces, war production and civilian industry without destroying the balance of production.

Effective social policy in periods of reconstruction, even more than in wartime, must be based upon a knowledge of the number and characteristics of both present workers and those potentially available. Such data can indicate the numbers of persons in unemployment or not in the labour force who may be drawn into productive activity. They can suggest the limits of available labour supply under specified conditions. They can point out the actual uses of manpower by industry. Thus in one country, for example, data on the increasing number of persons engaged in non-essential construction activities in post-war months emphasised the possibility of using that labour in other activities. To reconcile manpower needs with supply, and to do so with as much skill and precision as possible, current employment, unemployment and labour force figures are valuable tools.

These data serve as the foundation for most evaluations of the condition of labour. What single fact tells more about the welfare of labour and the economic health of a nation than the proportion of the labour force that is unemployed? Intelligent and effective collective bargaining rests, among other things, on a knowledge of just what the level of employment in a given industry or region is and what trend it is taking. Problems of reducing seasonal unemployment, of stabilising the course of the business cycle and of guaranteeing annual wages require for their solution data on employment and unemployment, as well as studies to measure, for example, the frictional minimum of unemployment or to determine how many workers are covered by unemployment insurance. In order to ascertain average earnings or annual earnings, or to compute the income available to the worker's family, it is necessary to know how many persons are employed, how many members of families are employed, and the portion of the year for which each is engaged.

Business men use data on changes in employment and unemployment to forecast the changes in consumption expenditure. They use such data in computing the productivity of labour and in working out the pattern of changes in the demand for labour by their industry. Changes in this demand in turn affect their hiring policy, their pension policy and, to some degree, their pricing policy. They use such data, finally, in measuring labour cost per unit — one determinant of the competitive position of a firm or an industry.

Employment and labour force statistics are a valued adjunct in the operation of almost every local and central government policy. Changes in tax policy, for example, require an estimate of revenue from alternative sources. But such revenue forecasts must be built upon the data of employment trends if they are to be soundly based. Agricultural programmes demand knowledge of the changes in size of the farm labour force and of migration to the cities, as well as of those changes in farm income which grow out of variations in the level of national employment. Education authorities must plan school construction and school curricula on a knowledge of the shifting geographical distribution of the labour force, and of the trends in the occupations demanded. Social security authorities obviously cannot operate without comprehensive information on the labour force; it is more than a coincidence that these systems

have been primary contributors to the development of employment and unemployment data.

Finally, the forecasting of future levels of economic activity and forthcoming changes in the industrial structure must rest on a broad base of detailed statistics on all aspects of the labour force. That forecasting may be in connection with national employment programmes for reconstruction, such as those now operative in France, Norway, Czechoslovakia, Great Britain and other countries, or it may be required for the use of business and labour in making their plans, where no such national programmes exist. In any event, such forecasting is becoming of increasing importance. And to be fully effective it must rest on a comprehensive scheme of current data on employment, unemployment and the labour force.

The elements of such a comprehensive scheme of data on employment, unemployment and the labour force may be indicated in broad outline. Though the details of these various elements will be discussed in full in later chapters, it may be useful to survey them briefly, not in order to indicate what any one country should have in the way of statistics on these topics, but rather to state an ideal system towards which, as resources and facilities permit and as needs for data suggest, the statistics of the different countries may be expected to develop.

A comprehensive system of statistics of employment, unemployment and the labour force will provide useful data drawn from various sources and developed from the extensive battery of techniques and methods available in this field.

The data will include both benchmark statistics indicating the status of the employed and unemployed groups at a given date, drawn for example from censuses of population, labour force sample surveys, social insurance data and other sources, as well as current series indicating movements of employment and unemployment over the period since the date of the benchmark figures. Such current series may include figures based upon establishment samples, labour force sample surveys and trade union data showing current fluctuations, and figures based upon combinations of these or upon other data.

The methods will include the various refined techniques which have been developed in the different countries to meet the specific problems of employment and unemployment estimates. One of the chief of these is the application of sampling techniques to the problems of employment and

unemployment statistics. Though the development of these techniques is a task for the specialist, it is important to focus attention upon the possibilities of such applications to this field of labour statistics. Not only this method, but other special methods, such as the special techniques developed for estimating bias, should be available for use wherever their application would be helpful.

As a final result, each country should develop its statistics in these fields, in accordance with its own requirements, in the direction of providing data drawn from the best sources and worked up with the aid of the most appropriate techniques. In this way, not only will each country be able to furnish adequate statistics according to the best methods, but also, by the adoption of such programmes, international standardisation and international comparability of these statistics will be advanced.

II. DEFINITIONS

The adoption of standard definitions is an important and indispensable preliminary step in the development of standard methods and techniques in any field of statistical enquiry. A sufficient groundwork of agreement already exists in the various countries for standard definitions for the employed, the unemployed and the labour force. These are set out below.

I. The Employed

For statistical purposes, the "employed" should include all persons who work for their own account or in the employ of others — employers; persons working independently, *i.e.*, who work for their own account; salaried employees; wage earners; and unpaid family workers who are engaged in tasks directly related to the operation of a family enterprise for a minimum of 15 hours a week, not including time spent in unpaid domestic work (I, 8 (1)). [1]

In other words, the employed include all persons in remunerated activities, regardless of age. The remuneration received

[1] Throughout the report, the roman numeral refers to the number of the Resolution, and the arabic numerals to the paragraphs and subparagraphs.

may be in money or in kind. Employers and self-employed persons may actually receive no net income whatever in any given year. In all cases, however, the work must be of such type and character as is customarily remunerated.

Since remuneration for the housewife is neither customary nor expected, and since her work for the family is not subject to appraisal by the labour market, housewives are excluded from the "employed ".[1]

One group of considerable importance, especially in agriculture, deserves special discussion — unpaid family workers. It is obviously necessary to have some basis for determining the number of those who are more or less actively concerned with production for the market, including those who as family members receive no pay for this work, otherwise the measurement of agricultural productivity and international comparisons of employment and productivity data are quite impossible. Three alternatives can be envisaged. First, all persons who perform any such work could be counted as unpaid family workers, and classified according to the number of hours worked. These figures would then be used to determine the total volume of man-hours for the calculation of productivity. An alternative is to include only persons who perform a minimum amount of such unpaid labour, for example 15 hours a week, in tasks directly related to the family enterprise. Such a definition would apply to women, children and other supplementary earners on farms as well as to unpaid family workers in trade and other urban enterprises. This definition has the considerable advantages of simplicity and definiteness. It is possible, however, that the significance of a 15-hour minimum might differ from country to country according to the length of the farm work week. A different percentage of total man-hours worked in agriculture would probably be excluded by such a limitation as applied to the United States from that excluded by such a limitation as applied, for example, to Poland.

A third possibility would be to state the criterion for inclusion in terms of the average hours per week of a full-time worker, and

[1] The group of housewives is not excluded on the ground that the housewife's work is not " productive " or " useful ", but for the practical reasons cited. If the criterion for inclusion in the " employed " groups were that the work should be " productive ", it would first be necessary to set up a satisfactory definition of " productive " and a method for the application of such a criterion that would not require arbitrary decisions by the statisticians. In fact, the criterion used is that the work should be remunerated, not that it should be productive.

to include in the labour force, for example, those unpaid family workers who are engaged in tasks relating to the operation of the family enterprise for at least half as many hours per week as the average full-time workers in the same industry. Such a criterion, of course, would vary from country to country and from industry to industry and would relate the proportion excluded in any country to the national averages. Special studies of national data would be required to determine the effect of using such definitions. The application of such a definition, for example, to agriculture in Canada, where the average hours of work in 1946 were over 65 a week, would mean that unpaid family workers in agriculture who worked less than, say, 33 hours a week would be excluded from the labour force. [1] In any case, for purposes of international comparisons of productivity, it is desirable to have a complete distribution of all persons, including the excluded unpaid family workers, according to hours worked per week.

A second point concerns the limits of age, if any, to be introduced into the definition. On this question, the simplest recommendation would be to have no age-limits, in order to obtain a complete measure of the labour force. In practice, however, law or custom may set age-limits for employment; it is usual to set a minimum age-limit for reporting or for tabulating the returns of the gainfully occupied, corresponding to the age below which few or no children are employed. This minimum limit varies from country to country; in Norway it is 15, in Great Britain the tabulations start at 14, and at the 1940 census in the United States the lower age-limit was 14. However, the disadvantage of adopting such a minimum limit is that it makes it difficult to carry out any investigation into questions relating to child labour which may be concerned precisely with the extent and importance of the labour of children under these minimum ages. For such purposes data on employment under these ages are needed.

At the upper ages, also, it is difficult to justify any definite limit. In practice, farmers or persons in other occupations where a considerable freedom of working hours prevails may work to advanced ages. Data may be needed to throw light upon the actual extent of employment of old persons, for

[1] For other industries such a test, if rigorously applied, would involve a considerable amount of work—more work than would probably be justified.

example, with relation to the pensionable age in an old-age pension plan. In general, therefore, the widest possible coverage of ages is to be recommended.

Two special groups should be mentioned. The "employed" should include persons in labour camps if they are free to seek alternative employment, but should not include persons in such camps who are not free to make that choice, or persons confined to prisons or similar institutions (I, 8 (2)).

The "employed" should include persons who are directly employed by any public authority on emergency public relief work, but where such persons are employed under conditions inferior to those of regular public employees engaged in the same type of work their number should be indicated separately (I, 8 (3)).

II. The Unemployed

For statistical purposes, the "unemployed" should include all persons seeking work on a given day who are not employed but are able to take a job if offered one (I, 9).

The worker must be seeking work to be classified as unemployed. He may be registering at an employment exchange, visiting prospective employers, answering advertisements or making similar efforts to secure work. (Workers in communities where the chief industry is shut down or not hiring should also be included when they would be looking for work if jobs were available in their occupation.)

The requirement that the worker must be seeking work in order to be classified as unemployed excludes persons in such institutions as prisons and mental hospitals, persons who are ill and persons in other similar categories. Persons who have retired from employment are excluded from the unemployed because they are not seeking work. On the other hand, young persons who have never before held positions but are seeking to enter industry are properly included among the unemployed.

The worker must be able to take a job if offered one. This provision excludes persons specifically prohibited by law or regulations from taking any employment, *e.g.*, tourists or immigrants in special categories who are denied the right of accepting employment in the country to which they have been admitted. Persons who are ill, and those who are in custody or detention so that they could not accept work if offered are

also excluded under this provision. On the other hand, persons who are merely subject to handicaps — such as being too old, too young or too inexperienced, lacking the specific training needed for a given job, women who have family responsibilities to fulfil in addition to their work, persons partially crippled or suffering from other similar disabilities — are not excluded. All workers are subject to disabilities in getting work, and some more than others. It is not for the statistician to exclude from the "unemployed" group any who are seeking work and are able to take a job if offered one.

Workers may be declared ineligible for unemployment benefit because they are over a given age, because there is little prospect of their being re-employed, or because interviewing panels consider them unsuited to ordinary employment. These rulings involve the application of specific provisions of unemployment insurance laws. Such workers will properly be excluded from the total of those who receive benefits. But if they are seeking work and are able to take it if offered they belong just as properly in the total of the "unemployed".

Experience during the war demonstrated that the employability of older workers tends to be a function of the level of employment. Many workers are regarded as "unemployable" in periods of heavy unemployment who can and do obtain employment in periods of labour shortage.

A worker is "unemployed" when he is actually seeking work, even though he demands a rate of pay higher than he is likely to secure, or is looking for a job in an occupation for which he is not qualified. The decisions as to the rate of pay he will accept and the job he wants are made by him. This interpretation of unemployment is linked up with the right of the worker's free choice in a free economy. These decisions are parallel to the decisions of the employer in hiring. As the employer need not take any given worker — regardless of qualifications and regardless of the wages the worker is willing to accept — so the worker need not take any given job.[1] Both can continue to seek what they require regardless of how unrealistic their aims may seem to others. Neither is held to any given standard of what is reasonable or "really deserved", or of the speed with which a job should be filled or accepted. Workers are included in the employed group, no matter how

[1] This qualification, or indeed the entire discussion, does not apply where such freedom of choice is limited or abrogated.

low their productivity and how unemployable they may have appeared to observers the day before, provided only that they are employed. Similarly, workers must be included in the unemployed group no matter how low their productivity may prove to be or how unreasonable their economic aims may appear, provided only that they are seeking work and able to take a job — but not necessarily any given job — if offered one.

It follows from this definition that an unemployment total which includes young and old workers, those whose chances of re-employment are excellent and those whose chances are poor, does not provide enough information about unemployment. An accurate unemployment total must be supplemented by particulars of the characteristics of the unemployed. Information must be provided on how many of the unemployed are young workers attempting to enter the labour market; how many are older workers, nearing the end of their working life because of age or changing technologies; how many have been without work for a week, a month, six months, a year; how many seek part-time, and how many desire full-time employment. Whatever totals are computed in any country for the insured unemployed, the number of unemployed drawing benefits, or still other groups, the most satisfactory measure of total unemployment will include all persons seeking gainful work who are not actually employed, provided they are able to take work if offered it. The usefulness of this comprehensive measure will be greatly increased if it is supplemented by distributions providing information on the characteristics of the unemployed.

III. Labour Force

For statistical purposes, the "labour force" should include all employed and all unemployed persons, as defined above, including the armed services. The civilian labour force should include all employed and unemployed persons exclusive of the armed services (I, 10).

IV. Time Reference

One further point remains to be considered with reference to the definitions of employment, unemployment and the labour force. To what period or point of time should the definitions relate; should they refer to the status on a given day, during a given week, or for some other period?

In deciding this question, three points must be borne in mind: (1) the correctness of the result in obtaining a true picture of the prevalence of employment and unemployment; (2) the variations in status over any given time; and (3) consistency with other data.

In general, in most countries, both census data and current data on employment and unemployment refer to the status as on a particular day. Censuses are practically always taken with reference to a critical date, which is chosen with especial regard to the effects of the choice upon the various results obtained. With regard to industry and occupation, however, census data have commonly referred to the "usual" status, and, in the case of the unemployed, to the industry or occupation of last employment. In current statistics of unemployment, the data are commonly referred to a particular date, as, for example, the end of the month. In employment exchange data, the actual number of persons on the register of unemployed at a given time is sought, in preference to the total number of applicants during a week or month; it is essential to distinguish between the flow of applications and the numbers existing at a particular moment, and the latter figure is the significant one for the percentage of unemployment.[1] Similarly with unemployment insurance data, the number and percentage of workers unemployed at a particular time show the prevalence of unemployment, while figures showing the whole number of workers who have received benefits or have been unemployed at any time during the month would grossly overstate the true percentage of unemployment.

In order to take account of variations in the status over a period of time, the average number or percentage of unemployed persons on each day over a period of a week or a month can be taken. In particular, the method of dividing the total days of unemployment by the sum of the possible man-days of work during a week was recommended as a method worthy of consideration by the Second International Conference of Labour Statisticians.[2]

[1] But of course the particular day, as discussed below, should be chosen so as to reflect typical rather than abnormal conditions — or an average of daily percentages may be shown: these give the picture of unemployment at a given moment, or an average percentage, rather than the flow.

[2] See Appendix, p. 129.

In the 1940 census of the United States, in order to obtain better data on employment and occupation, the week prior to the critical date of the census was taken as the time reference for data on employment and occupation.

The labour force surveys in the United States and Canada have adopted the enumeration week as the period of time reference; in order to be counted as unemployed, however, the individual must have been unemployed throughout the week, while in order to be counted as employed, any employment, no matter how short in duration, is sufficient. Under this definition obviously the number and proportion of "unemployed" are less than if all those unemployed for one day or more (the definition recommended by the 1925 Conference) were included.[1]

As to establishment sample statistics, in most countries the employment data are referred to a specific date, usually the date of the payroll day, or in some cases the last day of the month or the last Friday in the month, etc.[2] In other countries, the data may include all persons on the payroll. It is obvious that if the employment data relate to the same date, the extent of double counting, where a person appears on two payrolls

[1] The effect on the number of employed, in view of their larger number, is relatively negligible. In discussing the subject Ducoff and Hagood give two considerations: the period for reporting census labour force status should be long enough to: (1) avoid fluctuations due to holidays, etc.; (2) avoid bias in covering only one phase of known short-term periodic fluctuations, such as would occur if the reporting period were a given day of the week, for example, Saturday. (Louis J. Ducoff and Margaret Jarman Hagood: *Labour Force Definitions and Measurement*, Social Science Research Council, Bulletin 56, New York, 1947, p. 17.) It may be noted, however, that fluctuations due to holidays might affect the employment pattern of a week, but that if the time reference is to a day a holiday would not be chosen; also that, in general, Saturday is not chosen as a date of reference. Furthermore, if it is sought to obtain unemployment or employment patterns over a period, this could be done by a procedure of sampling of different days of the week or by a procedure of averaging, as noted in the text, where average unemployment over a period of a month may be measured.

[2] In Sweden, as in Australia, what is sought by establishment reports is the number of workers employed on the last work day of the last pay period in the month. France specifies the first day of the quarter, while in the United Kingdom the number on the payroll at a specific day—31 August, 28 September—is requested, exclusive of those who have been discharged or who have left during the week. New Zealand specifies the number on the payroll on the pay day immediately preceding the 15th of the month. The establishment reports of Canada and the United States ask for the number on the payroll for a period ending nearest the end of the month for the Canadian and nearest the 15th of the month for the American.

because of a shift in employment during the payroll period, is greatly reduced or eliminated. On the other hand, if the payroll data are made up in such a way that an establishment cannot easily furnish the numbers actually employed on a given day, while the total numbers on the payroll can be given promptly, the statistical offices may have to weigh the difficulties of obtaining compliance with their requests for information against the advantage to be derived from obtaining the data for a particular date, and may prefer to adapt their statistical demands to the customary practices followed in making up payrolls. Where this is done, however, the extent of double counting remains a problem and should be made the subject of special studies.

In reaching a decision on this point, the basic definition may be distinguished from the working definition. For the basic definition, the time reference should be of a given day. The reason for this is not only that it is the common practice in most countries, but also that, so far as unemployment and employment statistics are concerned, it yields an unimpeachable result; furthermore, the different sources when compared will be compared on the basis of the same definitions instead of a series of different definitions. The basic difficulty in the choice of a week or a month is not the length of the period, but the errors involved if the condition is imposed that the status of employment or of unemployment must last throughout the period, or that the status of employment and unemployment must be counted if it appears at any time during the period. The clear definition of the numbers employed or unemployed, therefore, requires the time reference to a given day.

The designation of the particular day to be used of course requires careful consideration of the various factors that affect employed and unemployed, in order to avoid holidays, days of partial activity, periods of exceptional short time, or periods of exceptional activity.

A further point is that the public commonly refers to employment status as of a particular day, rather than to employment "at any time during a period". Calculations of employment status with reference to a long period do not provide an exact measure as of a day.

It is therefore to be recommended that in the basic definitions the reporting of employment, unemployment and labour force

status should be referred to the status as of a particular day. [1] However, where it is deemed unwise to insist that the employer, in making returns of payroll figures, should make up an entirely new set of figures instead of those based on his customary procedure, the statistical office may adopt a working definition different from that recommended above and accept data including all persons on the payroll in place of data showing persons actually employed on a particular date. In such cases, it is recommended that special studies should be made to determine the influence of such procedures upon the accuracy of the resulting figures.

V. Other Definitions

Other definitions which should be considered include industry, occupation, and industrial status.

By "industry" is meant the kind of factory, store, or the place of business or kind of economic activity in which a person works or exercises his occupation. The classification of a person according to the industry in which he is employed is determined on the basis of the nature of the activity of the establishment in which he works, irrespective of the particular occupation or kind of work he performs. [2]

"Occupation" is the trade, profession or type of work performed by the individual, irrespective of the industry in which he exercises it.

"Industrial status" is the position of the individual in respect of his employment: employer; independent worker on his own account; salaried employee; wage-earner; and unpaid family worker. The last-mentioned category has already been discussed above. In most countries, managers and directors are classified with employees, but in some with the employers. In order to be able to make sound comparisons between different countries, in countries where managers and directors are classified as employers, a special subdivision should show managers and directors separately. The figures can then be recombined to show the several industrial status groups on a uniform basis.

[1] The Resolution of the Second International Conference of Labour Statisticians phrased this point as follows: "the necessary and sufficing condition for being enumerated as unemployed is that the individual must have been not at work for one day at least." (Resolution II, para. 9 (*c*) (3).)

[2] The classification of industries is discussed below in Chapter XV.

III. REPORTING SYSTEMS

At the present time there are two chief systems in use for reporting the statistics of employment and four for the reporting of unemployment statistics. Each of these will be discussed in turn.

I. Employment

Of the two chief systems for reporting on current changes of employment, both the establishment reporting and the labour force survey techniques can provide precise and voluminous data on employment. Both can provide such data promptly. The choice between the systems, or the decision to use both, will depend on a combination of circumstances which will differ from country to country. The conditions of their appropriate use will depend largely on the existing scope of employment statistics, the character of additional data required, and the relative cost of obtaining such further data by these alternative techniques or a combination of them. The additional data needed may be (1) estimates of total employment, or estimates of employment in very detailed industry groups; (2) information on earnings and hours that is comparable with such employment data; and (3) comparable data on unemployment and on various aspects of labour force participation. The choice between reporting systems can be decided only by assessing total requirements for employment, unemployment and labour force data in terms of cost and personnel.

1. *Establishment Reporting*

By far the commonest method of securing current information on employment changes is the system of postal questionnaires which are filled out in each establishment and returned to the statistical agency for co-ordination into estimates of employment. The establishment enters on the report form data on employment in the current and previous months. The statistical agency then computes the percentage change from these data, applies these percentages to benchmark data and computes either an estimate of change in employment from the previous month, an estimate of employment in the current

month, or both. The series may apply solely to reporting establishments, as in Canada, or to all establishments in the industries covered. Such reports are obtained in the Netherlands, Czechoslovakia, Norway, Denmark, France, Australia, Great Britain, Switzerland, New Zealand and the United States, among other countries.

This system of employment reporting was originally developed in most countries in response to a demand for full information on employment, earnings, hours of work and labour turnover in individual manufacturing industries, and it is admirably adapted to these purposes. It has since been applied to a variety of other industries, and in some countries the data obtained have been used for computing estimates of the total number of non-agricultural employees. The system is effective in securing full and consistent data on employment, hours and earnings for detailed industry groups at a very low cost per return.

Since the returns are filled in by employers, accurate and detailed information on industry is obtained; this furnishes the basis for the classification of establishments according to detailed industry groups and sub-groups. A further advantage is that an establishment reporting system can be begun on a relatively limited scale, surveying at first only those industries which are considered to be of greatest importance, and gradually expanding in coverage as funds and personnel permit. On the other hand, this procedure is not so well adapted to securing data on the self-employed or domestic workers, or on employees in certain broad industry groups such, for example, as trade and service, and hence it is not so well adapted for providing estimates on employees in all industries or on total employment.

2. *Labour Force Surveys*

A second and more recently developed system of reporting on employment is that used in the United States and Canada for surveys of the labour force. These surveys secure comparable, consistent and comprehensive data at one and the same time on employment, unemployment and the labour force. Since the survey operates through interviews with one responsible person in each of the samples of households surveyed, it is obviously possible to obtain information on topics other than labour force status. Experience has demonstrated that these

regular enquiries provide an excellent method of securing certain materials required for economic analysis, and their potentialities for these purposes are only beginning to be used. For example, recent special questions asked by enumerators for the U.S. Monthly Report on the Labor Force dealt with family incomes, migration of workers since the end of the war, the amount of work sought by unemployed and part-time workers, employment of veterans, rent paid by veterans and plumbing facilities in their dwellings. Additional questions have been asked from time to time on various aspects of labour force participation and on many other items for which such intermittent enquiries provide sufficient data at low additional cost.

The actual methods used in operating the survey may be briefly outlined. The description is based largely on practice in the United States, Canadian techniques being substantially the same.

During the week containing the 8th of the month the enumerators call at all the dwelling places picked for enumeration. One responsible member of the household is interviewed with regard to the labour force status of all persons in the household over 14 years of age. Since most interviews are conducted during the day, this person is usually the housewife.

For purposes of the survey the U.S. Bureau of the Census maintains 68 local offices to cover the sample areas used, each with a permanent staff consisting of a supervisor and from 5 to 15 part-time enumerators. Each local office is responsible for enumerating from 300 to 500 dwelling units, with a total enumeration of 30,000 households each month.

The presence of a permanent staff leads to a stability in the method of questioning and recording. Each enumerator is provided with a manual consisting of nearly 50 pages of detailed instructions relating to the different questions. Consistency is further safeguarded by the presence of the permanent supervisors, who immediately review the data reported, and order re-interviews wherever necessary.

Since the dimensions of the sample have been reduced to a minimum in order to cut costs, the problem of non-reporting becomes important. Standard procedure therefore specified that call backs shall be made until all but three or four per cent. of the persons chosen have been enumerated. These call backs are particularly necessary in the case of families without children, and families in which all the members are at work.

The households selected for enumeration are surveyed for a six-month period and then dropped from the sample, thus preventing the development of an undue burden on the families selected and hence of resistance to enumeration.

Practice in the past has not emphasised strongly enough the desirability of trying out the questions first. A recent analysis of the discrepancy between the agricultural employment estimates of the United States Bureau of Agricultural Economics and the United States Bureau of the Census led to a change in the basic question on labour force status. This new definition, effective in July 1945, produced a fairly severe shift in the labour force totals, although in percentage terms the change was relatively trivial. It is therefore to be recommended that all new questions for labour force survey schedules should be pretested in different parts of the sample in order to establish definitely what interviewing techniques are actually being used and what patterns of answers are being given by respondents. It is further recommended that portions of the sample areas should be re-enumerated at periodic intervals in order to check on the interviewing techniques actually used by enumerators (I, 48 and 49).

3. *Social Insurance Systems*

Estimates of employment changes have also been made by deducting from the total number of insured persons the number of insured unemployed. While conceivably this procedure can give satisfactory results, it is not likely to give such adequate data in practice except under certain limiting conditions. These conditions are the following:

(1) The coverage of the insurance system in terms of particular industrial, age or occupational group must not change significantly. Otherwise a mere increase in insurance coverage will appear as an increase in employment.

(2) Estimates of the number of insured persons must be continuously available on a reasonably accurate basis.

(3) Estimates of the number of insured persons who are not at work or not unemployed must likewise be available. Included in this group will be a number of persons who are ill, on vacation, or absent from work for other reasons. Estimates of their number must not, however, include persons who were not actually in the labour force for the day or week surveyed. It is perhaps suggestive that after using such a system for a

number of years the United Kingdom switched over to establishment reporting for the current measurement of employment.

Provided that an adequate realisation of the potential flaws in such reporting exists, further exploration may reveal effective methods of using social insurance data for the current reporting of employment. In countries where employers report employment and earnings to the social insurance agency it may be possible to develop a procedure for sampling such data directly. [1] If only a sample of reports were utilised it should then be possible to compute and to issue promptly employment estimates — an impossibility at present because of the sheer bulk of the social insurance returns and the period of time which elapses between the date to which the return refers and the date at which it is finally received by the national statistical agency. [2] Since the files provide a complete list of all operating establishments — subject to certain size limitations — the basis for developing a sound sample exists. [3]

II. Unemployment

1. *Registration at Employment Exchanges* [4]

Of all the measures by which statisticians seek to define the level and changing course of unemployment, few are essentially easier to obtain than data for registration at employment exchanges. The technique is simple: a list is made of all persons who register at the exchanges for jobs. Since for registration there is no requirement that a worker should be currently

[1] Following the technique used in Australia, it would be possible for the employer to fill in a duplicate form with carbons, the second copy to go to the unit concerned with current employment statistics.

[2] For the sample of co-operating employers selected it would be necessary to require returns to be filed by a specified date. Such a concession, however, would save these employers the trouble involved in filling out returns for the insurance agency and for an employment statistics reporting agency. An integral element in support of this technique would be a central master-list of establishments.

[3] It is quite possible that the reporting of employment data to an insurance system differs from that to an independent statistical agency. However, since employment data may be benchmarked to social insurance data, as they are in the U.S., this would produce a consistency between benchmarks and current data not otherwise present.

[4] Unless otherwise indicated, discussions of the system of reporting unemployment by means of registration at employment exchanges refer to those which are not part of a social insurance system. Those which are part of such a system are discussed under that heading.

unemployed, he may have a job and be looking for another. Since there is no requirement that he should be insured, he may be a member of the insurance system or not. It is therefore never possible to set any specified level of coverage or to assess the efficiency of this method of reporting.

It is obviously unsatisfactory to include in the unemployment totals persons who have already found work. Where attendance at the employment exchange is required any less frequently than once a week it may be expected that an undue percentage of all registrants will be persons who have already found employment or have withdrawn from the labour force.

It is therefore recommended that studies should be made of the number of persons reported as unemployed by employment exchange registrations, in order to determine the proportion who are actually employed or are no longer unemployed because not seeking work (I, 43). Where this proportion runs to any considerable size, steps should be taken to exclude those persons from the unemployment totals, either by changing the registration requirements, or by adapting the statistical procedures, or by both methods.

2. *Trade Union Statistics*

Trade union unemployment systems and unemployment estimates have been historically of considerable importance. Belgian trade union insurance systems were the precursors of the present national insurance system. British trade union data on unemployment provided the statistical basis for the British system of unemployment insurance. Canadian estimates of unemployment among trade union members constituted one of the main bases for measuring unemployment in Canada until a few years ago.

At the present time, unemployment among trade union members is tabulated by only a few of the national agencies for labour statistics, and, of the countries surveyed, it is the main basis for measuring unemployment only in Australia and Norway. In Australia trade union forms are forwarded by the Commonwealth Statistician to the permanent secretary or other official concerned. If the union finds work for its members, that official will have reasonably comprehensive, exact information at his disposal for filling in the returns. "Some (unions) make provisions for a reduction in membership fees in respect of unemployed members" so that fairly accurate reporting can be expected

from those. "Apart from these it is thought that a number of union secretaries when compiling the return act to a considerable extent on general impressions as to the state of employment in the particular industry. It will be noted that the form includes the note that 'if exact numbers are not available, approximate or estimated figures will be of value'." A distinction may or may not be drawn between those who are unemployed because of sickness or accident — hence not actually available for work — and those who are unemployed for other reasons.

Before the war Norway collected statistics of unemployment from returns submitted by 10 major trade unions. It is anticipated that the expansion of these statistics which is at present being planned by the Central Norwegian Union of Workers will provide a wider statistical basis in the future.

3. *Unemployment Insurance Systems*

The reporting of unemployment in unemployment insurance systems is in many ways the simplest of all data-collecting schemes, for the unemployed worker makes it his business to report his status in order to obtain unemployment benefits.

In Denmark the basic reporting is that of the individual trade union member who reports his lack of work to a trade union unemployment fund, these funds being an integral, and indeed the chief, part of the national insurance system. Uninsured workers report their unemployment to the extent that they register with the public employment exchanges, these registration totals being then included in total reported unemployment. The insurance funds report their data to the public employment exchanges under three headings: reports on individual workers (except unskilled), monthly lists of those registering as unemployed during the month, together with an annual list of fund members. A summary statement is then drawn up giving for each fund the number reporting themselves as unemployed for each day of the week, separately by sex.

In Great Britain the insured worker who becomes unemployed and wishes to secure employment and/or insurance benefit turns in his unemployment book at one of the 1,200 local employment exchanges of the Ministry of Labour.[1] To the insured

[1] Two additional reasons for registration mentioned by the British report are the fact that registration is required in order to avoid payment of arrears of health insurance contributions and, in most instances, as a condition for the receipt of poor relief.

persons who register as unemployed are added other unemployed persons who register for work. Since attendance at the exchange at least once a week is usually required of all persons registered for work with the employment exchanges, it would appear that the total register is not likely to be overloaded with persons who have already found employment or have for any other reason ceased actively to seek work.

The data collection procedure in the Netherlands is essentially similar. The country is divided into 25 major districts, subdivided into a number of smaller units, with employment exchange offices in each of these smaller units. Any resident of the Netherlands may register for placement. The registration cards of these unemployed workers remain in the active file, until the workers either (*a*) are placed, or (*b*) notify the exchange that they have found employment, or (*c*) do not extend their registration on a specified day at the end of the month. Registration is, of course, a prerequisite for the receipt of benefit.

In Belgium, likewise, the unemployed worker seeking insurance benefits must register, presenting himself at one of the communal administration units in the 2,670 communes. He must report daily to the unit in order to ensure continued receipt of his benefit. Those who are not insured — as well as those who are — may register for work with the employment exchanges. However, as the Belgian report notes, these latter figures tend to be inaccurate, despite numerous attempts to remedy their failings. Their shortcoming is common to most employment exchange statistics and to some social insurance data as well — the registers are not kept up to date and generally include a number of workers who have already found work but have not notified the exchange to that effect.

Some of the limitations of a social insurance system for the reporting of unemployment are discussed below in Chapter XIII, but of the considerable value of such data there can be little question, for social insurance statistics of unemployment are in a very real sense cost free, being by-products of the operation of a system installed for other than statistical purposes, and it therefore becomes possible to expand statistical coverage and derive additional estimates (as well as to secure the basic estimates) at a remarkably low cost assignable to statistical purposes. Furthermore, the continuing contact of a social insurance system with individual workers makes it possible to conduct

a variety of special studies on unemployment problems at low cost and with little inconvenience to the employee. The possibilities of using social insurance data for the study of unemployment problems have only begun to be explored.

4. *Labour Force Surveys*

Labour force surveys constitute an effective method of securing a complete estimate of total unemployment — an estimate not subject to the industrial, age and other limitations characteristic of most insurance systems and free from the problems peculiar to statistics of unemployment as reported by trade union or independent employment exchange systems. [1] The decision to use a labour force survey for reporting on unemployment will depend (*a*) on whether a comprehensive social insurance system is in operation, and (*b*) on the extent of additional labour force, employment and unemployment data required but not available from social insurance sources at a reasonable cost and with reasonable promptness. (The actual technique of the labour force survey is outlined above in section I, subsection 2 of the present chapter.)

5. *General Conclusion*

Because of the general problems involved in the use of employment exchange registration data or trade union unemployment reports as measures of national unemployment — problems noted above and discussed further in Chapters XII and XIII — it is recommended that wherever possible estimates of the total numbers unemployed in any country should be derived either from the operations of a social insurance system, or from sample surveys of the labour force, or from both sources (I, 36).

[1] Unlike other methods of reporting on unemployment, the population survey secures data through trained officials whose duties are first and last statistical. Their focus of interest is on statistics and not on the administration of a placement or benefit-paying mechanism. Furthermore, local supervisors can check on the sufficiency of the data gathered immediately and not at a long remove, in contrast to the procedure necessary in the case of statisticians who work with social insurance data.

PART II

IV. TYPES OF EMPLOYMENT SERIES: NATIONAL PRACTICE

The various systems which are in current use for the reporting of employment have developed in response to the pressure of special needs and particular emergencies quite as much as from systematic planning. A series on employment in heavy industry may have been established because of its value in guiding war production. A series on employment on public works may have developed because of the impact of a depression. In many countries series on employment in manufacturing were set up because such employment was considered to be a sensitive indicator of the course of unemployment. As a result of this kaleidoscope of forces the various systems of national employment statistics differ widely in their comprehensiveness and detail. To appreciate the full measure of this variation and the problems to which it contributes it is desirable to review the chief types of series and practice in the various countries. Attention in this chapter is directed successively to national series on total employment, employment by industry, by geographical area, by age, by sex, by occupation group. The next chapter deals with some general considerations relating to these series.

I. Total Employment

A considerable number of countries have a series on total employment scheduled for development in the near future, but at the present time only three of the countries for which monographs were submitted obtain current estimates of total employment: the United States, Canada, and the United Kingdom. Both the United States and Canada obtain their estimates of total employment from current labour force

surveys, taken at monthly and quarterly intervals respectively. The estimates include all persons in employment — wage-earners, salaried employees, employers, self-employed persons, unpaid family workers; agricultural and non-agricultural workers; those in large firms as well as in small ones; and persons in all branches of economic activity.

The British monthly series for total employment includes almost all persons in employment except domestics and older workers. Data for wage-earning and salaried workers are secured by means of establishment reports, while self-employed and unpaid family workers are estimated by a variety of assumptions and techniques.

Some other countries, such as France, obtain monthly estimates of total non-agricultural employees, and some, such as Australia, obtain monthly estimates of private non-agricultural employees, but the majority of the other countries have as their most comprehensive current series one for manufacturing alone, or manufacturing combined with a number of other non agricultural industries.

II. Employment by Branches of Economic Activity

The most detailed, most comprehensive and most frequently available reports on employment by industry are those of the United States. One or another of the national statistical agencies of that country provides monthly estimates of employment in agriculture, mining, manufacturing, construction, transportation and public utilities, trade, finance and service, Government service, and all branches of economic activity combined.

For agriculture, data are separately available on the number of wage-earning workers and family workers who were engaged the equivalent of two or more days in the enquiry week in agricultural pursuits [1] as well as on the number of persons working one or more hours in such pursuits during the survey week. [2]

For non-agricultural employment as a whole, monthly estimates are available on the number of persons working one or more hours at such pursuits during the survey week, including wage-earning and salaried workers, unpaid family workers and own account workers. [2]

[1] U.S. Dept. of Agriculture.
[2] U.S. Bureau of the Census.

For manufacturing, and separately for 20 manufacturing industry groups and 153 industry sub-groups, monthly estimates of production workers are available from establishment reports, as well as a total for wage-earning and salaried workers in all manufacturing.[1]

For mining, the number of employees in 7 sub-groups is available.[1]

For construction, the number of employees in residential, non-residential, farm, public utilities, highway and a variety of types of Federal, State and local construction are separately available.[1]

For transportation and utilities, monthly totals are tabulated by the U.S. Bureau of Labor Statistics, using estimates for detailed sub-groups from the Interstate Commerce Commission, the Maritime Commission and other agencies.

For trade, finance and service, and Government service, the number of employees is available. [1]

Of the countries surveyed, Canada alone has estimates (quarterly) of the total number of persons engaged in each major industry group — agriculture, mining, manufacturing, etc. Monthly figures are likewise available for employees of reporting establishments in manufacturing, logging, mining, communications, transportation, construction and maintenance, service, trade and finance. Separate details are provided on employees in 19 manufacturing groups and 24 sub-groups.

Great Britain publishes monthly estimates of total employment, except that of older workers, in each major industry group — agriculture, mining, Government service, etc. Monthly estimates of employees other than higher paid salaried workers are calculated for a number of major industrial groups and for 76 manufacturing sub-groups.

While none of the other countries surveyed secured data on total employment — whether in the entire country or any given industry — they obtained estimates of wage-earners or of employees in considerable detail. France, beginning in January 1946, began to collect quarterly estimates of employees in 16 manufacturing groups and a variety of other non-agricultural industrial groups — construction, part of personal service, transportation (except the State railways), trade, amusements, banking and insurance, liberal professions. Beginning

[1] U.S. Bureau of Labor Statistics.

in May 1945, the Netherlands has released a series of quarterly estimates for employees in some 9,000 industrial concerns. Czechoslovakia began publishing continuous quarterly data on employees in October 1945. The data are separately available for 17 manufacturing groups, utilities and construction. Beginning during the war, Australia has released monthly estimates of employees in manufacturing as a whole, in mining, trade and the other major industry groups.

Among the older established series are those of Denmark (monthly data on hours worked by employees in 8 manufacturing groups); Sweden (monthly indices for employees in 8 manufacturing groups and 53 sub-groups, Government construction and public works, construction, and small segments of trade and transport); and Switzerland (quarterly estimates of employees in construction and 17 manufacturing industry groups). Norway, which had published monthly employment estimates for a number of manufacturing groups and other industrial groups for the period 1935-1946, is in process of developing a new establishment sample; information on the details of this series was not available in time for the present report. However, monthly totals are published for the number of persons insured against unemployment who are not unemployed.

III. Employment by Geographical Area

Norway issues estimates of employment separately for cities, suburban or industrial communities and rural districts.

France publishes excellently detailed estimates not only for total employment in the non-farm industries surveyed but also for employment in each of the industry groups for which national data are issued.

Canada and the United States likewise publish regional data. The United States Bureau of Labor Statistics releases monthly estimates of employment in the chief cities of the country for a whole series of non-agricultural industries, and has recently initiated similar estimates for each of the 48 States. Total employment, however, is only available for the nation as a whole. (Agricultural employment totals for the 48 States — comparable with neither the Bureau of Labor Statistics figures nor those of the Census Bureau — are issued by the U.S. Department of Agriculture.)

In Canada, estimates of employment in the detailed non-agricultural industry groups are available for each of the provinces and major metropolitan centres, while estimates of total employment (employees plus self-employed) are available for each of the provinces.

The reporting of employment in detailed areas, however, is not yet common practice. Neither Australia nor Denmark publishes current employment estimates for regions or large cities. Sweden provides no current employment estimates by region nor do Great Britain, New Zealand, Czechoslovakia or the Netherlands. [1]

IV. Employment by Sex, Age and Hours Worked

Separate estimates for the current employment of males and of females are available for Sweden, Great Britain, Australia, New Zealand, Canada and the United States but not for Norway, the Netherlands, France or Denmark.

Canada and the United States alone provide full detail on employment by age groups, securing data for a large number of age groups from their labour force series. New Zealand secures semi-annual estimates of the number of those employed who were over and under 21 years of age. (Several other countries present estimates of the number of insured persons by age groups.)

Data on hours are customarily obtained in connection with the reporting of employment by establishments. Where such data are utilised, however, it is most commonly in the form of computed average hours of work per employee in the industry or industries surveyed. At the present time only France, Canada and the United States currently publish data on the number of workers in each hours-worked grouping.

V. TYPES OF EMPLOYMENT SERIES: GENERAL PROBLEMS

In the previous chapter the main types of series currently issued in various countries have been enumerated. The considerable differences which may be noted between one country

[1] Czechoslovakia gives figures on employment in the entire republic and in Bohemia, Moravia and Silesia as a whole.

and another give rise to certain basic questions. What should be the scope of a national system of employment statistics? Should that system provide estimates of agricultural employment, of non-agricultural employment, of total employment and of the labour force? Should it provide employment series for geographic areas within a country and for the separate age, sex and occupation groups?

Each of these main types of series will be discussed in turn, but one general principle should first be emphasised. The main purpose of a statistical system is to provide statistical information on the most considerable national issues. In one country these may relate to the reconstruction of an economy broken by fascism and war. In another they may relate to the pressing demands of rising industrialisation, to ameliorating the lot of the agricultural population. In a third, they may concern the development of national resources, while in a fourth, the problem may be how to ensure full employment. In each country, the statistics of employment must be developed to serve its appropriate needs. The emphasis in the following sections is therefore on minimum requirements — requirements which in any given country may be considerably less than the total urgently needed for private and national policy.

I. Agricultural Employment

Every country with a sizable agricultural population will require a periodic assessment of the labour force devoted to agricultural production. Countries such as India and China, which are entering the currents of world industrialisation, must look forward to sharp changes in the distribution of their labour force. They will devote an ever-increasing proportion of their labour power to manufacturing and the service industries, and an ever-decreasing proportion to agriculture. To measure the rate at which this major change-over is occurring and to prepare for the opportunities and problems which it brings in its train, they must have sufficiently frequent assessments of the numbers attached to agriculture. At least quinquennial, and better still annual, assessments of total agricultural employment are therefore desirable in these countries. Moreover, should substantial seasonal changes in farm employment occur, it is further desirable that for the years enumerated data should be

secured for two separate dates — one at the seasonal employment maximum and the other at the seasonal employment minimum.

Countries which are more industrialised have developed a vast reservoir of agricultural labour in the form of small tenants and wage-earning workers. These frequently form part of a shifting labour force, divided between town and country, moving with the seasons and changing with the income changes which the business cycle brings. To focus properly on the quantity of labour available in both areas, as well as to mark the variations in the number of independent farmers and wage-earning workers, annual estimates of agricultural employment are desirable. Where seasonal shifts in agricultural employment are substantial, estimates should be made more frequently than once a year (I, 16 (1)). In the more industrially diversified countries, such estimates should be made quarterly (I, 16 (2)). In other countries, at least semi-annual estimates are desirable in order to measure employment at its seasonal maximum and minimum (I, 16 (3)).

II. Non-Agricultural Employment

As there are special problems for the solution of which it is essential to have current estimates of agricultural employment, so there are many which require data on non-agricultural employment. Non-agricultural employment is generally less stable than farm employment, and its movement usually presages changes in unemployment, in consumer purchases and in the level of national income. It is for reasons such as these that many countries now obtain estimates of non-farm employment, and that all industrially diversified countries should secure at least quarterly estimates of non-agricultural employment. This requirement is not satisfied by obtaining estimates of employment in large establishments or in certain groupings of non-farm industries. The general public is likely to use such limited estimates as representing changes in non-agricultural employment. If it can be established that employment changes in large firms or in six important industries do parallel those in all non-agricultural industry, then no problem arises. But in point of fact this parallelism is not likely to be found. It is therefore desirable that countries having summary series now restricted, for example, to large establishments or to a group

of industries should expand their coverage in order to secure fully representative estimates of non-agricultural employment.

III. Employment by Industry

Most countries which obtain any current employment data whatever have estimates of employment in manufacturing as a whole as well as in separate manufacturing industries. Many also have series for mining, construction, trade and the other major industry groups. So many of the individual industries have their special problems, so many are subject to special legislation, so many affect the welfare of particular regions within a country, that by now detailed employment estimates are required in most industrially diversified countries. It is therefore recommended that in the more industrially diversified countries quarterly or monthly employment series should be prepared for each major industrial group in which as much as 5 per cent. of a country's total employment is found, as well as for each industry for which such statistics may be requested by an inter-Governmental organisation (I, 14).

IV. Total Employment

While a series for agricultural employment may illustrate accurately the movement of agricultural employment, and while a series for a group of non-agricultural industries may represent truly the changes of employment in that group, neither series will necessarily have the same fluctuations as total employment. Agricultural employment may rise while non-agricultural employment is declining, as happens during the summer months in many countries. Manufacturing employment may taper off during December, but trade employment will increase. Countries which are rapidly becoming industrialised will have a decline in handicrafts employment at the same time that manufacturing employment, exclusive of handicrafts, is increasing. In industrially developed countries during the great depression sharp cuts in manufacturing employment took place at the same time that agricultural employment ceased its decline and in some instances actually increased.

To sum up the effect of these related but often contrasting movements, a series for total employment is requisite. Only with such a series can a shift in employment that reduces manu-

facturing and raises agricultural employment by an equal amount reveal itself as merely a shift and not as a decline. If manufacturing alone is covered, the change appears as a decline. If agriculture alone is covered, the change appears as a rise. To secure just appreciation of the trend of its employment, therefore, every country requires data on total employment. For the more industrially diversified countries, such estimates should be prepared at least quarterly (I, 13).

V. Labour Force

A labour force series measures the amount of currently available manpower, including all persons in employment and all persons who are unemployed and hence available for work. Such a series may be developed as the result of efforts to calculate comprehensive employment estimates and to complete unemployment estimates. Many countries will consider the use of labour force sample surveys, because such surveys are an excellent method for providing dependable and consistent estimates of both total employment and total unemployment.

The chief uses of a labour force series all arise from the fact that such a series provides a measure of the amount of immediately available manpower. Such a measure is of prime importance during wartime and during reconstruction for all countries with general labour shortages. By the method of sample surveys or by means of an adaptation of social insurance data, where such data are sufficiently comprehensive, it is possible to establish the current manpower budget, contrasting labour needs with labour supply.

No less important is the use of a labour force series for forecasting available labour supply at future dates. Where current estimates have been computed on a sufficiently accurate and sufficiently detailed basis, it is possible to establish the level of participation in the labour force that has been characteristic of different age-sex groups and to measure changes in that level. Given such data, it is possible to forecast the future levels of available manpower with sufficient accuracy for many purposes. Policy to adjust manpower needs to manpower demands cannot be effectively worked out in the absence of such information.

A labour force series makes it possible to measure at once the effect of substantial changes in conditions and regulations

which affect the numbers at work. Given such a series, it is possible to measure the entrance of extra workers into the labour market — for example, young workers and women workers during the war years, or workers subject to regulation in a number of European countries during the reconstruction period. It is possible to study the effect of changes in the school-leaving age or changes in the retirement age as set by social insurance systems, for by providing data on the rate at which new workers enter and older workers leave the labour market, it is possible to secure a comprehensive view of the chief changes in that market.

In view of these various purposes to which labour force data can effectively be put, it is recommended that estimates of the labour force should be prepared at least quarterly in the more industrially diversified countries (I, 25). In the process of European reconstruction, for example, the problems of shifting labour from country to country are so great that estimates of the actual labour force in the major countries are essential merely to measure the dimensions of the problem and for use in evaluating the various immigration, labour mobilisation and related measures directed toward re-establishing the economy of Europe. [1] The uses of labour force data, therefore, may extend considerably beyond the manifold uses which each country has for estimates of its own labour force.

While the extent of detail which is obtained on the labour force will depend on national needs and on the relative cost of securing each additional classification, full use of the potentialities of labour force data will not be made until separate series are available for the major geographical or administrative regions, the chief centres of population, each sex, single years of age for juveniles and 10-year age groups for adults (I, 26).

VI. Employment by Geographic Region

The necessity for separate employment series, not merely for the nation as a whole but for the major economic and administrative regions, arises because economic development may proceed at different rates in different regions. While employment is rising by leaps and bounds in one part of a country, it

[1] Cf. the discussion on manpower in the *Preliminary Report* of the Temporary Sub-Commission on Economic Reconstruction of Devastated Areas (United Nations, Economic and Social Council, September 1946).

may be increasing at a gentler rate in another region, or even declining. It is not to be supposed that contrasting employment changes between regions occur only in the large countries. Table I, for example, presents data on employment in the various Swiss cantons over the war years. While some cantons were

TABLE I. MANUFACTURING EMPLOYMENT IN SWITZERLAND 1939-1943 [1]

Canton	Employment		Per cent. change in employment: 1939-1943
	August 1939	Sept. 1943	
Zurich	73,300	80,099	9
Berne	54,288	67,228	24
Lucerne	9,430	12,897	37
Uri	1,648	3,119	89
Schwyz	3,744	4,425	18
Unterwald-le-Bas	427	1,005	135
Unterwald-le-Haut	558	633	13
Glaris	6,142	6,300	3
Zoug	3,888	3,861	—1
Fribourg	4,100	5,099	24
Soleure	28,822	33,842	17
Bâle-Ville	16,885	18,609	10
Bâle-Campagne	10,382	11,217	8
Schaffhouse	9,580	10,005	4
Appenzell Rh.-Ext.	3,533	3,242	—8
Appenzell Rh.-Int.	187	190	2
St-Gall	28,077	30,021	7
Grisons	2,847	3,766	32
Argovie	36,494	39,509	8
Thurgovie	16,803	17,802	6
Tessin	9,131	10,380	14
Vaud	15,151	19,496	29
Valais	5,674	7,529	33
Neuchâtel	13,503	18,748	39
Genève	13,330	16,950	27
Total	367,924	425,972	16

[1] *La Vie Economique* (Berne), April 1945. The data are those of the factory census.

experiencing employment gains of 10, of 39 or even of 135 per cent., others were actually subject to declines. Table II demonstrates that a similar pattern existed for Sweden, with differences not only between districts but between the rural and urban sections of each district. For small countries as well as large, therefore, it is evident that employment changes may vary in degree and even in direction from region to region within the same country.

Given these contrasting employment movements in different parts of a country, separate employment series can be of considerable value. They will, of course, constitute basic data for orienting national policy in respect of industrialisation or reducing unemployment. Local employment data possess

TABLE II. INDUSTRIAL EMPLOYMENT IN SWEDEN 1939-1942 [1]

District	Employment		Per cent. change in employment 1939-1942		
	1939	1942	All Sweden	Country	City
Stockholm city . . .	56,583	57,643	1.9	—	1.9
Stockholm province	21,399	22,854	6.8	3.8	12.0
Uppsala „	9,815	10,182	3.7	0.9	6.5
Södermanlands „	21,509	21,848	1.6	- 9.5	7.1
Ostergötlands „	32,137	34,476	7.3	4.8	9.5
Jönköpings „	25,414	27,866	9.6	14.9	4.3
Kronobergs „	10,608	13,516	27.4	30.5	5.2
Kalmar „	16,464	16,702	1.4	- 1.1	5.5
Gotlands „	2,145	1,841	-14.2	-19.8	- 2.7
Blekinge „	11,237	11,277	0.4	-10.5	10.1
Kristianstads „	15,341	18,556	21.0	21.4	19.5
Malmöhus „	55,649	55,767	0.2	2.4	- 0.4
Hallands „	9,393	9,645	2.7	8.8	0.1
Göteborgs o. Bohus „	55,652	49,655	-10.8	-16.1	- 9.7
Alvsborgs „	42,889	44,696	4.2	6.4	2.1
Skaraborgs „	15,421	17,813	15.5	17.3	13.5
Värmlands „	21,956	21,839	- 0.5	- 2.7	4.2
Orebro „	30,769	31,688	3.0	-35.0	88.2
Västmanlands „	21,420	23,717	10.7	9.9	11.8
Kopparbergs „	25,422	26,436	4.0	3.9	4.2
Gävleborgs „	25,307	25,989	2.7	1.9	4.5
Västernorrlands „	17,324	16,150	- 6.8	- 7.3	- 3.5
Jämtlands „	3,100	3,108	0.3	- 8.9	27.5
Västerbottens „	7,585	8,593	13.3	15.0	9.1
Norrbottens „	8,983	8,916	- 0.7	- 7.7	35.5
Sweden	563,522	580,773	3.1	0.8	5.0

[1] *Statistisk Årsbok* (Stockholm), 1945, p. 119.

obvious value for trade union officials in forming their evaluation of the state of the labour market and in adapting their collective bargaining procedure to changing local conditions. Such data are also required by business men, who must measure the level of activity in their industry and must forecast those changes in purchasing power that current changes in employment foreshadow. It is therefore recommended that, as resources and facilities permit, the chief national employment series — whether for total employment or for employment in

major industry groups — should be accompanied by similar series for the major economic and/or administrative regions of the country, and for the chief centres of population (I, 17, 18).

VII. Employment by Age and Sex

Data by sex will alone measure the increase in the proportion of women workers to the total of those employed — whether because of labour shortage, as in the war years, or because women accept lower wage rates, as in periods of depression.

TABLE III. NON-AGRICULTURAL EMPLOYMENT IN THE UNITED STATES, AUGUST 1945 - OCTOBER 1946, BY SEX [1]

Date	Aggregates (in thousands)			Indices (August 1945-100.0)		
	Total	Male	Female	Total	Male	Female
August 1945	44,470	27,700	16,770	100.0	100.0	100.0
September	42,450	26,660	15,790	95.5	96.2	94.2
October	42,770	27,060	15,710	96.2	97.7	93.7
November	43,310	27,750	15,560	97.4	100.2	92.8
December	44,170	28,660	15,510	99.3	103.5	92.5
January 1946	44,660	29,910	14,750	100.4	108.0	88.0
February	44,700	30,140	14,560	100.5	108.8	86.8
March	45,370	30,750	14,620	102.0	111.0	87.2
April	46,360	31,590	14,770	104.2	114.0	88.1
May	46,440	31,960	14,480	104.4	115.4	86.3
June	46,760	32,450	14,310	105.1	117.1	85.3
July	48,190	33,460	14,730	108.4	120.8	87.8
August	48,830	33,940	14,890	109.8	122.5	88.8
September	48,630	33,810	14,820	109.4	122.1	88.4
October	48,840	33,930	14,910	109.8	122.5	88.9

[1] U.S. Bureau of the Census: *Monthly Report on the Labor Force* (Washington), November 1946.

Data by sex, with supplementary information at intervals on marital status, will throw light on the extent to which women with and without home obligations are entering the labour market (I, 19).

In table III, data on non-farm employment by sex are presented separately for males and females in the United States. If attention were paid only to the overall trend in employment, which rose substantially in the year following the end of the war with Japan, the fact that there was a substantial decline in female employment during the same period would be overlooked.

It is of considerable importance to know that returning veterans found employment partly because of the rise in employment possibilities, partly because they replaced women in the labour force. (The concomitant information on the labour force is a necessary supplement, since this shows that a substitution of men for women took place within the civilian labour force, the women not becoming unemployed but leaving the labour force altogether.)

In order to assess the changing role of women in the labour market, current information on employment by sex is indispensable and should be provided at intervals as resources and facilities may permit (I, 17, 18).

A similar recommendation applies to estimates of employment by age, inasmuch as it is urgently necessary to know the degree to which young workers are not being hired, or older workers not being retained, during depression years, and the extent to which child labour is increasing or decreasing (I, 17, 18).

VIII. Employment by Occupations and Hours Worked

Nations with acute shortages of labour will find data on employment by occupations and by hours worked of particular value, as the increasing number of such series has demonstrated. Analysis of labour shortages and bottlenecks, measures for retraining and plans for national economic development rest on a knowledge of the actual distribution of workers by occupation group. Similarly, information is required on the number of persons in the separate hours-worked categories as the basis (1) for determining the extent of short work weeks; (2) for measuring the extent of increasing part-time work by housewives, children and other supplementary wage earners; and (3) for assessing the effectiveness of measures which may be taken to lengthen establishment work weeks. [1]

In periods of unemployment such data serve the analogous purpose of measuring the rise of short time. For countries faced with such problems it would seem highly desirable to provide periodic data on employment by occupations and

[1] The use of a distribution of persons into the separate hours-worked categories as the basis for measuring under-employment and short time has been emphasised above in Chapter II, section II.

likewise by hours worked. It is therefore recommended that, as resources and facilities permit, estimates of employment should be made available at intervals for the principal occupation groups and for groups classified according to the number of hours worked per week (I, 19).

IX. Partial Employment

In close connection with the foregoing topic, partial or short-time employment should be considered. This is also termed partial unemployment, its description as unemployment being derived usually from unemployment insurance provisions which allow the payment of benefits for "partial unemployment" under certain conditions. The problem of partial employment, or short time, therefore, is part of the larger problem of under-employment. It is therefore recommended that a distribution of persons employed by number of hours worked should be made in order to provide data to show changes in short time or partial employment, by reference to the changing proportion of workers falling in the smaller hours-worked groups. A further step in the measurement of under-employment as a whole would be to ask workers, irrespective of the number of hours currently worked, whether they desired more hours of work on the same job at the same rate of pay. It is here recommended that, as resources and facilities permit, series on partial unemployment be replaced by figures showing the distribution of employed persons according to the number of hours worked in the period covered (I, 45). Periodic studies should be made of under-employment, as distinguished from total employment. In particular, consideration should be given to the possibility of obtaining, in the case of industries other than agriculture, information on the number of persons on short time who are seeking full-time employment (I, 46).

X. Seasonally Adjusted Series

The marked seasonal variations of employment and the labour force make the interpretation of month-to-month changes difficult. A seasonal rise in employment may be taken as evidence that economic recovery is proceeding apace, or a seasonal decline that the change foreshadows a depression. Although it is no easy matter for the statistical agency

to establish seasonal adjustment factors, and though these factors will necessarily have to be revised from time to time, the use of seasonally adjusted series has distinct value.[1] It is therefore recommended that, as resources and facilities permit, seasonally adjusted indices of the chief employment and labour force series should be presented together with the unadjusted series (I, 33).

VI. EMPLOYMENT: COVERAGE

I. Status

Who belongs in the statistics of employment? Are only wage-earners to be covered or should salaried workers also be included? Should an employment series include only those who are hired or should it widen its coverage to include working proprietors and own account workers? If wage-earners are to be included, does this mean wage-earners attached to establishments or those actually at work?

1. *National Practice*

As might be expected, there is no agreed set of answers to these questions. Practice varies sharply from one country to another. Perhaps the greatest uniformity appears in the coverage of workers according to status groups. The most common employment series are those which include all employees (wage-earning plus salaried workers) or those which are restricted mainly to wage-earners. In a few instances, however, series are available for all groups in the labour force. The series relating to employees will be considered first.

The British establishment reporting form asks for two separate totals. One is for "administrative, technical and clerical staff, including managers, superintendents and works foremen; research, experimental, development, technical and design staff". The second is for operatives, including "all classes of employees on the payroll other than those to be included ... under administrative, etc., staff". The current monthly estimates based on these reports are intended to

[1] For an excellent example of the analysis of changing seasonal factors see "Seasonal Variations in the Automobile Industry", in Canada, *The Labour Gazette* (Ottawa), March 1947.

measure the movement of employment of wage-earning plus salaried workers, excluding only a limited number of higher paid salaried employees — those earning £420 or more.

The United States Bureau of Labor Statistics series for production workers in manufacturing defines "production and related workers" as:

Working foremen and all non-supervisory workers (including lead man and trainees) engaged in fabricating, processing, assembling, inspection, receiving, storage, handling, packing, warehousing, shipping, maintenance, repair, janitorial, watchman services, product development, auxiliary production for plant's own use (*e.g.* power plant) and record-keeping and other services closely associated with the above production operations. *Exclude* supervisory employees (above the working foreman level) and their clerical staffs and other groups of employees named under instruction 5 (see below).

The Bureau of Labor Statistics series for employees in the major industrial groups includes not only the employees enumerated above, but also, according to instruction 5, workers in:

Executive, purchasing, finance, accounting, legal, personnel (including cafeterias, medical, etc.), professional and technical activities, sales, sales-delivery, advertising, credit, collection, and installation and servicing of own products, routine office functions, factory supervision (above the working foremen level), and other workers not included as production workers. *Include* also employees on your payroll engaged in new construction and major additions or alterations to the plant who are utilised as a separate work force (force-account construction workers).

The semi-annual estimates of employment begun by New Zealand in April of 1946 are similarly comprehensive. The employer is directed to include:

all part-time and "full-time employees in receipt of wages, salary or other remuneration" including: persons working for commission ("other than agents not subject to your direct control"); skilled manual; apprentices; semi-skilled manual; unskilled manual; domestic and allied; others, including clerical, shop assistants, commercial professional, scientific, executives, etc.

The Australian payroll tax return simply asks for the number of "all employees whether paid weekly, fortnightly, monthly, quarterly, annually or at irregular intervals".

The French quarterly reporting form asks for "*Effectifs totaux (ouvriers, employés, cadres)*" *i.e.* wage-earning and salaried workers and higher staff combined as a group.

On the other hand, the Swedish series is based on the number employed, excluding engineers, non-working foremen,

accounting and clerical personnel, and warehousing and related employees. The Norwegian form in use until June 1946 asked simply for the number of workers and working foremen. In Denmark, the request is made for total man-days worked by production workers, with a separate estimate for non-production workers, although the latter estimate is apparently not utilised in the published series.

In Switzerland only production workers are to be included, these being defined, using the same definition as the accident statistics reports, as including:

> operatives, supervisory personnel, those engaged in testing, and janitorial services: technicians overseeing production, overseers of work processes, shophands, foremen, work guides, employees used in testing, chief of installation gang, controllers, chief machinists, store-keepers and dispatchers, packers, janitors and charwomen, even where engaged in offices and stores.

Up to this point, therefore, two main types of series have been discussed: (*a*) British, United States, Canadian, Australian, French and New Zealand series relating to wage-earners plus salaried workers, and (*b*) the Danish, Norwegian, Swedish and Swiss series relating to wage-earners. A third type of series measures the total number of persons in employment, including not only wage-earning and salaried workers, but also employers and self-employed workers and unpaid family workers.

At the present time three countries issue series of the third type: the United States, Canada and Great Britain. The first two countries obtain, in addition to their series for employees (and for wage-earners in manufacturing), a series for all persons in employment, based on current surveys of the labour force, as already noted, while Great Britain supplements its current series for insured persons by a variety of estimates in order to prepare monthly estimates of total employment, excluding certain categories which are for the most part numerically unimportant. [1]

2. *General Problems*

These, then, are some of the differing answers to the basic question — who should be included in the statistics of employment? Which of these is the most satisfactory answer?

[1] Totals for Great Britain exclude certain workers because of their age and others because their incomes exceed a certain maximum figure; they exclude also a substantial number of domestic servants.

The reply is simply that all of these solutions are about equally satisfactory in practice. At the same time, the widest, most comprehensive coverage is preferable to any more restricted coverage. The issue may be considered as it relates to manufacturing. (For most of the countries studied, and for the considerable number not studied, a series for employment in manufacturing is the only available and significant series on employment.) It is of great importance for all countries.

In practice it makes little difference whether the manufacturing series includes only employees or whether it includes proprietors and unpaid family workers as well, because of the extremely small numbers in the latter group compared to the total number of wage-earners. [1] Since the number of salaried workers also is relatively small, the movement of the employment series will be only slightly moderated if they are included, or will be made somewhat more sensitive if they are excluded.

Is the lack of preference between alternative methods equally applicable to industries other than manufacturing? Owing to the growth of chain stores and integrated units the importance of self-employment in trade has been steadily diminishing in certain countries and the proportion of employees to total trade employment has therefore been increasing. The economic and even the social status of the small proprietor in trade or service is not likely to be more than one stage above that of many employees in those industries. Furthermore, the steady turnover of businesses in these lines contributes a continuous stream of ex-proprietors to the ranks of wage-earning workers and the unemployed. The inclusion of these small proprietors would therefore seem to be appropriate.

What difference would it make if the employment series covered proprietors and self-employed as well as wage-earning and salaried workers? Table IV attempts to answer that question from experience. The decennial changes indicated for Denmark and the United States are essentially the same whether or not proprietors are included. The difference for Canada is somewhat more marked, while the differences in the United States over the brief period, 1930-33, are noteworthy —

[1] This is not the case where handicraft industries predominate, but India, China and other countries which are becoming industrialised will find it desirable to enumerate handicraft establishments independently of an employment series.

though perhaps not great enough to require a major revision in coverage.

In general, each country must decide, on the basis of its own experience and needs, whether to utilise the wider concept of employment. It is here recommended that countries should work toward the most comprehensive coverage possible for any given industry, presenting, as resources and facilities permit, periodic estimates separately for all significant status groups in the industries surveyed (I, 19).

TABLE IV. EMPLOYMENT IN COMMERCE FOR SELECTED COUNTRIES

Country and date	Wage-earning and salaried workers	Total employment
Denmark [1]		
1930	129,293	195,783
1940	187,481	281,904
per cent. change 1930-40	+45.0	+44.0
Canada [2]		
1931	253,188	359,862
1941	335,798	453,310
per cent. change 1931-41	+32.6	+26.0
United States [3]	(thousands)	
1930	5,932	7,628
1933	4,916	6,575
1940	6,906	8,842
per cent. change 1930-33	—17.1	—13.8
1930-40	+16.4	+15.9

[1] Figures relate to the gainfully occupied. Data taken from *I.L.O. Year Book*, 1942 and 1943-44.

[2] Estimates compare (*a*) employed wage-earning and salaried workers, and (*b*) employed wage-earning and salaried workers plus non-wage-earners gainfully occupied. Data taken from Census of Population, 1941: *Occupational Trends in Canada*, 1901-1941, No. 0-6.

[3] Figures relate to persons actually employed. Data taken from U.S. BUREAU OF LABOR STATISTICS: *Employment in Non-Agricultural Establishments in the United States, 1929-43*, and Stanley LEBERGOTT: *Estimates of the Non-Agricultural Self-Employed, 1929-1940* (Bureau of Labor Statistics, 1945).

II. CONDITION

Given the groups to be included, under what conditions are they to be covered? Are those who are sick, on vacation, on leave for purposes of military service or because of lack of work, or absent for still other reasons, to be included? The solutions adopted in the various countries differ, although the differences may often be of a formal rather than of a substantive character.

1. *National Practice*

France simply asks for "*effectifs totaux*", or the numbers employed, leaving to the option of the employer who is to be included. The result is probably similar to that in Australia (where the "number of employees on payroll" is specified), in Switzerland (which asks for number occupied on the payroll date) or in Denmark (which specifies the number of man-hours; since the interpretation is left to the employer, it may well vary from firm to firm). As the Australian Government has indicated, "persons on sick or recreation leave may or may not be included in the returns depending upon the individual employer's interpretation ... (while) persons on strike near the end of a month often are not counted as employed by their employers".

Other countries are more specific in their directives. Sweden specifically requests separate estimates for the number of workers (*a*) at work on pay-day; (*b*) on payroll but not employed because of lack of work; (*c*) on vacation; (*d*) absent for other reasons (sickness, leave for military service, etc.). The Swedish employment series includes those at work as well as those on vacation and those absent for other reasons, including sickness and leave for military service. New Zealand requires the inclusion of "all persons on the payroll for that day, whether absent on paid leave or on compensation or sick leave. Do *not* include persons who left your employment before that payday".

Great Britain adds still more qualifications, emphasising that employment estimates "should relate to persons on the payroll, including those temporarily absent from work through sickness, holidays or other causes. Persons on the payroll who were temporarily stood off for the whole or part of the week should be included ... but persons discharged, or who left during the pay-week, should be excluded". The United States is equally specific, requesting data for "all full and part-time production workers on your payroll who worked or received pay for any part of the period reported. *Include* pensioners, unpaid family workers, members of the armed forces and others carried on your active rolls who did not work or receive pay during the period."

2. *General Problems*

In general, it will be seen that the countries fall into two groups, one leaving the inclusiveness of the term "number employed" to the decision of each individual employer, the

other defining the exclusions and inclusions in some detail. It would seem highly desirable to specify clearly the groups which it is desired to include. Discussions with representative employers and employers' associations might throw light upon which set of qualifications is most practical, and the precise problems involved in the specific decisions. Given this information, the statistical agency can then proceed to establish the desirable procedures.

It is therefore recommended that on both the reporting form and in attached directions there should be provided a definite list of the major groups to be included and the major groups to be excluded, specifying at the least the treatment of those (*a*) on paid vacation; (*b*) on paid holidays; (*c*) on paid sick leave; (*d*) on unpaid sick, holiday or vacation leave; (*e*) on pension; (*f*) on temporary furlough because of lack of work; (*g*) on indefinite furlough because of lack of work; (*h*) on strike; (*i*) on military service.

Granted that specific decisions should be made for the major groups, what should those decisions be? For the extremes the case is clear; those on strike, those on indefinite furlough for more than a payroll period, those on pension, are all to be excluded. The basis for exclusions is simply that they are not at work or remunerated.[1] It would seem similarly correct to exclude those on military service and on extended leave of any sort.

But what of those persons on sick or vacation leave? The procedure followed in the United States is to include these workers in employment totals if they are on paid leave, but not if the leave is unpaid. New Zealand pursues a similar course. On the other hand, in the Danish figures on man-hours worked all workers on sick or vacation leave are excluded. Which procedure is preferable?

In reaching a decision on this point, the effect of these different definitions on economic and social analyses should be considered. On the one hand, to include those on paid vacations as "employed" seems reasonable from the point of view of their continuing to receive pay. There is no cutting down of the flow of income to these workers.

[1] Persons on indefinite furlough cannot be considered as attached to the establishment in any real sense. Those retired on pensions must likewise be excluded, since their connection with the current productive activity of the establishment is tenuous.

For estimates of average weekly earnings the base should be the number of persons actually at work or receiving pay. During vacation periods payrolls may tend to drop in many industries, but this drop is most reasonably evidenced by the movement of payrolls and not by that of average earnings. To the extent that vacations are unpaid, estimates of payrolls will properly indicate a decline. But estimates of average earnings — applicable to persons who remain at work or who receive pay — should not be so affected.

On the other hand, calculations of productivity per man-hour should be based on hours of actual work rather than on hours paid for. If workers are included in the employment total when their vacations are paid but not when their vacations are unpaid, then productivity per man-hour, other things remaining the same, would tend to be lower in plants with paid vacations than in plants with unpaid vacations. And as the number of plants giving paid vacations increased in proportion to the total number of plants, productivity would tend to decrease. Such anomalies could be avoided if productivity estimates were computed on the basis of the number actually at work or hours of actual work.

For many purposes, however, it is of interest to know the number of persons attached to the industry in the sense of being employed. Normally, a person is regarded as employed in an industry if he has a job, even though at any given date he may be sick, or recovering from a minor injury, or on vacation, whether paid or not; in such cases he regards himself as having a job, and is not looking for work elsewhere. In this sense, therefore, and with this practical interpretation of being employed, it would appear best for most purposes to adhere to the definition that corresponds to "employment" rather than with the narrower one that corresponds to "at work". With this definition, this series indicates the trends of employment, showing the changes that are taking place in the personnel attached to or employed in the different industries.

It is recommended that the statistics of employment in establishments should include all persons attached to the establishment, regardless of age, and regardless of whether or not these persons are actually at work on the date to which the statistics relate (I, 28).

For more distinct and specific purposes, however, and for more accurate measurement of the actual man-days or man-

hours of employment, data on actual time at work may be required. There is need for both types of data. As resources and facilities permit, it is recommended that periodic studies of employment as reported by establishments should be made to determine the number of persons who were at work and who were not at work on the date to which the studies relate (I, 34).

III. Age

The coverage of employment series with respect to age is almost identical in all countries surveyed. Where the series are tied to population census or industrial census benchmarks they are usually all inclusive. However, those which are tied to social insurance data may be less comprehensive. In the United Kingdom, for example, the benchmarks are those for males aged 14 to 65 and females aged 14 to 60 — although the series used for extrapolation include persons of all ages. The defects in the use of an age limitation are suggested in a study of the British lace industry in which it is pointed out that the decline in the number of workers in the industry between 1935 and 1939 as indicated in the employment series was not consistent with the change in production which occurred in the same period. "The increasing age of the workers probably accounts for a good deal of the apparent decline in the numbers employed; workers over 64 are not included in the Ministry of Labour figures." [1] Because of the need to relate employment to production, labour turnover, earnings and similar data it is highly desirable that no upper age limitation should be made. It is therefore recommended that employment data should include all persons in employment regardless of their age, and that both benchmark and movement figures should be consistent with this recommendation (I, 28).

VII. EMPLOYMENT: SAMPLE

Statistics of employment on a current basis could conceivably be secured by a complete canvass of establishments or households. Such canvasses are in fact required periodically in

[1] H. A. Silverman, ed.: *Studies in Industrial Organisation*, Nuffield College Studies in Reconstruction (1946), p. 93.

order to provide complete benchmark data.[1] But conducting such surveys on a monthly or quarterly basis would be an enormously expensive and difficult task. As a result, all countries which collect employment statistics have come to rely on sample surveys for the derivation of current data on employment. There are two main systems for collecting such data: establishment sample statistics and the labour force survey. Each of these will be discussed in turn.

I. Establishment Sample Statistics

In the establishment sample system the basic assumption is that changes in employment in a sample number of firms will truly reflect changes in employment in all firms. In the United States, for example, the changes of employment in 34,000 manufacturing establishments are taken to stand for the changes of employment in 184,000 manufacturing establishments. Changes of employment in 49,000 trade establishments stand for changes in 1,770,000 trade establishments.

In order that the employment figure estimated from such a sample may be the same as that which would be derived from a complete enumeration, it is necessary to establish accurate procedures under two main headings. The first relates to estimates of change. The second relates to the complete benchmark figures to which the estimates of change are applied in order to yield up-to-date estimates of employment in the industry or group of industries surveyed.

1. *Estimates of Employment Change*

What constitutes a proper establishment sample for securing estimates of changes in employment? The sample should have the same general characteristics as the whole universe of establishments it represents, and have them in their due proportions. What does such a definition mean in practice?

In the first place, it means that the sample is effective not in proportion to its size but in proportion to its balance and representativeness. Obviously where a sample covers 95 per cent. of all employment in an industry that industry will

[1] Benchmark data are figures on total employment in the group under consideration, at a date—usually a census date—when a fairly complete enumeration was made.

be represented by full and fair statistics. Just as clearly, it is doubtful whether an industry with a mere 5 per cent. of its employment included will be satisfactorily represented. But what of the more typical case — the area between these extremes? Is 40 per cent. coverage adequate? Is 50, 60, 65? Is it possible to state a satisfactory minimum percentage coverage?

The criteria for an adequate establishment sample must be sought not in terms of the percentage of employment covered, but with reference to the character, balance and distribution of the sample. If the sample has the same characteristics as the universe it represents, and in their due proportions, it will be a satisfactory sample — provided, of course, the numbers are sufficiently large in each sub-group so that a satisfactory stability of reporting is secured.

The factors which determine variations in total employment or industrial employment will differ enough from country to country, so that no complete enumeration of such factors can be made. For the purpose of developing an establishment sample, each country must make a systematic analysis for itself of the factors associated with variations of employment in its different regions. (The period chosen for study must be sufficiently long to allow seasonal, cyclical and long-run changes to manifest themselves.) Such an analysis might show that the variations in employment in a given region are related to (*a*) its industrial composition, (*b*) the size distribution of its firms, and (*c*) the distribution of firms as between urban and rural territory. In such a case the national sample would be properly stratified if it gave suitable representation to different industries, to different sizes of firms and to firms located in urban and rural areas. Should employment changes have differed in different regions during the period studied — after account had been taken of the three factors mentioned — separate representation should be given to the chief regions also.

In practice most countries give separate representation to the chief industries. Where employment in food manufacturing is more stable than that in jewellery manufacturing, for example, then each industry must be separately represented in a sample intended to measure the changes in manufacturing employment as a whole. If the pattern of employment in slaughtering and meat-packing differs from that in commercial bakeries, then representation must be given to each group.

Within any given industry group changes in employment in large establishments will usually differ from those in small establishments. Since in practice most countries have tended to secure returns from the larger establishments, because their co-operation is more readily secured and the collection of data simpler, this point has often received insufficient attention. But the point is none the less vital for industries where great disparities in the size of firms exist and where large numbers of persons are employed in both large and small firms. Thus, in the construction industry employment patterns in large firms are probably more stable than those in small firms, yet large numbers of persons are employed in small firms and separate representation must be given to such firms. The same consideration usually applies to trade, service and agriculture as well as to construction. Even within the manufacturing industry, as studies in France, Canada and the United States have shown, employment trends in large firms are found to differ from those in small firms. [1] In some industries changes in employment are positively related, in others negatively related, to the size of the firm. In setting up an establishment sample for any given country, therefore, it is necessary to determine whether there is any relation between the size of firms and changes in employment in the chief industrial groups and to set up the sample accordingly.

Finally, attention must be given to proper representation of the different geographical areas. The trend growth of American manufacturing is greater in the South than in the New England States. Employment in construction for public utilities during recent years has been rising at a greater rate in Valais than the Swiss average, but at a lesser rate in Neuchâtel. A graphic demonstration of geographic differentials in changes in employment within an industry is given by the figures in table V for changes in employment in France from April 1939 to 1946. Thus, over the seven years, employment in food manufacturing rose 14 per cent. in Poitiers but declined 29 per

[1] "L'Enquête sur l'activité économique et les salaires au 1er avril 1946" in *Revue française du Travail*, August - September 1946, pp. 494-495; J. PERLMAN: *Hourly Earnings of Employees in Large and Small Enterprises*, Temporary National Economic Committee Monograph No. 14 (1940), p. 82. Cf. also NATIONAL BUREAU OF ECONOMIC RESEARCH: *Employment, Hours and Earnings in Prosperity and Depression*, pp. 32-34 (New York, 1923); DOMINION BUREAU OF STATISTICS: *An Estimate of Total Employment on October 1, 1943, in Industries Reporting to the Monthly Survey of Employment* (Ottawa, 1944).

TABLE V. INDICES OF EMPLOYMENT IN FRANCE BY INDUSTRY AND BY REGION IN APRIL 1946

(April 1939 = 100)

Industry	Paris	Orléans	Dijon	Nancy	Châlons-s.-Marne	Saint-Quentin	Lille	Rouen	Rennes	Angers	Poitiers	Bordeaux	Toulouse	Montpellier	Marseille	Lyon	Clermont-Ferrand	Limoges	Strasbourg	France
Food	86	87	78	88	85	101	85	90	91	84	114	85	90	89	97	96	93	88	71	88
Chemicals	100	115	103	92	104	103	85	80	76	92	108	81	—	109	91	106	95	104	74	95
Rubber	103	69	84	—	—	—	100	91	—	—	—	93	—	—	—	123	112	—	—	102
Paper	75	76	85	65	56	64	64	72	95	85	93	109	81	86	92	93	92	91	71	79
Printing	93	89	79	61	76	—	89	90	97	99	75	97	78	108	99	102	145	97	97	92
Textile	80	72	76	77	73	78	77	81	79	81	90	94	81	72	60	81	74	96	68	78
Apparel	81	83	82	70	89	73	72	77	77	74	64	85	98	87	84	83	93	72	89	81
Leather	91	72	107	84	97	97	106	90	91	89	87	91	84	76	88	98	76	110	70	91
Lumber	110	130	114	103	100	101	109	111	118	121	119	105	122	102	108	114	119	91	89	110
Metallurgy	97	—	100	80	69	96	92	83	—	—	—	199	128	—	106	92	—	—	73	89
Metal working	97	100	98	83	92	70	102	97	98	96	98	98	115	109	112	111	109	99	85	98
Precious metals	99	92	109	—	—	—	—	—	—	—	—	—	—	—	—	104	—	—	—	99
Stone, clay, glass	112	84	94	74	89	80	88	70	94	114	104	87	103	116	111	104	81	101	77	98
Quarries	107	—	110	70	—	—	—	79	—	—	—	—	75	—	—	97	—	—	86	100
Construction	103	115	96	107	129	157	110	135	96	118	101	81	105	80	118	100	91	91	121	115
Transport exc. S.N.C.F.	56	—	99	—	—	96	81	91	—	109	75	89	82	96	88	92	—	—	81	79
Commerce	73	75	88	72	69	75	78	76	79	75	88	83	—	81	69	85	95	100	79	77
Amusements	90	—	—	—	—	—	—	—	—	—	—	100	113	—	—	—	—	—	101	104
Finance	103	113	108	92	96	103	105	126	122	112	107	103	91	105	99	106	127	131	112	106
Liberal professions	99	115	119	—	—	102	81	102	—	124	—	—	—	116	100	—	114	—	—	105
Total	92	93	96	76	91	90	91	95	96	97	99	89	106	93	95	99	104	98	84	93

cent. in Strasbourg. Such contrasts suggest the need for including in the employment sample not merely every major industry but also each section of the country in determining the sample for each country.

To sum up, it is recommended that in setting up the sample of establishment for employment reports, proper representation should be given to major industry groups, geographical areas, and size of establishment groups (I, 29 (1)).

2. *Benchmark Data*

Having established the constituent groups to be represented in the sample it is necessary to determine the proportions in which each group is to be represented. This is essentially a problem of securing benchmark estimates of employment. On the basis of these estimates of employment, the data on changes in employment in particular sub-groups can then be combined into an employment series. The methods used and the frequency with which data on employment are adjusted to benchmark estimates of employment will necessarily differ from country to country.

As an example of the problems involved, the methods of adjusting to industrial benchmarks used in a number of countries may be discussed. Table VI gives the percentage of employ-

TABLE VI. TOTAL ESTIMATED EMPLOYMENT IN THE UNITED STATES, AND IN REPORTING ESTABLISHMENTS, FEBRUARY 1944

Industry	Number of employees in reporting establishments	Estimated percentage of total employees covered by Bureau of Labor Statistics sample
Manufacturing	10,159,000	75
Anthracite mining	63,700	91
Bituminous coal mining	239,000	65
Metal mining	77,400	87
Quarrying and non-metallic mining	35,600	67
Crude petroleum producing	35,900	39
Telephone and telegraph	365,096	80
Electric light and power	194,148	89
Street railways and buses	153,998	66
Wholesale trade	294,341	20
Retail trade	915,998	25
Hotels (year round)	139,337	40
Power laundries	72,996	29
Cleaning and dyeing	15,813	21
Brokerage	14,323	23
Insurance	136,742	33
Construction	372,299	52

ment in each of the major industry groups surveyed by the United States Bureau of Labor Statistics which was included in the establishment sample of February 1944. It can be readily seen that the coverage varies so widely from industry to industry that an adjustment to benchmark data is essential. Otherwise, for example, manufacturing would be heavily over-represented, while trade and finance would be grossly under-represented.

In the years before the war, the Bureau of Labor Statistics secured benchmark data for the constituent elements of its manufacturing series from the biennial Census of Manufactures. Benchmark data for the other industries covered are obtained from the operations of the social insurance system. The computation of employment estimates based upon the establishment sample therefore reduces itself to two elements: first, securing estimates of the percentage change in employment in identical establishments; and secondly, applying these estimates to the benchmark data to arrive at the series finally desired.

In marked contrast to this procedure is that of the Swedish Social Board. The Social Board's percentage of coverage for each industry is indicated in table VII. From that table it

TABLE VII. TOTAL ESTIMATED EMPLOYMENT IN SWEDEN AND IN REPORTING ESTABLISHMENTS, 1944

Industry	Number of wage-earners (census)	Number of wage-earners in reporting establishments	Percentage of total employees covered by sample
Mining and metal . .	234,496	163,055	70
Earth and stone . .	49,356	23,955	48
Wood	60,477	29,547	49
Paper and printing .	55,187	36,171	66
Food	53,017	27,846	52
Textile and apparel .	83,741	67,177	80
Leather and rubber .	25,147	18,882	75
Chemical	22,893	11,749	51

can be readily seen that the variations are wide. In 1944 about half the food industry employment was covered, about two-thirds of paper and printing, and three-fourths of leather and rubber industry employment. Within the earth and stone group, the coverage of the eight constituent industries ranged from 12 to 45, 56, 62 and 100 per cent. This variation, though

wide, is not unusual. But the Swedish figures are not tied to any benchmark data. "The index of the statistics of employment is based exclusively upon statistics of establishments which report in successive months. No correction of the chain index number is made to agree with the Board of Trade industry statistics or with figures derived from the number of workers in the census or other source."

For Canada the distribution of wage-earners in non-agricultural industries as indicated by the population census may be compared with that indicated by the monthly survey of employment sample. Because the monthly survey attempts to depict the situation as reported by establishments ordinarily employing 15 persons and over in nine non-agricultural industries — excluding employment in most service industries — the differences between the two distributions, as indicated in table VIII, are striking. Because the survey covers only a small segment of

TABLE VIII. DISTRIBUTION OF CANADIAN WAGE-EARNERS BY INDUSTRY, JUNE 1941 [1]

Branches of economic activity	Wage-earners: June 1941		
	Number	Per cent. distribution	
	Census	Population census (June 2)	Monthly survey (June 1)
Logging	77,459	3.1	3.0
Mining	85,847	3.4	5.2
Manufacturing and utilities	914,753	36.5	53.7
Construction	166,600	6.6	8.3
Transportation and communication	242,417	9.6	13.5
Trade	340,271	13.5	10.1
Finance	80,139	3.2	3.8
Service	605,922	24.1	2.4
Total non-agricultural	2,513,408	100.0	100.0

Data provided by the Dominion Bureau of Statistics.

the service group, while the census covers the entire group, manufacturing has 56 per cent. of the total weight in the survey as compared to only 34 per cent. for the census non-agricultural

group. For service the weights were 2.5 and 25.8 respectively. (Even if domestic servants were excluded, the disparity would still be great, since they constituted only 6 per cent. of the non-farm total.)

These contrasts between the actual coverage of the monthly survey and the distribution of all non-agricultural wage-earners are significant, because the movement of employment in large firms in the 9 industries is frequently taken as representative of the movement of employment in all firms in these industries and of all firms in non-agricultural industries.

What effect does this difference in industrial distribution have on the trend in employment?

A partial statement of this effect is given in a special Dominion Bureau of Statistics study, *An Estimate of Total Employment on October 1, 1943 in Industries Reporting to the Monthly Survey of Employment* (1944). This study is restricted to that part of service covered by the monthly survey, and is benchmarked to population census results; the change in wage-earning employment in Canada from 2 June 1941 to 1 October 1943 is estimated at 19 per cent. But the change actually shown by the establishment reports was 22 per cent. The difference between a rise of 19 percentage points and one of 22 points is 15 per cent. — a not insubstantial figure to result merely from differences in weighting. Inasmuch as the *Estimate of Total Employment* allocates hand trades to manufacturing and makes no allowance for the bulk of persons employed in service — where the rise in employment was probably less than average — the difference was actually greater.

A serious problem in the adjustment to benchmark data is the relative infrequency with which they become available. One reason why the very carefully constructed data of the Canadian monthly survey are not related to other benchmark data is, according to the Canadian report, precisely this infrequency. "The decennial census of population collects statistics from the individual showing the industry to which he belongs, but the census enumerations are far apart, while the data therefrom can obviously relate only to a point of time. In a country where the seasonal fluctuations in industry are widespread and marked and where there are frequent transfers from the 'own-account' or employer class to the wage-earner class, a more continuous experience would be required to determine the

distribution which should be used as the basis for establishing weights."

This difficulty, however, should not be over-emphasised. In most countries social insurance data can be utilised for more frequent benchmarks, these being available annually or, in some countries, quarterly. But even the use of decennial population census results should not be relinquished without careful analysis. For every employment series must use benchmarks — either explicit or implicit.

This is evident from the fact that although neither the Swedish estimates nor the non-manufacturing estimates for Canada are benchmarked to census data, they are none the less linked to a distribution at a basic date. That distribution is, however, not a comprehensive one obtained from a census or social security enumeration, but merely the distribution of the sample at the basic date. The question, therefore, is not whether to use benchmarks, but which benchmarks to use.

Once the question is put in that form the answer becomes clear. In general, any systematic evaluation — whether of the social insurance system or a census — is preferable for the purpose of establishing benchmarks to the use of the actual distribution of employment in the sample at the basic period. The distribution of employment in the sample represents the final result of a combination of factors, including cost considerations and administrative requirements of efficiency and simplicity. Such considerations are almost certain to produce a distribution of employment different from that shown by a systematic enumeration.

For those countries which do utilise benchmark data such materials are used with varying frequency. In the United States quarterly benchmark data are provided, after some time lag, by the operation of the social insurance system. These data are used as soon as available. For Canada, as already noted, general benchmarks are not used, but the data provided by the annual census of manufactures are used for manufacturing. In Denmark, as the Danish report notes, "the monthly index number of employment is revised once a year on the basis of the annual manufacturing census." In Great Britain an annual revision is made in accordance with the number of employed as indicated by the July exchange of unemployment books.

To sum up, it may be recommended that employment series should be adjusted to comprehensive benchmark data derived from census enumerations or social insurance records as such data become available (I, 27).

II. Labour Force Surveys

The basic sample design for current United States population census surveys of labour force activity was developed by Stevens and Stock for the United States Work Projects Administration, drawing on basic work by Fisher, Neyman and Mahalanobis. This was further extended by Hansen and Hurwitz after the series was taken over by the United States Bureau of the Census in 1942. Essentially the same procedures were adopted by Canada when that country established current surveys of labour force participation in November 1945.

The United States sample discussed below is one of areas, not of population quotas. [1] Because of administrative and financial limitations the basic units for sampling were restricted to 68 areas. The 3,000 counties in the United States were grouped into 68 strata, one unit was chosen from each stratum, and household enquiries were then instituted within these units.

The choice of the county as the original unit is based on several considerations. Most counties are fairly small units, and can readily be enumerated from a single local survey office. Counties are well-established administrative units, located in both urban and rural regions, and a good deal of published information is available on them. Each county usually includes persons with a wide range of occupations, and each generally includes urban as well as rural farm and rural non-farm territory. Furthermore, wide variations in size and source of income are present, as well as in racial composition and nationality origin.

[1] The objections to quota sampling as an alternative to area sampling are discussed in "On Sampling in Market Surveys", by Philip M. Hauser and Morris H. Hansen, in *The Journal of Marketing* (July 1944).

These objections centre on the fact that the relative size of each quota of persons to be included is necessarily based on sources which may have become unrepresentative in the course of time owing to heavy geographic shifts in population, national income, etc. Secondly, the freedom given to the enumerator to use any persons who satisfy the specified minimum characteristics has frequently resulted in enumerators choosing people easy to enumerate. Hence the implicit assumption that given certain characteristics we have a true sampling because all other things remain equal, is nullified, because all other things do not remain equal.

Two complementary considerations, however, made it advisable to regroup the counties before setting up the primary sampling units. The initial reason for making such a regrouping was to produce a somewhat wider variety of occupations and incomes than existed in certain counties. By making the basic units more heterogeneous this adjustment decreased the sampling variance. Thus it was found that for estimating the number of male workers in the United States at a given date the use of enlarged units cut sampling errors by 48 per cent., while a reduction of 26 per cent. was achieved for the estimates of female workers.[1] Theoretically the variance between counties could be reduced by at least 50 per cent. if a given set of counties were regrouped into half as many units.[2]

There is, however, a limit to this progress, and it is a limit set by cost considerations. The primary units had to be kept small enough so that all work within the areas could be personally directed by the local supervisor with the minimum amount of travelling. The compromise between the contrasting directives of accuracy and cost led to the use of 2,000 combined-county units in place of the 3,000 actual United States counties.[3]

As already indicated, only 68 of the 2,000 primary units could be included in the national sample because of administrative and cost limitations. The 2,000 units were therefore grouped into 68 sets on the basis of similarity of units. The strata thus established did not, of course, contain identical units. Nor did they contain units which were selected in accordance with rigid and undeviating criteria. Both objective and more intuitive considerations were utilised, the selection reducing sampling errors to the extent that the units within a stratum were made more and more like each other, without at the same time introducing any bias.

The first step in establishing the 68 strata was to group the 2,000 primary sampling units in 4 sub-universes. The first group included the 12 largest metropolitan areas. Group 2 included all primary units which had cities of more than

[1] " On the Theory of Sampling from Finite Populations", by Morris H. HANSEN and William N. HURWITZ, in *The Annals of Mathematical Statistics* (December 1943), p. 351.

[2] *Ibid.*, pp. 337-38.

[3] Under generous cost limitations, Hansen and Hurwitz note, primary sampling units would not be used at all, sub-sampling units being selected independently throughout the stratum. *Ibid.*, p. 338.

50,000 population in 1930 (except those already designated for group 1). Group 3 consisted of those units which had more than 75 per cent. of the population residing in non-farm areas in 1940, plus certain other units with a high in-migration rate between 1940 and 1943. Group 4 consisted of all other units — chiefly, of course, farm units — and included three-quarters of the 1940 farm population.

Because of the considerable economic importance of the chief metropolitan areas, each of these was constituted as one of the 68 strata, thus determining the first 13 strata. [1] The primary units in group 2 were combined into 18 strata according to a combination of factors: geographic location; estimated migration to or from the area between 1940 and 1943; proportion of labour force in manufacturing; proportion of labour force in textiles, iron and steel, air craft and shipbuilding; proportion of population non-white.

(It is clear that these criteria tend to overlap. Thus, a selection of units according to geographic location — whether South or West — will automatically produce a rough selection according to the percentage of non-white, since the South contains a high non-white percentage while the West does not.) In group 2, for example, the North-east strata include Providence, having low migration, high manufacturing and textiles; Hartford, having high migration, high manufacturing and aircraft; Norfolk plus Princess Anne as representing Atlantic Coast ports with shipbuilding. The North Central strata included the combined county Adams-Allen (Fort Wayne) for high migration, high manufacturing, etc. To the original 13 strata in group 1, therefore, Providence, Hartford and a total of 18 additional strata were added to represent group 2.

Group 3, consisting of the large urban aggregations not already dealt with, was classified along the same lines as group 2. Portsmouth, Ohio, thus represented North-east and North Central, high manufacturing, with iron and steel; El Dorado, Arkansas representing South, low migration, high non-white, etc. This group contributed an additional 11 strata.

Group 4 was stratified according to types of farming, representing general types and specific crops, together with some attention to the percentage of non-white. Fond du Lac and

[1] Washington, D.C., was added to the 12 major metropolitan centres in group 1 because of its size and unusual industrial composition.

Sheboygan counties in Wisconsin to represent region 1, very high dairy; Fremont, Nebraska, to represent region 2, cash corn, small grains, intensive feeding, etc.

Given the 68 combined-counties which represent the basic strata the next step was to select primary units from each stratum. The selection here was necessarily a random one, thus obviating the biases which might arise from a conscious attempt to select the most representative units. (Because the primary sampling units did not contain equal numbers of people it would be obviously unsatisfactory business to have the probability of selecting unit A, with 100,000 people, no greater than the probability of selecting unit B, with 10,000 people. Therefore, in order to give the primary units chosen their suitable importance in determining the average for the stratum which they represented, the selection was designed so that the probability of choosing unit A, with 100,000 people, was made 10 times as great as the probability of choosing unit B, which had only 10,000 people.)

Having established first the basic strata and then the primary sampling units within those strata, the next step is to determine which households should be enumerated within the primary sampling units. This selection is made on a random basis from two sets of materials. For cities and towns the enumeration is based on a set of fire insurance maps which are available for most urban areas, including their suburban fringes. These maps show each individual structure, drawn to scale, in these areas, and indicate the principal use of each structure — dwelling place, store, factory, etc. There are indications that these maps tend to be at least a year behind current construction, a particular problem when heavy migration and construction is under way. On the other hand, the frequency with which insurance is taken out on new construction tends to lessen errors which arise from this source.

For farm and open country areas the selection is based on a master sample developed in conjunction with the Department of Agriculture and Iowa State College. Relying on aerial photographs and other materials, small areas are designated as sampling units, these areas containing 4 or 5 farms and a maximum of 10 dwellings.

After an initial selection has been made of city or village blocks in urban areas, and of county segments, each containing about 50 dwelling units, in rural areas, an enumeration is made

of households in the specified blocks. This enumeration, formerly made by field canvass, in now based on the insurance maps already mentioned. (In practice the enumeration is designed to include enough households for several periods, each household being in the sample for no more than 6 months. It is necessary therefore to bring these enumerations up to date before use by entering new dwelling-places on the basis of enumerators' information.)

The households are then selected from the list on the basis of sampling ratios, or percentage of dwellings to be enumerated. These ratios are based on the 1940 population distribution and applied so that, for example, a ratio of 2 per cent. chosen for a given area on the basis of the 1940 population would mean a 2 per cent. sample of the 1947 dwellings.[1] Because the ratio is not fixed in terms of persons or households, but rather of dwelling units, this means that where 1947 occupancy rates are higher than those of 1940, or where persons per room are greater, or where the number of dwellings has increased, the sample percentage — being based on dwellings — will reflect this increase. Thus the sample automatically reflects any change in population and labour force for the specified area in addition to providing details on employment status. Therefore the labour force survey automatically provides a new benchmark at the time of each enumeration. The use of this technique avoids the problem of adjustment of employment benchmarks which arises in the use of the establishment survey.

The remaining steps required to produce estimates of labour force are simple. Each of the totals secured for the primary sampling units is multiplied by the sampling ratio originally used to get that total. By cumulating the inflated totals, a set of estimated population and labour force totals by age and sex for the United States is secured. The ratio of labour force to population in each age-sex group is next computed and these ratios are then applied to entirely independent estimates of the United States population in the age-sex group. Similar estimates for all the other data secured in the labour force enumerations — major occupation, hours worked, duration of unemployment, etc., — are made by the application of ratios.

[1] Usually one household in six is interviewed per city block, averaging three per block; in open country neighbourhoods about one in seven is chosen, averaging six to seven per open country enumeration segment.

The reason for this step is clear. Independent estimates of the United States population tend to be based on surer methods of estimate, since the recording of birth and death rates (as well as of emigration and immigration) is now accurate enough to permit very close estimates to be obtained of the population in each age-sex group. Hence, the application of ratios will then produce exact labour force figures. [1]

The accuracy of the procedures outlined above is contingent upon the careful design of the sample involved as well as upon the maintenance of an effective field staff with a careful check on the adequacy of their enquiry procedure. Experience has confirmed the main lines of sample design sufficiently well so that the procedure developed has been essentially carried over intact into the Canadian inquiry. In broad outline it can presumably be applied in other countries as well.

Unfortunately, available data do not permit any discussion of sampling as it is carried on in the U.S.S.R. [2], but the techniques developed by Mahalanobis and others for recent surveys in India are obviously only a stage away from those required for current labour force surveys. [3]

The course of improvement for current population census surveys is probably, so far as sample design is concerned, to develop the stratification so that detailed estimates of employment in industry can be reliably computed. The gross discrepancies for the trend of United States estimates of service employment from 1941 to 1943, and the divergences between the estimates of construction employment made by the Dominion Bureau of Statistics Labour Force Unit and by that agency's Employment Statistics Branch suggest the need for such a step. As discussed in Chapter XIV, on consistency, this means co-operation with the establishment reporting agency to analyse biases in housewife reporting on industry and occupation. But it also means development of a sample design which will precisely represent industries as well.

[1] In point of fact the delay with which the armed services provided estimates of the age composition of the army and navy during recent years led to the use of incorrect assumptions on the age composition of the civilian population, and hence of the civilian labour force. This fact explains the major portion of the discrepancies between the movement of the Bureau of the Census and the Bureau of Labor Statistics estimates of non-agricultural employees, discussed elsewhere in this study.

[2] J. GOLDMANN: *Statistical Review of Czechoslovakia* (March 1946).

[3] "A sample survey of after-effects of the Bengal Famine of 1943", by MAHALANOBIS, MUKERJEE and GHOSH, in *Sankhya* (July, 1946).

It is therefore recommended that an analysis should be made of the relations between the distribution of (*a*) total non-farm employment and (*b*) employment in each major non-farm industry, as between the various primary sampling units. Such an analysis can make possible changes in the sample design to yield reliable estimates of employment in major industry groups. [1]

VIII. ESTABLISHMENT LIST

It is now necessary to give more detailed consideration to the manner in which an establishment list is selected. Attention will first be given to the various national methods and then to more general problems and conclusions.

I. National Lists

In Australia and Great Britain, where wide-ranging social insurance systems are in operation, the establishment list is based on the social insurance rolls. All Australian establishments subject to the payroll tax — and this includes virtually all non-farm establishments with a payroll greater than £20 per week — supply employment data. [2] In the United States "the list of reporting establishments has been compiled mainly from telephone directories, trade directories, lists furnished by Chambers of Commerce, boards of trade, retail associations, and lists of Government contractors". Factories with a value of product less than $5,000 are excluded, as they are in the biennial census of manufactures, while a general limitation to firms employing 3 or more persons applies in non-manufacturing.

The Canadian mailing list was originally "based largely upon the lists of firms maintained in the Annual Census of Industry

[1] Sampling of living arrangements in tents and shacks—which are sure to be ignored on fire insurance maps and sure to be inconveniently located for purposes of enumeration—is particularly to be recommended in these days of housing shortages. In the year 1943 some 10 per cent. of the dwellings constructed in the United States were valued at less than $500. (*Monthly Labor Review*, November 1943.)

[2] Earnings data for manufacturing, given in the production census for 1940/41, suggest that manufacturing firms employing less than 4 or 5 employees would be excluded.

and other branches of the Dominion Bureau of Statistics". Among the sources used to keep this list up to date, are "newspapers, trade journals, publications of employers' associations, boards of trade, chambers of commerce, industrial development departments of large corporations, provincial departments, etc."

Sweden's Social Board relies on a list drawn from the Board of Trade's tabulation of establishments reporting in the latest manufacturing census, this list being revised from time to time. The size limitation used in the factory census —firms employing at least 10 workers — is followed in the current returns, with most firms employing "at least 10-25 workers".

In France the list is basically that of establishments which reported in the 1936 census, excluding in general firms with less than 10 employees. Since this list is out of date, as the French report notes — and, since in addition, some of the local lists were destroyed during the war — the statistical service has been forced to place considerable reliance on the local labour inspectors for a list of the larger establishments in each region.

II. Non-Reporting

Given the list of establishments, one main problem confronts the statistical agency: how can employment changes best be computed from the returns of these establishments? The solutions which the different statistical agencies have worked out will be outlined briefly.

First, the issue of non-reporting may be considered. With few exceptions the reporting of employment by establishments is not compulsory. Hence the extent to which questionnaires are filled up and returned is dependent largely on the attitude of the persons reporting. Needless to say, complete success is never attained. The United States practice is to ignore late returns if they do not represent a significant proportion of employment in the industry. If they do, or if they relate to some very large concerns, revised figures are issued.

In Canadian practice, the employment of non-reporting firms believed to be in operation is estimated "at the level of the preceding month, except in periods of seasonal slackness, when their preceding month's reports will be reduced in accordance with the seasonal curtailment shown by such establishments in the same month of earlier years, and in accordance

with the current movement of employers in the same industry and area. Where employment in a given industry shows seasonal expansion, however, the figures for a firm whose returns are in arrears are not adjusted upward, but will be carried at the level of the preceding report. The correct data furnished by the firm will then be used as the 'last month's' figures in the next tabulation, thus providing the revised figures frequently shown in the monthly surveys".

In contrast to these procedures is that of France, where the non-response rate is very high. The French report indicates that the local labour inspectors mail statistical forms to an estimated 70 per cent. of the larger firms in their areas. Since about a third of the establishments questioned in a recent survey did not reply, it would appear that only about 45 per cent. of the estimated total of the firms in the groups to be covered actually replied. [1]

The difficulty with non-reporting of this magnitude is that the firms which do not report are likely to have a different employment experience from those who do. Taking into account the replies received will imply that the excluded firms have the same experience. The resultant bias in the results will be insignificant when the non-reporting percentage is small, but it may be serious when the percentage is as high as it is in France.

If there is any substantial percentage of non-reporting, it may no longer be valid to assume (1) that the movement of employment in the sample represents that in the universe of establishments, and (2) that the movement of employment in reporting firms is the same as that of non-reporting firms in the sample. The firms which do not report are more likely to be small, to have declining employment, and to be going out of business, than the firms which do report. Furthermore, the non-reports will tend to cluster in certain lines of industry, if for no other reason than that the characteristic size of firm and interest in employment data will differ from industry to industry. It is therefore essential for each statistical agency to measure the overall level of non-reporting at least semi-annually in respect not only of the quantity of employment omitted but also of the distribution of firms in different industry, size and geographical groups.

[1] *Revue française du travail*, May 1946, p. 175.

III. Comparisons based on Identical Firms

One further point must be insisted on. The entire procedure of computing employment changes from establishment reports is based on comparisons of employment, as reported by an identical set of establishments for two successive months. The sample will, of course, change from time to time as firms are added or dropped. But the comparison between two successive months (or quarters) must be between an identical group of establishments. Otherwise a change in the numbers employed in the establishments in the sample would reflect the changes in the reporting establishments as well as the change in employment itself.

Where non-reporting is relatively small, this requirement can be readily met. But where non-reporting is large, it ceases to be complied with. If there is a large percentage of non-reporting, each quarter's returns may actually be a substantially new entity, having only an attenuated relationship to those of the previous month. To illustrate the point, let it be assumed that the employment experience of firms which reported in February, Sample A, and that of firms which reported in March, Sample B, was as indicated in the table below.

Indices of Employment

	January 1947	February 1947	March 1947
Sample A	100	90	95
Sample B	100	95	100

Each sample shows a decline from January to February, and each shows a 5 per cent. gain from February to March. But if the statistical agency reports employment in February, using Sample A, at 90, and employment in March, using Sample B, at 100, then a rise of 11 per cent. is shown for the period from February to March. Either sample alone indicates a 5 per cent. increase. But by comparing changes in non-identical firms an 11 per cent. rise in employment, or twice the true figure, would be inferred.

In practice the errors created by non-reporting are likely to be less substantial. But of the possibility of such errors developing there can be little question. Because non-reporting is a factor even in the best-developed samples, where coverage is most carefully designed and the fluctuations in the number of establishments are trivial, it is vital that comparisons be made only between identical establishments.

It is therefore recommended that all statistical agencies adhere to the practice of comparing identical establishments. It is further recommended that at least semi-annually the employment experience of reporting and non-reporting establishments should be compared so that the adjustments necessary to prevent the growth of significant non-reporting biases could be made. (I, 29 (2)).

IX. TREND BIAS

The present chapter is devoted to a discussion of the bias which frequently develops in employment series based on establishment reports because a due proportion of newly established firms is not continuously introduced into the establishment sample. The manner in which this "trend bias" operates is essentially as follows.

Let it be assumed that in January of any given year the sample includes a representative group of all existing establishments. By February the sample will be somewhat less representative because it fails to include any establishments which began operation in January. Its representativeness will continue to decrease as the months pass. Some new firms are always being organised in all but the most stable and unchanging of economies. Hence the trend bias will usually take the form of a downward bias, making the estimate of employment at any time too low. The manner in which the bias operates is described below in Section I, using data from several countries that publish full statistical materials. Methods of removing the bias are then outlined in Section II.

I. National Experiences

In Denmark the establishment list is made up at the beginning of each year and is based largely on the list of firms reporting to the annual census of manufactures. According to the Department of Statistics, the 1944 survey covered 56 per cent. of all man-hours worked in the larger Danish firms. [1] The

[1] The census of factories enumeration, which is a starting point for the monthly index list, excludes establishments with less than 5 wage-earners. A further exclusion of small firms is made for purposes of the monthly index.

technique followed is to send a set of 12 forms at the beginning of the year to each one of the firms selected, one form to be returned each month. Since the list is not increased to include any firms which begin business between January of one year and January of the next, it is inevitable that the original coverage figure — 56 per cent. — should decrease continuously during the course of the year.

For example, the number of firms in the Danish clothing industry that employed 5 or more wage-earners rose more than 8 per cent. in a recent year.[1] The number in iron and metal industries as well as in technical and chemical industries rose more than 5 per cent. To take account of this continual growth the Danish series are adjusted annually to figures obtained from the annual census of manufactures; hence, an annual adjustment will usually be sufficient.

For Australia the returns of the annual production census enable a ready comparison to be made between the results of payroll tax reporting and those indicated by still more comprehensive returns. The trend of employment from July 1941 — when payroll tax statistics begin — through two years of war production to June 1943 is indicated in the following table.[2]

INDICES OF MANUFACTURING EMPLOYMENT IN AUSTRALIA

Date	Production census	Payroll tax returns
July 1941	100.0	100.0
June 1943	110.8	100.3

It will be seen that according to the payroll tax statistics factory employment had not gained at all during two years of heavy munitions production and forced draft output. But production census results, available much later, indicate that a substantial rise did, in fact, take place. The conclusions for current manpower policy to be drawn from one estimate must certainly have differed from those to be inferred from the other.

Finally, the results of a similar comparison between factory

[1] Since the net number of clothing firms rose from 795 to 852, it seems reasonable to assume that the gross increase in new firms was greater.

[2] *Production, 1941-1942*, Part I, p. 31; *Quarterly Summary of Australian Statistics* (June 1943), p. 51.

census and current employment reports for Switzerland may be presented.[1]

INDICES OF MANUFACTURING EMPLOYMENT IN SWITZERLAND

Year	Factory census	Quarterly index
1939	100	100
1940	—	107
1941	118	109
1942	117	110
1943	116	110

II. Adjustment for Bias

The trend bias which these current reports reveal cannot safely be ignored. That bias is not a constant figure or percentage. On the contrary, it is cumulative. Therefore, total employment as estimated from establishment reports will depart further and further from the true total. Since the rate at which new firms come into existence, and the rate at which they hire workers, are related to the course of the business cycle to the season of the year, and to the rate of growth of the economy, this cumulative error does not develop in accordance with any simple formula. The basis for a correct adjustment of the trend bias must therefore be specifically studied for each country.

One method of adjustment is that used in Canada. "Newly-formed establishments which employ 15 or more employees are added to our mailing list to receive monthly questionnaires as soon as we learn of their existence. Those commencing since the basic period are tabulated with 'zero' base figures, their employment and payrolls being regarded as complete accessions in the industry and area." Thus, for 1926 (the base year) the

[1] *Entwicklung des Beschäftigtenstandes nach der Industrieberichterstattung seit Kriegsausbruch* (January 1945), pp. 1, 16; *International Labour Review* (March-April 1946), p. 290.

Because the current reports for Switzerland include employment in construction, while the census reports do not, it was necessary to exclude that group. This was done by extrapolating the 1940 population census totals for employment in building and for employment in all industries covered by the current reports; deducting the estimated building series from the total series; and computing an index for the balance—an index then reasonably comparable with that of the census. Analysis of the monthly results indicated that the results would have been substantially the same had employees absent on military service been included in deriving the movement of the monthly data—as they are included in the factory census. Finally, the fact that the census of factories includes salaried workers, unlike the current reports, suggests that a comparison for wage-earners alone would have indicated a still greater discrepancy, the employment of salaried workers usually being more stable than that of wage-earners.

employment will be set at 0, for the previous month at 0, and for the given month, as reported. [1]

One technique for trend bias adjustment is utilised in the United States. Until recently the U.S. Bureau of Labor Statistics adjusted its estimates of manufacturing employment to totals given in the biennial censuses of manufactures. Employment totals for other industries were adjusted to the data from the censuses of trade (1929, 1933, 1935, 1939), of construction (1929, 1939) and so forth. The adjustments were usually made long after the census dates, because data were not immediately available. Beginning in 1939, adjustments were made whenever the tabulations of the social insurance system, with its wide coverage, became available, though here too there was a long interval between the date of the figures and the time of adjustment.

Since the beginning of 1946, however, the United States has utilised a method of continuous adjustment for the manufacturing employment series. [2] The procedure is an empirical one, founded on the fact that between 1934 and 1944 the manufacturing indices fell below benchmark data at an almost uniform rate of 2 percentage points a year. Had an adjustment of 0.2 per cent. been made monthly over the entire period virtually no other correction would have been required. On the basis of this relationship the Bureau currently adjusts the figures for each major manufacturing industry group and the total for all manufacturing each month before they are released. No similar correction is made in the non-manufacturing industries at present, nor is one in prospect — the materials for such an adjustment being largely lacking.

While there is considerable reason to recommend this method of current adjustment for trend bias, it should be applied to all series and on a more systematic basis than hitherto. Though the main line of development must be separately worked out for each country, certain general suggestions can be offered here.

[1] This procedure must be sharply distinguished from that utilised for firms which have been in existence for some time but have only recently begun reporting to the Bureau. In that event "their basic averages are obtained either from sources in the Bureau, or by correspondence. If it is impossible to obtain the basic averages by these means... (they) are calculated... on the assumption that the firm's employment trends will have conformed to those of other establishments in the same industry and the same area in the given period".

[2] See Robert B. STEFFES: *Trend Correction in the Manufacturing Employment Series of the Bureau of Labor Statistics* (Bureau of Labor Statistics, March 4, 1946).

An initial step for each country must be to examine the actual development of the trend bias, determining its magnitude, direction and level of variation. Should a sufficiently clear pattern be found, it may then be possible and desirable to adjust current data on an empirical basis similar to that used in the United States.

In general, more detailed and complex methods of trend adjustment are to be avoided on grounds of expense. But where an empirical adjustment is impossible or inadequate, and where a continuously adjusted sample is required, consideration might be given to a technique based on returns made to social insurance authorities. (1) From an analysis of the records over a period of years the separate rates at which new firms in each of the major social insurance regions took on workers could be determined. Given these rates, the basis for weighting the data from each region could be worked out. (2) The next step would be to determine the size of sample — 2 per cent., 5 per cent., 10 per cent. — required to produce stable results in measuring employment in new firms. (3) Given this size, say 5 per cent., a 5 per cent. sample of employment in all new establishments reporting to the social insurance authority would be made each quarter — or, if feasible, each month. The totals for this sample in each area would be combined by using the weights already derived, and the result multiplied by 20 to produce an estimated total increase in employment resulting from the rise of new firms. (4) Given the percentage of employment in the sample at the last benchmark date — say 79 per cent. — the same percentage would be applied to the total increase in order to determine the quantity of employment to be added to the sample total for the given month. The new total would then include a due proportion of employment in new firms.

This method of correction for trend bias may merit consideration. However, the nearest method of adjustment would be to design the sample of establishments so that it automatically registers this (and other) changes. Some aspects of this solution have already been discussed in Chapter III, on Reporting Systems.

Whatever the method of adjustment utilised, it is quite clear that no employment series based on an establishment sample is free from a cumulative trend bias unless the sample is specifically adjusted to that end. It is therefore recommended that employment series based on establishment reports should

be adjusted to benchmark data from census enumerations or from social insurance records as soon as possible after such data become available (I, 27). Consideration should be given to the possibility of a more frequent and prompt adjustment by the development of special techniques. Such techniques may in the first instance be empirical ones, merely extrapolating an adjustment for bias that has proved satisfactory in the past. As resources and facilities permit, periodic studies should be made of the nature and extent of the trend bias which develops, between the dates of adjustment for benchmarks, in employment series based on reports from identical establishments (I, 31 (1)). On the basis of such studies, methods should be developed to include in the sample a due proportion of persons employed in new establishments (I, 31 (2)).

X. COLLECTION OF DATA

The entire structure of employment statistics reported by establishments rests on the questionnaire. The accuracy with which it is completed will determine in no small measure the accuracy and completeness of these data. Certain aspects of the process of filling in returns and securing satisfactory co-operation with reporting establishments therefore deserve special attention.

In most countries the customary method for securing the co-operation of establishments whose employment data are desired is simply to write requesting such co-operation. If the establishment agrees, then the usual procedure is to accept the returns at their face value — subject to certain checks for obvious inconsistency or error. This procedure can usefully be supplemented both from the viewpoint of securing more satisfactory statistics and from the viewpoint of public relations.

From the statistical point of view it is essential to see that the interpretation of the questions by the person who actually fills up the form is the same as that desired by the agency. To achieve this it may be desirable for representatives of the statistical agency to visit a sample of new establishments, including all large ones, to verify procedures and answer questions. Such a procedure, however, is relatively expensive and can usefully be supplemented by providing newly reporting firms with a booklet explaining what figures are desired and emphasising graphically the commonest shortcomings in the returns.

From the viewpoint of public relations, it is useful to establish periodic contacts with establishments which report employment data. These contacts will assist the statistical service to make the data on employment most useful. They will also indicate what further data are valuable. Many statistical offices furnish addressed post-free envelopes for returning the filled-in forms, thus reducing the rate of non-reporting.

The experience of certain countries has shown that employment data as reported to authorities with tax powers — notably social insurance authorities — are not the same as those reported to the more narrowly statistical agencies. It is recommended that studies should be made comparing differences in the reporting of employment data to the various agencies which issue employment series, in order to determine how serious a margin of inconsistency may exist. As resources and facilities permit, employment series from establishments should be adjusted if necessary to take account of differences in the employment figures reported to different statistical authorities and of any tendency to include in the reports data which are more inclusive or less inclusive than those requested (I, 35).

Agencies securing reports from establishments have commonly sought returns for individual establishments. This has been necessary for a correct allocation of the employment of large multi-product firms. For example, the Danish report emphasises that "in the case of firms with more than one establishment a report is as a rule sent in for each establishment; this is done in all cases where the single establishments fall under different industries". The importance of this point can be illustrated by a recent study which indicated that 15 of the largest firms in the United States each operated establishments in 10 or more separate industry groups.[1] Data for Great Britain tell a similar story of diversity.[2] It is therefore recommended that where at all possible employment returns should be secured for individual establishments, and particular attention should be given to large firms operating in several industries (I, 29).

[1] Willard THORP and Walter CROWDER: *The Structure of Industry* (1941), Temporary National Economic Committee Monograph No. 27, p. 593.

[2] "The Structure of British Industry", by H. LEAK and A. MAIZELS, in *Journal of the Royal Statistical Society* (1945), pp. 146, 158-159.

PART III

XI. TYPES OF UNEMPLOYMENT SERIES

The most important series on unemployment is a measure of aggregate unemployment. This series should be prepared monthly in the more industrially developed countries (I, 20). This series, as discussed below, in Chapter XIII, should be as comprehensive a measure of the total volume of unemployment as may be possible. In the presentation of national estimates of unemployment primary emphasis, however, should be placed on percentages rather than on absolute figures (I, 38).

The reasons for this are, of course, well known. The size of the labour force is steadily increasing. Since the quantity of frictional unemployment is likely to increase concomitantly, the absolute number of unemployed will also increase. But this would not necessarily point to any growth in the severity of the unemployment problem. The use of unemployment percentages prevents such misinterpretations. (A similar problem arises when unemployment totals are derived from a system of social insurance or from trade union statistics the coverage of which is widening, and the solution is again to use percentages rather than aggregates.)

For countries relying on statistics of trade union unemployment the percentage will be calculated as the ratio of unemployed numbers to the total membership of all reporting unions. [1] For those with data from unemployment insurance systems it will be the ratio of the unemployed insured to the total of insured

[1] To secure a more representative percentage for unemployment in all industries, percentages may be computed for each reporting group, and these may then be weighted in accordance with the actual or estimated distribution of total employment in covered occupations or industries.

persons. For countries with data from labour force surveys chief emphasis should be given to the percentage of the civilian labour force that is unemployed (I, 39).[1]

Estimates of the proportion unemployed are only a beginning — for many practical purposes, estimates of unemployment by age, by region and by sex are also of considerable value. Such series spotlight the groups which are hardest hit by unemployment. They suggest where action is required, and they provide the basis for deciding what action is best to reduce unemployment.

I. National Practice

In addition to their limitations for the measurement of national unemployment, data from employment exchanges which are not included in the administration of social insurance systems, and trade union data, may not furnish a satisfactory basis for determining which age-groups are most affected by unemployment, which regions have the most critical problems, or which occupations are dominant in the unemployed group.[2]

On the other hand, social insurance data lend themselves to very satisfactory classifications and cross classifications of data on the unemployment of the insured population.

Denmark, for example, provides monthly data for detailed industry groups, for a large number of regions, and for the separate unemployment insurance funds. It also provides annually a model of detail, giving not only the information mentioned above, but the number of months of employment

[1] An additional percentage the usefulness of which should be investigated further would be that for the proportion of employees who are without work. In most industrialised countries there is a long-term tendency at work for the proportion of the self-employed to decrease, largely because of the decline in the proportion of agricultural employment. If, for example, with a constant labour force this decline occurred, then a greater proportion of workers would be found in industry, trade and other urban employments. If the unemployment rate among these new additions to the urban employee group were the same as that of existing urban employees, this would mean a rise in the percentage of the labour force unemployed, since the percentage of unemployment among the self-employed—if it exists at all—is smaller than that among employees. Hence, even though in each industry the percentage of unemployed remains constant, the national unemployment percentage would rise on account of the shift of persons from agriculture to industry.

[2] Australia publishes data on unemployment of union members by industrial categories, and New Zealand releases registration data by region and type of worker (fully employable, semi-employable, juveniles, aged 60 years or over) as well as by industry.

in the year for each insured worker according to age, sex, and industry, as well as still other cross classifications.

In Great Britain distributions of the unemployed are published monthly, by region, cross classified by duration of unemployment (under 2 weeks; 2 to 8 weeks; over 8 weeks; temporarily stopped) by region, cross classified by age (men 18-65; boys 14-17; women 18-60; girls 14-17) by industry, cross classified by sex. At quarterly intervals further regional details are released.

Belgium issues weekly data on unemployment by regions, cross classified by sex. Separate data are issued for total and partial unemployment. The unemployed in each category are subdivided each month into industrial-occupational groupings, specifying separately agriculture, mining, textiles, employees, common labour, etc. Switzerland separates the wholly unemployed from those in partially unemployed (*a*) according to canton, and (*b*) according to industry (clothing and leather; construction and wood-working, textiles, etc., and industry not specified). [1]

In the United States data are published for unemployment by sex. National data on age of worker, duration of unemployment and major occupational groups are available, though not published. (Data on unemployment insurance beneficiaries by region are issued by the Social Security Board.)

Canada releases figures for unemployment as estimated from labour force surveys, by sex; by region (5 provinces); by age (14-19, 20-24, 25-44, 45-64, 65 and over); by duration of unemployment (under 1 month, 1-3, 4-6, 7-12, 13-18, 19 and over); by most recent industry (manufacturing, construction, etc.).

II. General Problems

These, then, are some of the cross classifications of data which provide supplementary information on unemployment. Are they sufficient? And what are the requirements of an adequate system for classifying the unemployed? In general the unemployment data for a country should be such as to throw light upon the major questions on the extent, trend, characteristics and causes of unemployment which are put to those in charge of labour statistics.

[1] About one-third of all insurance benefits for total unemployment in the year 1943 was paid to persons in unspecified industries. *La Vie économique* (August 1944).

How large is the unemployed group? How serious is the unemployment problem? Is the total inflated by workers only temporarily in the labour market who will withdraw as soon as regular workers are unemployed? How many of the unemployed are women? Is there a growing "hard core" of unemployed who have been without work for months, even years? Are younger workers wasting more time in unemployment before they find their first job? Is the older worker finding his hold on the labour market progressively more tenuous? Do particular cities or regions suffer from unemployment more than the nation as a whole? In connection with planning work programmes for the unemployed, or programmes for moving workers out of depressed areas, what are the available skills of the unemployed? For appropriate action, whether public or private, whether operating through direct relief, work relief or general Government expenditures, prompt answers to these questions are required.

To serve these various purposes a series on the total volume of unemployment is essential. It is no less necessary to provide series on unemployment by major geographic region, by sex, for the chief age-groups (I, 22).

As resources and facilities permit, separate series should be calculated for unemployment in additional geographical regions, the chief centres of population and for more detailed age intervals (single years for juveniles; 10-year age-groups for adults (I, 23). Where such information is of significant utility for labour retraining and shifting, data on industry of last employment and major occupation group should likewise be gathered (I, 21). For most purposes it is far more important to have the series outlined above than it is to have series which are precisely consistent one with the other. Therefore some series, for example, may be gathered by means of a regular labour force survey, while other series may be obtained less frequently or from social insurance tabulations. Where pools of unemployment exist in local regions it is particularly important that programmes for public action should be designed in such a way as to alleviate the actual local problems. For such areas therefore, and as resources and facilities permit, estimates of unemployment cross classified by age, sex and duration of unemployment should be made available (I, 24).

XII. UNEMPLOYMENT: SAMPLE

Unemployment statistics are intended to measure the volume and the trend of unemployment. To serve these purposes effectively, these statistics should be secured by a comprehensive enumeration or by a reasonably accurate sample. For the very few countries whose social insurance systems provide a complete and current measure of national unemployment, the problems of sampling with reference to unemployment data are of secondary interest. But such data are not available in most countries. To provide proper perspective on the trend and level of unemployment in countries which do not have a complete and current measure of national unemployment, it is necessary to observe the basic principles of sample design so that the partial totals secured will yield the same indications as more complete totals. The appropriate techniques of sample design and analysis will differ from system to system — registration at employment exchanges, trade union reporting, social insurance systems and labour force surveys. Each will be discussed in turn.

I. Registration at Employment Exchanges [1]

Few methods of measuring unemployment are so difficult to assess for adequacy of sampling procedure as is the method of registration at employment exchanges, there being so little published information which bears on the subject. However, certain conclusions may be ventured.

1. Registrations usually include more than those who are unemployed. They also cover those who have jobs but are looking for better ones. In some instances, they may even include persons who are not in the labour force but who would take work if they found a job which suited their specifications.

[1] The following discussion relates to the use of registration data from employment exchanges where the data are not linked to the operations of a social insurance system.

2. The coverage of exchange figures tends to be limited geographically. Insufficient representation is given in the sample to unemployment in rural regions and outlying urban areas, where it is difficult to reach registration offices.

3. Because workers in the different occupations and industries do not register at the same rate, the exchange registration sample tends to be biased occupationally and industrially.

Few professional and managerial workers resort to employment exchanges, since most vacancies in positions of that nature are not registered with exchanges. At the other extreme of employment stability, few domestic servants and few casual labourers, whether urban or rural, are placed by exchanges. Longshoremen and marine workers, who are particularly subject to unemployment, usually find work either through the shape up or through union hiring halls. (A connection may sometimes exist between these and the exchange, as is the case, for example, in Belgium.) These practices of course may vary from country to country and may change over a period of time.

4. Administrative limitations tend to lessen the value of employment exchange figures as a measure of unemployment.

The employment service files become loaded with inactive cases — persons no longer looking for work, persons who have found work but have not notified the agency to that effect. Weeding out these cases is usually a slow and arduous task.

5. Studies on worker placement reiterate the obvious fact that many factory workers seek work by direct application to factory employment offices, by contacts through friends already employed, or through their unions.

The extent of these placements outside the exchanges has been effectively emphasised by the Belgian report. The report notes that "the statistics of those seeking work as tabulated by the placement agencies do not warrant the same measure of confidence as those of the communal (unemployment insurance) administrations". The chief difficulty "is to keep up to date the list of those seeking work"; "the figures secured are often higher than they are in reality, the registrations of those seeking work who have already found employment by their own means not having been eliminated". This will not only inflate the level of unemployment estimates but, since the amount of such inflation is likely to vary from time to time as efforts are made to bring the files up to date, their trends will also be distorted.

6. Finally, the adequacy with which the movement of employment exchange registrations will represent the movement of total unemployment is impaired in proportion to the very success with which employment exchanges accomplish their end. For as the exchanges achieve a securer place in the confidence of employer and employee progressively more unemployed workers will resort to the exchanges in their search for work. This increasing coverage will tend to appear as an increased number of unemployed, but the larger numbers will actually reflect merely the increase in coverage and not a higher level of unemployment.

A direct indication that employment exchange registrations do not adequately measure the changing course of unemployment is given in table I, where the movement of registration estimates in a number of countries is compared with that of

TABLE I. INDICES OF UNEMPLOYMENT TRENDS IN SELECTED COUNTRIES AS ESTIMATED BY EMPLOYMENT EXCHANGE REGISTRATION AND BY OTHER MEANS [1]

Year	Canada		United States		Great Britain		Netherlands	
	Estimates	Registrants	Bureau of Labor Statistics estimates	Registrants	Unemployment insurance	Registrants	Unemployment insurance [2]	Registrants
1929	100	100	—	—	100	100	—	—
1930	319	220	—	—	153	158	—	—
1931	413	465	—	—	204	216	100	100
1932	597	501	—	—	212	226	163	196
1933	604	546	—	—	191	207	171	234
1934	487	593	—	—	161	178	177	241
1935	451	560	100	100	148	167	201	278
1936	402	601	84	103	125	144	201	300
1937	315	590	71	69	—	—	161	267
1938	380	702	97	99	—	—	150	256
1939	361	692	87	84	—	—	—	—
1940	263	670	73	71	—	—	—	—

[1] Data from: I.L.O. *Year-Book of Labour Statistics*, 1943-1944; *Ministry of Labour Gazette*, issues of November, 1929-1937 (London); U.S. BUREAU OF LABOR STATISTICS: *Preliminary Estimates of Labor Force, Employment and Unemployment, 1930-1940* (Washington, 1945).

[2] Data refer to the percentage of insured workers who were unemployed. Indices of the aggregate number of insured unemployed would be less accurate indicators of the course of unemployment and would show a still greater contrast.

more accurate estimates, generally those of the insurance system. The change in unemployment between 1935 and 1936 indicated by employment exchange registration data in both Canada and United States was upward, while overall estimates indicated a downward movement. In the Netherlands an upward movement indicated by employment exchange figures contrasts with no change according to unemployment insurance data. Between November 1945 and June 1946 "unemployment in Canada as measured by the number of unplaced applicants reporting to the national employment service" showed a very sizable increase, while a direct census of unemployment showed a no less striking fall in unemployment over the same period. [1]

These, therefore, represent the major failings of unemployment estimates based upon employment exchange registrations where such exchanges are not related to the operation of a social insurance system. For countries relying on such data as their main measure of unemployment it is highly desirable that periodic studies should be made of the relation between the total number unemployed and the number of unemployed as registered at the employment exchanges (I, 42). Studies should also be made of the extent to which statistics of the registered unemployed derived from the operations of employment exchanges actually include persons who are employed — either because of failure to include them at the time of registration, or because of difficulties in keeping the records of the exchanges up to date (I, 43).

In any case, it is recommended that estimates of the total numbers unemployed in any country should, wherever possible, be based on figures derived from sample surveys of the labour force, from the operations of an unemployment insurance or other social security system, or from both sources (I, 36).

II. Trade Union Statistics

In discussing the statistics of unemployment among trade union members attention will be focused first on the accuracy of

[1] Canada, Department of Labour: *The Labour Gazette* (August 1946); Canada, Dominion Bureau of Statistics: *Labour Force Bulletin* (July 1946).

Cf. also the heavy contrast in U.S. figures for September 1945-June 1946; U.S. Bureau of the Census: *Monthly Report on the Labor Force* (July 1946); and U.S. Social Security Board: *Social Security Bulletin* (May 1946).

the benchmark data and then on the competence of the movement series used to bring the figures up to date.

The first and most general comment to be made on the basic data for these statistics is that they are non-existent. In prewar Norway, for example, reports were issued on unemployment among members of 10 major trade unions. Since, as is customary, "the trade unions are organised on a mixed occupational and industrial basis" it is hardly possible to make any accurate allocation of members to the separate industries. All that is known regarding their distribution is that the returns represent unemployment among a quarter to a third of all union members. Whether this sample group can be taken to represent all union members and, which is more important, whether it can be taken to represent all workers, is a point which remains in doubt.

To put this more concretely the Australian data may be considered. The Australian report makes an approximate distribution of trade union members in 1943 into 15 industry groups. Estimated ratios of insured workers to total employment for four industries in 1943 are as follows[1]:

Building	over 90 per cent.
Engineering and metal	„ 69 „ „
Food and drink	„ 38 „ „
Wood, furniture	„ 40 „ „

The sharp variations in coverage will inevitably bias the overall unemployment percentage. A greater weight than is merited will be given to the rates in the first two industries, and less than is merited to the other two. But since the rates differ from industry to industry, this means that the rate for all industries will be biased. The bias will, of course, be intensified by the failure to measure the effect of unemployment among non-covered industries and the failure to reflect adequately unemployment among the less skilled, non-union workers, even in the specified industries. Hence it is that the Australian Government is careful to point out that "trade union percentages do

[1] The report presents average membership of reporting unions, in 1943, total union membership on 31 December 1943, and total employment in June 1943. Because of these differences and problems of industrial allocation, union membership in building is shown as greater than total employment. No attempt is therefore made to draw conclusions on the precise figures, but merely on their relative magnitudes.

not always agree particularly closely with the overall percentage of unemployment found in censuses of the whole population ".

But more than an inaccuracy in level will exist. The pattern of unemployment change will likewise be distorted. During the recovery decade from June 1932 to June 1943, the unemployment rates as reported by trade union members fell by 96 per cent. in construction, 98 per cent. in engineering and 98 per cent. in wood and furniture, but only by 82 per cent. in food and drink manufacture. Hence an over-representation in the first two groups will make the unemployment decline appear to have been more precipitous than in fact it was.

An additional distortion of movement will be produced by the fact that union members tend to be concentrated in skilled occupations to a greater extent than is the entire labour force. But skilled workers tend to have a more certain tenure of employment than unskilled workers. They certainly have a particular pattern of employment and unemployment over the business cycle. That pattern differs from that of new entrants to the labour force as it does from that of older workers not attached to pension schemes, who may remain without work for years before they are forced into retirement. As a result of such variations the movement of unemployment rates among union members will not give a true picture of the movement of unemployment among all workers.

To guard against these difficulties it is recommended that in any country in which, through lack of adequate data derived from social security operations or labour force surveys, national unemployment estimates may have to be based on trade union returns, such returns should wherever possible be weighted in accordance with the numbers of persons employed in the industries to which they relate (I, 41).

For countries which must concomitantly expand their employment reporting greatly this recommendation points to the advisability of considering the adoption of a labour force survey, since such a survey will provide consistent and comparable estimates of both employment and unemployment. Where a social insurance system is in existence or in prospect, the decision must necessarily be made with reference to the relative cost of securing not merely unemployment estimates, but the entire body of statistics on employment, unemployment, labour force, hours and earnings, and to the relative accuracy of such information when secured.

III. Social Insurance Statistics

1. *National Methods*

The various national systems for social insurance, as is to be expected, differ widely both in the extent and in the nature of their coverage. For Switzerland the number insured against unemployment in September 1941 was just under 525,000, while the total number of non-farm employees in December of the same year, as reported by the population census, was about

TABLE II. TOTAL EMPLOYEES AND INSURED EMPLOYEES IN BELGIUM, 31 DECEMBER 1939, BY INDUSTRY[1]

Industry	Employees		Percentage of all employees insured	Percentage of all salaried workers insured	Percentage of all wage-earning workers insured
	Total	Insured			
Mines . . .	170,357	61,511	36.1	14.4	37.4
Quarries . .	38,039	20,141	52.9	13.8	55.8
Metals . . .	330,072	137,072	41.5	13.7	45.1
Ceramics . .	39,412	16,202	41.1	11.8	43.3
Glass . . .	29,741	11,359	38.2	12.3	40.9
Chemicals .	68,322	19,255	28.2	9.2	33.5
Food	81,197	17,250	21.2	9.1	23.2
Textiles. . .	240,091	134,170	55.9	22.1	58.0
Apparel. . .	84,014	8,119	9.7	3.9	10.0
Construction	165,255	56,665	34.3	10.0	35.2
Lumber. . .	104,949	40,387	38.5	13.1	39.4
Leather . .	44,890	16,924	37.7	10.1	40.0
Tobacco . .	14,840	7,663	51.6	11.0	56.1
Paper . . .	18,044	6,215	34.4	9.5	37.6
Printing . .	23,228	10,627	45.7	15.0	50.3

[1] Henri Fuss: *L'organisation de l'assurance obligatoire contre le chômage* (1937), Premier rapport, pp. 33-34.

1,300,000.[1] The overall coverage figure of 40 per cent. suggests, therefore, that coverage was by no means so great that an analysis of the sample can be dispensed with in evaluating the adequacy of Swiss unemployment statistics.

Belgium excludes some mine and all marine workers as well as those employed on State railways. Pursuant to the Decree of December 1944 it specifically includes all employees under a contract of service, except the above groups, and includes agricultural workers, domestics, and those receiving only tips, etc.[2]

[1] *La Vie économique* (November 1942); reply of the Swiss Government submitting data for the *I.L.O. Year Book.*

[2] *Moniteur belge*, 30 December 1944.

The scope of the new regulations is obviously wider than that of the pre-war rules and unfortunately the only data available for analysis apply to pre-war years.

Referring to the last decennial census, that of 1930, table II presents coverage estimates for wage-earners, for salaried workers and for employees as a whole. Wide variations in coverage are found. While 52 per cent. of the tobacco workers were insured, only 21 per cent. of the food workers were covered. While 56 per cent. of the textile workers were insured, only 10 per cent. of workers in the closely related apparel industry were covered.

TABLE III. AVERAGE ANNUAL UNEMPLOYMENT PER INSURED WORKER IN BELGIUM, 1921-36 (IN DAYS) [1]

Industry	Average days of unemployment per insured worker per year
Mines	11.4
Quarries	27.0
Metals	28.8
Ceramics	38.0
Glass	40.8
Chemicals	33.0
Food	14.1
Textiles	35.0
Apparel	26.7
Construction	37.0
Lumber	34.4
Leather	33.0
Tobacco	34.3
Paper	28.8
Printing	17.0

[1] Henri Fuss: *Op. cit.*, Deuxième rapport, pp. 9-10.

Reference to the average number of days lost each year per worker during the period 1921-36 (table III) emphasises how sharp are the differences in unemployment rates from industry to industry.

The absence of correct weighting must therefore have meant that the level of unemployment published for any given time was not the true level, and unless workers entered the insurance funds at identical rates from all industries an incorrect picture of the movement of unemployment would also be given.

These conclusions are reinforced by data from the 1937 Belgian census of unemployment. Unfortunately these data have not been put in juxtaposition with the numbers of those insured at the same date. But it is possible to compute the

ratio of the unemployed workers who were not affiliated with an insurance fund to those who were. [1] Variations in these ratios will then tend to indicate differences in the level of affiliation from industry to industry.

The overall ratio of all wage-earners is 2.2 unaffiliated to 1 affiliated. The ratio for food is 1.2; tobacco, 2.8; textiles, 3.7; and apparel, 0.3. Thirty-eight per cent. of those unemployed in 1937 were not connected with the insurance system, and hence were excluded from its statistics. [2] Since the 1937 estimates are based on a comprehensive census, they reinforce the inference to be drawn from the 1930 figures; variations in insurance coverage from industry to industry were wide, and were certain to have an effect of distorting the true unemployment rate indicated for industry as a whole.

In addition to the problem of industrial coverage there is that of age coverage. While only 10 per cent. of the affiliated workers in 1937 were under 25 years of age, some 33 per cent. of the unaffiliated workers were. [2] Such a differential, like that for industries, will necessarily affect the competency of the data on the insured unemployed to represent data for all unemployed. Furthermore, variations in the representation of wage-earning as against salaried workers will affect the results, since each group has characteristically different unemployment rates; so too will differences in the proportion of each sex insured.

In all probability the differential weighting of non-farm industries would have little effect in biasing the total rate at any one time. This may be equally true for each of the single other factors mentioned — wage-earning or salaried worker composition, sex or age representation. But the possible effect of the combination of these factors suggests the advisability of an analysis of the adequacy of the sample used.

The nature of the Danish sample is more capable of assessment, data being available both from the population census and from the statistics of insured workers. Table IV outlines the industrial coverage of the unemployment insurance system in 1940. The table is designed to demonstrate not only the considerable percentage variations by industry — 13.3, 61.5, 71.7, 27.0 — but also the variations in coverage of men as compared to women. Variations in the coverage of wage-earning

[1] Royaume de Belgique: *Recensement économique et social au 27 février 1937*, Vol. VI, p. 171.

[2] *Ibid.*, p. 51.

TABLE IV. GAINFULLY OCCUPIED AND INSURED EMPLOYEES IN DENMARK, 1940 [1]

Industry	Employees (census of population)			Employees (unemployment insurance)			Percentage of employees insured		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
All industries	915,649	307,358	1,223,007	436,166	86,836	523,002	47.6	28.3	42.8
Agriculture, etc.	228,565	32,206	260,771	34,728	29	34,757	15.2	0.09	13.3
Food and delicatessen industries	56,823	20,591	77,414	31,778	15,822	47,600	55.9	76.8	61.5
Textile and clothing industries	17,030	49,289	66,319	11,128	29,302	40,430	65.3	59.4	61.0
Building industry, road and earthwork	211,336	58,714	270,050	126,048	286	126,334	59.6	0.5	46.8
Timber industry	26,880	1,436	28,316	18,325	1,024	19,349	68.2	71.3	68.3
Leather industry	8,508	4,477	12,985	4,136	3,282	7,418	48.6	73.3	57.1
Stone, earthenware and glass industries	16,313	1,716	18,029	14,687	1,343	16,030	90.0	78.3	88.9
Iron and metal industries	103,238	8,780	112,018	72,648	7,615	80,263	70.4	86.7	71.7
Chemical and technical industries	10,972	4,692	15,664	10,148	2,497	12,645	92.5	53.2	80.7
Paper and printing industries	16,710	9,376	26,086	9,151	5,936	15,087	54.8	63.3	57.8
Cleaning and maintenance industries	5,923	10,565	16,488	1,289	3,164	4,453	21.8	29.9	27.0
Transport	51,850	1,594	53,444	42,284	—	42,284	81.6	—	79.1
Commerce and sales	112,090	75,391	187,481	40,096	13,216	53,312	35.8	17.5	28.4
Other services	31,302	24,189	55,491	—	—	—	—	—	—
Other	18,109	4,342	22,451	19,720	3,320	23,040	—	—	—

[1] Two changes have been made in the table as submitted by the Danish Government. The Government table included wage-earners in the population census data and wage plus salary earners in the unemployment insurance data. The present table includes wage plus salary earners in both. Unemployment insurance data include health services, railways, post and telephone in the construction industry, according to the Government report, unlike the population census data. In the present table, therefore, a similar re-allocation has been made in the census data. The additional census data were taken from Denmark, *Statistisk Aarbog*, 1945, table 12.

versus salaried workers are not reviewed here, nor the effect of excluding workers under 18 and over 60. The general effect of these variations, however, is certain to give a different aspect to unemployment figures than is given, for example, by Canadian unemployment estimates, which relate to workers in all industries, of all ages, including not only employees but self-employed

TABLE V. NUMBER OF EMPLOYEES IN GREAT BRITAIN AS INDICATED BY UNEMPLOYMENT INSURANCE REGISTRATION AND EMPLOYMENT ESTIMATES, MID-1939, BY INDUSTRY[1]

Industry	Number of employed insured workers (July 1939)	Estimated total employees (June 1939)	Percentage distribution of employees	
			Insurance data	Estimates
Agriculture	687,122	640,300	4.7	3.7
Mining and quarrying	859,492	865,143	5.9	5.0
National government	200,956	539,000	1.4	3.1
Local government . .	414,856	846,000	2.9	4.9
Gas, water, electricity	208,777	238,370	1.4	1.4
Transport, shipping .	629,876	1,145,457	4.3	6.7
Manufacturing . . .	6,539,700	6,556,030	45.3	38.2
Building and civil engineering	1,192,349	1,142,320	8.2	6.7
Distributive trades, commerce	3,748,573	3,614,184	25.9	21.0
Domestic service . .	—	1,590,000	—	9.3
Total . . .	14,481,701	17,176,804	100.0	100.0

[1] Data on the insured population were taken from the *Ministry of Labour Gazette* (December 1939); on the unemployed, from the *Ministry of Labour Gazette* (August 1939); on manpower, from the *Monthly Digest of Statistics* (January 1947).

To provide a reasonable degree of comparability, the distribution of employed persons according to the manpower estimates was reduced by a deduction of the estimated number of self-employed persons. This was done by assuming that the ratio of self-employment to total employment in each major industry group was the same in 1946 as in the census of 1931. Data from the 1931 census volume on *Industries* then made it possible to deduct the estimated numbers of self-employed in 1946. There was probably a greater percentage of self-employment in 1946 because of the differential age of self-employed and employee and the consequent effect on calls-up for the Services. *Per contra*, self-employed persons undoubtedly left construction, trade and service for war industry. It is therefore assumed that these influences cancelled out—an improbable conclusion, but acceptable for the present purpose. The domestic service estimate is that of FRANKEL, based on health insurance registrations, and is exclusive of domestics covered by unemployment insurance (*Journal of the Royal Statistical Society*, 1945, p. 412). A related estimate of non-covered domestic service is that of KALDOR, which runs to 1,200,000 for June 1939 (U.S. Strategic Bombing Survey, *The Effects of Strategic Bombing on the German War Economy*, 1945, p. 215). Cf. also, *The Manchester School* (September 1946, p. 34).

persons as well. In addition, as the Danish Government emphasised in reply to a specific query: "the registration of unemployed uninsured persons cannot be considered as a satisfactory measure of the unemployment among persons not insured against unemployment; neither from an occupational nor from a geographical point of view can this group be considered as representative of the uninsured unemployed worker".

According to the British report the latest data available on the distribution of all employees are for the year 1931, the registration data for 1939 being apparently inadequate. Therefore no very satisfactory analysis can be made of even the industrial composition of the British sample. However, a rough comparison can be made between persons in insured employment in June 1939 and an estimate for total employees on the same date (table V). The distribution of the sample is much the same as that of the parent population, though the difference for manufacturing and domestic service is noticeable.

The insurance system excludes from coverage most domestics, part-time workers (workers employed less than 30 hours), older workers (men over 65 and women over 60), and a substantial number of those permanently employed by governmental authorities. Lesser exclusions include non-manual workers earning more than £420 a year, professional nurses and certain classes of casual labourers. Self-employed and own account workers are, of course, also excluded.

2. *General Problems*

To assess the overall sufficiency of unemployment insurance reporting as a method for getting statistics on unemployment, it must be borne in mind that any unemployment figure tends to assume a character by reference to other unemployment figures. An unemployment rate of 8 per cent. may be considered tolerable or cause for sudden alarm according to whether the customary rate over the previous decade was 3 per cent. or 20 per cent. In the former instance the problem has grown more serious. In the latter, its amelioration is evident. If, therefore, a constant level of exclusion — by age, industry, etc.— could be maintained, then even an obviously biased sample would give a result which would be satisfactory for many purposes.

Where coverage of the social insurance system is full and wide-ranging — as in Britain, for example — it closely approaches such a constant level of exclusion. In such a case, departures from a constant level of exclusion will have only the most trivial effects on the national record of unemployment. On the other hand, coverage which is clearly much inferior may produce a tangible and dominant bias. This bias in turn will

give a distorted perspective of the course of unemployment, because there is no single standard rate of recruitment of workers to all industrial, age and geographical groups. Some industries are still growing, in the full flush of youth, others are at the peak of maturity, and still others are declining. So too are industrial areas. Migrations from farm to city may be heavy, and shifts from uninsured to insured industries, and back again, may be constant. Entrance to and retirement from the labour force alone will give many a country an essentially new labour force every two or three decades. And each of these influences will bear continuously upon the nature of the unemployment insurance sample, changing its coverage and eventually distorting the comparability of today's unemployment estimates with those of yesterday.

Superimposed on these factors are those which relate to the changing dimensions of the social insurance system. As the Belgian report notes, the data obtained from unemployment insurance operations "did not, until a fairly recent date, inspire any great confidence", a substantial change occurring with the advance in coverage when the National Office of Placement and Unemployment was set up some years ago. Coverage was further extended when, after the war, it was decided that the right to receipt of benefits would no longer require a qualifying year's membership of the funds, and when considerable extensions in industrial coverage were made.

The Swiss unemployment funds increased their coverage of workers markedly in the early years of the depression. Significant changes have occurred in the British data too, when, successively, the general scheme for non-agricultural industries was introduced in 1920, older workers were excluded in 1928, and agricultural workers included in 1936.

Because of important changes like these in the scope of social insurance systems, it is difficult to use their results as measures of change in the severity of unemployment as the systems improve their coverage. When a system achieves complete or practically complete coverage, this difficulty will, of course, vanish.

It is none the less true that improvements in reporting can be accomplished. If at periodic intervals an assessment of the total labour force is made, it then becomes possible to assess the changing representativeness of the sample. Given this information, it is even possible to compute a synthetic but

superior unemployment series. This would be derived by weighting unemployment percentages not by the sample distribution but by the total distribution of workers.

IV. Labour Force Surveys

In most countries the sample currently used for reporting unemployment excludes certain major groups from its coverage. Since the characteristics of these excluded groups often differ from those of the groups included, and since the proportion of the excluded groups to the total will vary from year to year, periodic complete enumerations of the labour force are required to check on the adequacy of the sample employed. It is therefore recommended that a population census should be taken at least every ten years in order to provide labour force data necessary to improve the accuracy of the system used for sampling unemployment as well as for other purposes (I, 12). The census, together with other surveys, should be used to construct an adjusted index of total unemployment where this is feasible and where the existing indices are biased by substantial exclusions.

XIII. UNEMPLOYMENT: COVERAGE

In the previous chapter, considerable space was devoted to measures of changes in unemployment, the users of such statistics frequently being concerned only with changes in unemployment. But the volume of wasted manpower as such is often the point of concern.

For example, a dearth of manpower is now faced by many countries which are in the midst of reconstruction. It may therefore be asked by how much actual unemployment exceeds an estimated frictional minimum. An answer to this question is prerequisite before it can be stated, for example, that no more manpower is now available, or is likely to become available, for making goods or providing services for the home market.

A measure of the total volume of unemployment is likewise required when two countries are to be compared in regard to the time lost in unemployment. A comparison of unemployment in Canada, where all persons in the labour force are

surveyed, with unemployment in Australia, where reports cover only trade union members, will be vitiated by differences in measurement. And finally, in order to ascertain whether the unemployment problem in a particular country has grown in intensity, a comparison between different years will be difficult and inconclusive where the extent of coverage has changed. (This would tend to apply, for example, to a comparison between British unemployment in 1927, when agricultural workers were not insured and older workers were, and unemployment in 1939, when the figures covered agricultural workers but excluded older workers.)

I. Employment Exchange Statistics [1]

It is fairly clear that employment exchange statistics cannot provide a satisfactory estimate of total unemployment at any given time. Not only do the figures include some persons who may actually be at work, but also they exclude unemployed persons who have not registered with the exchanges. The net result of these opposed biases cannot be accurately determined except at the times when a complete census is made. For a current measure of the total volume of unemployment, statistics based on registrations of employment exchanges are therefore generally unsatisfactory.

II. Trade Union Statistics

Statistics of unemployment among trade union members may furnish reasonably accurate indications of the trend in unemployment, but they can obviously provide no adequate measure of the total volume of unemployment at any given time.

III. Social Insurance Systems

Statistics of unemployment among persons insured against unemployment tend to fall short of giving a complete measure of the number of unemployed persons, for several reasons. (Whether the sum of these exclusions is of substantial importance in any given country will, of course, require special study.) Among the chief exclusions or omissions are the following:

[1] As above, this section refers to statistics of employment exchanges which are not an integral part of a social insurance system. For a discussion of the statistics of the social insurance systems, see below.

1. Most social insurance systems exclude certain occupational or industrial groups from coverage, among them such important occupations as domestic service and such important industries as shipping.

2. A second group of persons who are frequently excluded from the social insurance system and hence not included in the estimates of the total volume of unemployment are the long-term unemployed, unemployed older workers or classified unemployables. It is, of course, wholly proper for such groups to be excluded from the numbers of insured unemployed, but they should nevertheless be included in the estimates of the total volume of unemployment, provided they satisfy the basic criteria of unemployment — namely, that they are without work, are seeking it, and are able to take a job if offered one.

3. A more important deficiency is the *de facto* omission of insured persons who do not register as unemployed, even though they may actually be unemployed. Persons who have exhausted their benefits or who are not yet eligible for benefits, and those who expect to get a job before they could begin receiving benefits, are likely to be in this group of persons omitted from the unemployment total as reported by social insurance systems.

4. The numbers registered as unemployed under social insurance systems are likely to fail to cover two other groups. The first of these consists of new entrants to the labour market who have not yet obtained their first job — more specifically their first job in insured employment. The second includes older workers above the insurable age who are none the less attempting to find work.

5. A more serious aspect of these limitations, however, is that they tend to make the reported unemployment total a different proportion of the true total in depression years than it is in those of prosperity. Hence the comparison of these data over a period is complicated by differences in the degrees of completeness with which unemployment is measured. During depression years the entrance of married women into the labour market is a characteristic phenomenon, as is the re-entrance of older workers. Because these workers are clearly not eligible for unemployment benefit, having had too brief a period of contributions, they are less likely to register as unemployed. They are also less likely to be members of the insurance system, since they have had no recent job in insured employment. The

rising tide of such entrants to the labour market will be partially concealed by the exodus from the labour force of those married women and older workers who find themselves blocked in finding employment. But the net result of these factors will be to understate the quantum of unemployment.

This bias during depression is contrasted with an opposite tendency at work during years of prosperity. As was clearly demonstrated during the war, employment in manufacturing, transportation and other industries covered by unemployment insurance becomes a greater proportion of total employment during high prosperity. But at the same time the proportion in such industries as trade and service, where insurance coverage is restricted, will decrease. Since a larger proportion of those employed are then included in the insurance system a larger proportion of total unemployed will be recorded. Hence unemployment estimates based on the operation of social insurance systems have a double tendency. The first is to produce a noticeable underestimate of unemployment in depression years. The second is towards a more complete statement of unemployment in times of prosperity.

6. Because insurance systems frequently exclude farm labourers, domestic servants and other workers, these systems tend to understate the unemployment of persons who are actually members. None of the excluded groups constitute a wholly independent work force. Each includes workers who were once employed in covered industries and are no longer able to find work in them. These workers find temporary employment in domestic service or seek work on the land during depression periods.

Failure to cover these groups is then a failure to acknowledge the unemployment of those workers who are most subject to debilitating unemployment just at the time when they experience it. The more competent, more successful, more fully employed workers are likely to remain in employment. (They will at least remain attached to the industry where they have been employed.) But the marginal worker, most subject to unemployment even in prosperity, and certainly so in depression years, is more apt to be forced away from the industry. After seeking work for some time in textiles or in the iron and steel industry, the marginal worker may shift to casual labour, to dock work, to petty self-employment in trade or personal service. He may even migrate to a rural area. Hence unemploy-

ment as reported by insurance systems with less than complete coverage will always be less than the true volume of unemployment. In estimating unemployment in the industries which they cover, they include the experience of unemployment-prone workers only so long as they remain in these industries, but ignore their unemployment after they have been forced into other industries.

That biases exist in the estimates, however, does not imply that they are substantial. There is probably a general tendency for figures based on the unemployment returns of even the most comprehensive unemployment insurance system to understate the total volume of unemployment at any time. There is probably a further tendency at work for the underestimate to be greater in years of depression than in years of prosperity. But exactly how important these various tendencies may be in distorting any given unemployment series cannot be determined in the absence of special studies.

Comprehensive studies on the nature of the labour force, employment trends, and the actual administration of the insurance agency, are needed to determine the importance of these omissions. It is therefore recommended that in every country which relies on unemployment insurance statistics for its chief measure of unemployment, periodical studies should be made of the relation between the total number unemployed, on the one hand, and the number unemployed as reported by the insurance system, on the other (I, 40 (1)). Particular attention should be given to including in the estimates of total unemployment such groups as the following, which may be excluded from or incompletely covered by the unemployment insurance statistics: older workers; those who have been unemployed for long periods of time; those not applying for benefits, even though they are unemployed; new workers who have not yet found their first jobs; supplementary workers who enter the labour force at the peak or in the trough of the business cycle; and industries and occupations specifically excluded (I, 40 (2)).

As resources and facilities permit, it is recommended that periodic estimates of the total volume of unemployment, in contrast to the volume of insured unemployment, should be computed on the basis of these assessments and published in addition to the customary series on the insured unemployed (I, 44).

IV. Labour Force Survey Statistics

As organised in the United States and Canada, the labour force survey measures unemployment without restrictions or exclusions affecting industry, occupation, age or status group. However, according to the definition adopted, only those are included as unemployed who have been without work for at least the inclusive period from Monday to Saturday in the enumeration week. Hence, a certain proportion of those out of work are omitted solely because their period of unemployment up to Saturday had lasted less than one week. In order to throw light upon the importance of these exclusions in relation to the total volume of unemployment, it is therefore recommended that special studies should be made of the proportion of those out of work who are thus excluded. [1]

[1] An idea of the importance of these exclusions can be formed by taking five times the average daily number of new cases of unemployment. Data for the United States over the period June 1941-May 1942 indicated that the daily accessions to unemployment—assuming a 300-day work year—averaged 48,000 in that year, that is, indicating some 240,000 persons omitted from the total. This figure would of course vary with the volume of unemployment as shown in the daily accessions. A percentage estimate of omissions is therefore of greater significance. During the same period the total number of unemployed averaged 4,255,000, indicating therefore an understatement of total unemployed by some 5.6 per cent. However, this percentage figure would understate the "normal" percentage, since, during this period, the size of the unemployed group was rapidly diminishing and the number of new accessions was not sufficient to maintain its strength. A true comparison to obtain a normal percentage of omissions is to compare the estimated omissions based on five times the daily accessions to the total number of unemployed some three months later, to allow for the average duration of unemployment and the time lag between the occurrence of new cases of unemployment and the total volume to which they contribute; this comparison would raise the figure to 7.0 per cent. as an average percentage of omissions. During periods of rapidly increasing unemployment the percentage of omissions would be greater.

In terms of unemployment as a percentage of the civilian labour force, the correction noted above for the period June 1941-May 1942 would raise the figure from 7.0 per cent. to 7.4 per cent. of the civilian labour force unemployed.

PART IV

XIV. CONSISTENCY

As the demands laid upon the national statistical services for employment materials have multiplied, a variety of statistical series have been developed to meet these demands. The result, particularly in countries possessing the most active and energetic statistical services, has been the development of series of which some may be in fact or appearance at odds with one another. It is proposed to discuss this problem as it affects two countries where statistical data are most copious and most accurately calculated, the United States and Canada.

For the United States, estimates of employees in non-agricultural establishments are available from both the Bureau of Labor Statistics and the Bureau of Foreign and Domestic Commerce. A comparison of the data for recent years showed substantial differences in the level of employment estimated for major industry groups by the two agencies until recent revisions have resulted in substantially identical figures. For example, the estimates of employment in a number of industry groups by one agency were from 5 to 10 per cent. greater than those estimated by the other. However, recent revisions have resulted in substantially identical figures. [1]

A sharp difference is found between the trend of non-agricultural employment as estimated by the Bureau of Labor Statistics and that based on estimates of the Bureau of the

[1] For one industry the estimate of one agency was 50 per cent. greater than that of the other. The contrasting movement of the unrevised figures may be observed in data presented in the *Survey of Current Business*, for November 1945, and the *Monthly Labor Review* for May 1945.

Census' *Monthly Report on the Labor Force.* The movement of the two series over a recent 12-month period was as follows [1]:

	B.L.S.	B.C.
July 1945.	100.0	100.0
July 1946.	101.3	107.0

Since the Bureau of Census figures used for this comparison represent wage-earning or salaried workers in non-agricultural employment and the Bureau of Labor Statistics figures represent wage-earning or salaried workers in non-agricultural establishments, the contrast is of particular interest.

The Canadian data exhibit a parallel contrast. Table I presents indices of employment as estimated by the Dominion Bureau of Statistics' monthly labour force survey and by its

TABLE I. INDICES OF EMPLOYMENT IN CANADA AS ESTIMATED BY THE LABOUR FORCE (L.F.) AND MONTHLY EMPLOYMENT (M.E.) SURVEYS: 1946

Industry		1946			1 Nov.-1 Dec.
		1 March	1 June	1 Sept.	Average
1. Manufacturing	M.E.	100	101	103	106
	L.F.	100	105	101	111
2. Logging, fishing and trapping	M.E.	100	57	57	96
	L.F.	100	39	69	123
3. Mining	M.E.	100	103	102	103
	L.F.	100	94	89	92
4. Transportation and communications	M.E.	100	104	110	111
	L.F.	100	102	106	109
5. Construction	M.E.	100	144	169	167
	L.F.	100	170	187	170
6. Trade and finance . . .	M.E.	100	104	107	113
	L.F.	100	109	115	117
Total: Industries 1-6 .	M.E.	100	102	105	110
	L.F.	100	106	108	115

[1] Bureau of Labor Statistics estimates from B.L.S., *Employment and Payrolls*, February 1947. Bureau of the Census estimates from the *Labor Force Bulletin*, April 1947. The data used for computing both B.L.S. and B.C. indices exclude domestic servants.

Employment and Payroll Statistics Branch. [1] Since both series relate to changes in wage-earning and salaried workers employed, they should show parallel movements. But the rise in manufacturing employment between March and June 1946, for example, was 5 per cent. in one series and 1 per cent. in the other. For mining over the same period employment rose 3 per cent. according to one series and fell 6 per cent. according to the other. Most striking, perhaps, is the change in employment in construction over the same period, rising by 44 per cent. according to one series and by 70 per cent. according to the other.

The divergences between the changes in employment indicated by the establishment sample and labour force surveys arise from a number of causes. One major factor may be differences in coverage.

For example, the Canadian Monthly Survey of Employment is based on reports from firms with 15 or more employees, while the labour force surveys cover all persons in employment regardless of size of firm. Hence the two series are likely to show different results for such industries as construction, trade or service in which a substantial proportion of persons employed are in small firms.

These sharp contrasts are to be attributed partly to the fact that one series covers a wider employment field than the other, and partly to differences in sources of data: one series proceeds from establishment enquiries, the other from direct queries addressed to members of households in their homes.

Data from establishment samples and population surveys frequently differ substantially. In labour force surveys the information is usually obtained from housewives. The tendency of housewives to forget incidental employment and to overlook the employment of supplementary wage-earners will probably persist. In this respect, results secured by questioning the housewife may be inferior to data obtained from establishments — though it should be added that payroll returns would omit incidental employment performed outside the establishment. But experience has indicated that the effect of these differences in approach in producing differences of estimate can be minimised.

A further element in the improvement of population census survey data which is necessary in order to make them consistent

[1] Data kindly supplied by the Dominion Bureau of Statistics (unpublished).

with establishment figures is a change in the sample design, where necessary, to produce estimates of the employment of wage-earning and salaried workers in major industry groups. The total number of persons employed, inclusive of employers and persons working on their own account as well as wage-earning and salaried workers, classified by industry, is currently reported by the Canadian labour force survey, but not the number of wage-earning and salaried workers employed. The total number of persons employed, classified by industry, is available from the United States survey but is not released. Since the sample was originally designed to produce a satisfactory total for employment, emphasis was placed on securing data from a variety of industries and not on the accurate representation of each major industry group. It is therefore possible that changes in the sample will be necessary before data for such groups are sufficiently trustworthy for release. [1]

The improvements which must be made in establishment sample data have already been touched upon. The movement of employment must be analysed with reference to the critical factors which affect it, for example, distribution by industries, and by size-of-firm groups. Adjustments for trend bias must be made, as necessary. And finally, the double counting which arises when a worker is reported by two establishments for a given payroll date, having worked part of the period in each, must be examined. (From the analysis of labour turnover it may be possible to construct a distribution of workers by length of stay on the job when the turnover rate is at a given level. Given such a distribution, the turnover rate will afford the means for adjusting for this possible double counting. Labour force surveys of multiple employment may serve this purpose equally well.)

These adjustments should eliminate most of the differences between establishment sample and population survey data [2], and estimates of the number of non-farm wage-earners from both establishment and population census reports would then, for practical purposes, be identical.

[1] For example, employment in the service group fell sharply from 1941 to 1942, but immediately regained its 1941 level in 1943.

[2] Such remaining sources of differences as the use of the week containing the 8th of the month rather than the payroll period ending nearest the 15th; slightly different treatment of persons "employed" but "not at work"; different likelihood of inclusion for persons who worked only a few days in the schedule week—these and other remaining sources of difference appear to be relatively unimportant.

What is the point in a reconciliation which, after arduous efforts, would apparently only succeed in reconciling a total based on an establishment sample with an originally more satisfactory figure based on a population survey? The answer is that if the only series required were for total employment or wage-earner employment no such reconciliation would be required. But in point of fact a mass of employment estimates for detailed manufacturing industries is needed — estimates which must be comparable with data on earnings, output and turnover. At the present time it would require a prohibitive expenditure to arrive at accurate estimates of employment in detailed industries via the population survey technique. There is even some question whether such an achievement is possible so long as the housewife is the chief source of information. To provide estimates of total employment and unemployment as well as estimates of employment in detailed industries at a reasonable cost, both systems appear to be necessary.

In order to secure consistency, a number of suggestions for improving the different systems have already been discussed. As a final suggestion a semi-annual check into the relationship between the two series along the following lines might be desirable. When the schedules for the labour force survey are being filled up, additional questions should require the name and address of the firms where wage-earning and salaried workers are employed to be specified. [1] If transcripts of these schedules are promptly made available to the agency collecting the establishment data, a direct check of establishment payrolls could be instituted to determine the actual industry and occupation of the workers concerned. This check would not only furnish a test of the accuracy of replies by housewives on industry and occupation, but would also provide a statistical bridge for connecting data on the employment of wage-earning and salaried workers in non-farm pursuits obtained from establishments with the data from population surveys.

By means of such a bridge, the detailed industry estimates of the establishment reports could be linked to the controlling overall totals of the population surveys. Once this has been

[1] To avoid the development of undue resistance, such questions might be asked only of families which are being dropped from the survey in the current months. An alternative, though less satisfactory, procedure would be to ask whether or not each adult was insured under the unemployment insurance system. Those that were could then be checked from the unemployment insurance files.

done, a full range of employment series could be issued, each consistent with all the others. This would mark a substantial advance over the present situation, in which the series are too often non-comparable, and sometimes even appear contradictory.

As resources and facilities permit, it is therefore recommended that, in countries where overlapping employment series are available from different sources, periodic surveys should be made of a sample of returns from each source, in order to eliminate any significant double counting or inconsistencies that may exist, and to lay the foundation for a unified set of employment series (I, 32).

XV. INTERNATIONAL COMPARABILITY OF DATA

I. Purposes

As the economies of the world have become more and more closely linked, the need for comparable data on the labour force and employment in the various countries has become more and more evident.

International comparability is essential for sound comparisons of persons employed in different industries in the different countries, not only to measure relative employment levels, but also to provide a rough measure of the relative importance of the different industries in each country. How large a proportion of the wage-earners in the major industrial countries are employed in the steel industry, in textiles, in coal mining? What are the relative proportions of employment in road as against rail transport? Sound answers to such questions require comparable data.

Such data are also needed for making comparisons between productivity and unit labour cost in the various countries. It is impossible to compare the efficiency of the cotton textile, the coal or the steel industry in one country with that in others, or to compare relative labour costs, without employment data that are actually comparable. Otherwise the differences revealed by a comparison may testify not to any real differences in productivity or cost but to differences in the basic employment statistics.

To measure the relative severity of unemployment in the different nations it is necessary to have comparable unemployment estimates. During the great depression, for example, it was impossible to tell whether country A was affected more than country B, simply because the coverage of the unemployment figures was usually different and the definitions not comparable. The availability of comparable data will preclude such crude international comparisons as those made in a recent study which computed the percentage unemployed in various countries by simply relating the number of reported unemployed, whatever the coverage, to the total number of gainfully occupied, whatever the definition.[1] The availability of comparable data will likewise make it possible to set up soundly based indices of the trend in world unemployment.

While it is, of course, recognised that each country compiling statistics of employment, unemployment and the labour force is primarily concerned with its own problems, similar methods and techniques of statistical analysis of the problems of full employment, for example, should be applicable in the different countries. An exchange of information and the utilisation of available statistical resources, for example, in sampling techniques, would tend to promote the development of useful statistics on employment and labour force in the different countries.

* * *

The points of chief concern for purposes of international comparisons of employment, unemployment and labour force statistics are common definitions, common classifications, and common methods.

With common definitions and common classifications, a long step will have been taken towards making possible the collection of comparable data in different countries. Data collected on the basis of uniform definitions should not only serve the purposes of the country itself but should also enable other countries or international bodies to use the data. The analysis of bias would make it possible to interpret the results of various series in different countries in terms of full coverage, and thus lead to the establishment of synthetic series of a high degree of comparability.

[1] *Anuario Estadístico de España, 1943*, p. 1469.

So far as definitions are concerned, agreement upon the fundamental purposes served by employment and unemployment statistics should lead to agreement in principle on the basic definitions. These have been discussed in an earlier chapter. Where the working definitions developed in specific fields of employment, unemployment and labour force statistics differ from these basic definitions, consideration can be given to the question of estimating the biases arising from these divergences. As a result it should be possible to make estimates of employment and unemployment in each country on the basis of standard definitions.

With regard to classification, the details to be furnished in regard to sex, age, marital condition, and industrial status, have been discussed in previous chapters in relation to various specific proposals. It remains to consider certain problems of standard industrial and occupational classification.

II. Industrial Classification

The most widely accepted international classification of industries is that which was recommended by the Committee of Statistical Experts established under the International Convention relating to Economic Statistics. [1] That classification, published in 1938, provided a nomenclature of 94 industries, arranged under 8 major divisions and 45 main industries. In some countries, marked advances and changes in national classifications were made for the various 1940 and 1941 population censuses and for special registrations during the war years. The subject of the classification of industries is to be reviewed by the Statistical Commission of the United Nations; it is hoped that their deliberations will eventuate in a standard international list. To improve the international comparability of employment and labour force data, pending the adoption of such an international list, it may be recommended that the countries should follow provisionally the list proposed by the Committee of Statistical Experts and should provide such supplementary details in their national classifications as to permit re-grouping of the data in accordance with the standard list.

[1] League of Nations, Studies and Reports on Statistical Methods, No. 1: *Statistics of the Gainfully-Occupied Population.* Definitions and classifications recommended by the Committee of Statistical Experts (Official No. C.226M.128.1938 (C.E.S.127), Appendix I, Ser. L.O.N. Pub. II Economic and Financial 1938, II.A.12).

Countries with detailed classifications already established are likely to be reluctant to make major changes in classification. However, in practice, the countries with the most developed systems of their own will have least difficulty in reclassifying their data into whatever classifications are necessary to produce international comparability. It is therefore recommended that in the more industrially diversified countries consideration should be given to the desirability of presenting data on employment, unemployment and the labour force in at least as great industrial detail as that specified by the international classification.

III. Occupational Classification

At the present time no internationally accepted standard list of occupations exists. In many countries occupations are grouped into those requiring special skill or training, those presumed to be peculiar to specified industries (*i.e.* manufacturing occupations, trade occupations) and general groups, such as clerical workers and labourers. Professional and semi-professional workers may be shown in special groups. Since the manpower shortages which have developed in many countries have required detailed information on the occupational backgrounds of persons in the labour force, the time seems ripe for proposing the consideration of a standard international classification of occupations. The difficulties in the way of a standard set of occupational classifications are great. For detailed comparisons acceptable definitions in terms of job analyses and job specifications may be necessary, in order that the same term should mean approximately the same occupation under different industrial practices in different countries. Broad groupings may be needed. The purposes of such classification both for national and for international uses must be served. In view of the fact that population censuses will be taken in most countries in 1950 or 1951 the drafting of a standard classification in time for use in these censuses would be of great value. The Conference may wish to consider whether to recommend that the subject of international occupational classifications should be placed on the agenda of a future international Conference (III).

Pending the adoption of standard classifications the most effective procedure to improve international comparability

would appear to be for each country to provide sufficient detail according to industry, age, industrial status and occupation in its own statistics so that the data can be recombined into the standard international classifications.

* * *

The methods to be followed in collecting and analysing employment, unemployment and labour force statistics have been discussed in the previous chapters. The adoption by the different countries of the best methods available with reference to each type of data will naturally tend to the establishment of international comparability.

A further important step is the provision of analytical studies of methods and techniques followed in the different countries. This would include a survey of existing definitions and methods to furnish the basic information on the divergences that exist in the practices of the different countries. It would also include the evaluation and appraisal of these divergences in relation to standard definitions and techniques, as well as an appraisal of biases and margins of error as they affect the statistics of employment and unemployment in each country. On the basis of such studies, international comparability of employment and unemployment data should be placed upon a much firmer foundation. Each series could then be utilised in the full knowledge of its probable margin of error or bias.

As a final result, it should be possible to take the statistics of the different countries as established upon uniform definitions and following uniform classifications, subject to such corrections as might be indicated by these analytical studies, and combine the figures from different countries to set up soundly based indices to show world trends in employment, unemployment and the labour force.

XVI. PUBLICATION

Not the least of the many elements which constitute a sufficient statistical system is that of effective publication, and the first aspect of effective publication to be considered is the speed with which data are released once they have been gathered.

I. Promptness of Publication

Whatever the frequency with which data are compiled, their value will be seriously compromised if they are published a long time after the date to which they relate. Quarterly statistics published within a month of the date to which they refer will be of greater value to most users of employment statistics than monthly statistics published after a delay of several months.

Business men must make their plans for engaging labour and must forecast prospective market changes on the basis of the most recent information on employment variations. Belated information may be of little more value than none. A "reasonably approximate figure provided promptly is often more useful than a more accurate figure available some weeks or months later".[1] Unions, too, require quickly available measures of changes in the labour market. Such changes do not merely affect the welfare of their members. They will also affect the relations of each union with management, since different wage rate and bargaining policies are appropriate to different levels of employment and unemployment. Government agencies have an equally vital need for accurate data promptly issued, to throw light upon the effects of changes in national policy on employment and unemployment.

An illustration of prompt publication of employment data is found in the Danish figures, the estimate for total man-hours worked in manufacturing being published about 3 weeks after the date to which it refers. In Great Britain and the United States detailed estimates of employment in manufacturing subgroups and in other industry groups are issued about 4 weeks after the date to which they relate. Sweden issues a full range of detail about 5 weeks after the date to which the estimates refer. In Australia the period is from 6 weeks to two months, while in Canada the period is about 6 weeks for labour force detail and two months for wage-earner data. The employment series which was recently organised in France appears about three months after the date of reference.

Since most users of the statistics of employment and unemployment require prompt publication of data almost as much as they require the data themselves, it is therefore recommended

[1] U.S. Chamber of Commerce, Committee on Business Statistics; *Public Interest as a Criterion for the Collection and Dissemination of Statistics by Government Agencies* (1946), p. 10.

as desirable that the key totals in current series on employment, unemployment and labour force should be issued within one month of the date to which they refer; if necessary these data may be issued in the first instance on a provisional basis (I, 50).

The wider use of provisional figures is to be recommended. Denmark, for example, customarily presents unemployment estimates on a preliminary basis, revising these estimates at a later date. Experience over a period of years indicates that the preliminary figures are in fact substantially identical with the final ones. It is obviously not feasible to provide full data for a finely detailed set of industries or areas immediately, but neither is it necessary. What is essential is that the key totals should be presented promptly, so that business, labour and Government can at all times have as accurate a perspective as possible of the changes in employment and unemployment.

The method to be used for securing preliminary figures will vary with the reporting system and national procedures. For employment data from establishment returns it may be possible to establish a list of firms whose employment, taken as a whole, moves with national employment. Alternatively, it may suffice to set a cut-off date for a preliminary tabulation. For social insurance data a full knowledge of the industrial and sex composition of returns from the various districts, and in particular the districts which report earliest, will be needed. For labour force survey data national totals may be released after the preliminary tabulation of the sample returns is made but before the adjustments to independent population estimates are completed. The adoption of such a procedure will of course depend on the extent of change in the unemployment percentage usually produced by such adjustments.

In general it may suffice to release preliminary estimates in the form of estimates of percentage change from the previous month, thus minimising any inconsistency between the aggregates as reported in preliminary and final results.

II. Presentation

In the presentation of labour market data attention should be given to a number of factors bearing on the effective use of these statistics.

1. Data as published should be accompanied by a statement of their scope (I, 51 (1)). Employment series based on data from large firms only or from a limited group of industries should be so described; such series do not necessarily have the same movement as that of total non-agricultural employment or total employment. These different series should not be confused or used interchangeably. Where the chief unemployment series in any country relates to the insured unemployed, current statistics in that series should be accompanied by a brief statement indicating what percentage of the unemployed were not covered by the series at the date when the most recent comparison was made between the number of insured unemployed and the total number of unemployed (I, 51 (2)).

2. In each country the statistical authorities should provide a brief guide to the major benchmarks and series on employment, unemployment and the labour force. This guide would not be intended for the use of specialists in employment statistics, but rather for the use of the general public. It would therefore enumerate the series, indicate their frequency and place of publication, and describe how the basic data for each series are derived and combined. It would, furthermore, indicate the chief uses to which each series might properly be put and point out pitfalls arising from improper use. Thus, certain employment series would be indicated as most suitable for productivity computations and others for combination with unemployment data to measure labour force (I, 53).

3. In continuation of this basic publication, an annual publication should be issued containing the major series on employment, unemployment and the labour force for current months and for selected benchmark dates. References should be given to the original sources, in which more detailed information may be found, and a discussion should be included on the major changes in employment and unemployment which have taken place since the previous issue (I, 55). Each country should present in a basic publication all available historical estimates of employment, unemployment and labour force, with full particulars of the sources for the different series of these methods used in compiling them, and of their uses and limitations (I, 54).

4. Where more than one series is published which can be used as an indication of the level or course of employment or unemployment, each series should be accompanied by a statement

indicating its chief differences from the others and by an indication of the most appropriate uses for each (I, 52). As examples may be cited the employment exchange, trade union and labour force survey series on unemployment in Canada, and the Bureau of Labor Statistics, Bureau of Foreign and Domestic Commerce and Bureau of the Census series on employment in the United States.

5. A historical perspective of employment and unemployment trends is invaluable. Figures on employment or unemployment take on meaning when contrasted with the figures for earlier months or years. Such questions as "What is the frictional minimum of unemployment? Is unemployment greater today than it was after the last war?" can only be answered by reference to historical data. Because of the considerable changes in calculating techniques, social insurance coverage and the scope of establishment reporting that have taken place in most countries, it is often difficult to secure comparable estimates which can alone throw light on these questions. As resources and facilities permit, it is therefore recommended that comparable historical estimates should be prepared for the chief series on employment, unemployment and labour force, these to extend over a span of years which will include both the peak and trough of the business cycle, extending back to 1929 and, if at all possible, to 1919 (I, 56).

XVII. GENERAL ISSUES

In addition to the various aspects of employment and unemployment statistics already reviewed, certain general issues should be considered.

In the first place, data complementary to the statistics of employment and unemployment are required. Reference has already been made to the point that employment data must be analysed in the light of historical trends. Current changes in employment, unemployment and the labour force must be placed in relation to the background data of population structure and industrial development. There must be available estimates of hours, earnings and labour turnover, of prices, of production and productivity. Only in the context of current information on these related matters can employment and

unemployment estimates be properly interpreted. It is surely not too much to recommend that a population census should be taken every ten years, and a census covering the major branches of economic activity at least every five years (I, 12).

A second point to be emphasised is the basic limitation of statistical averages and global totals. Estimates of total employment or hours worked or unemployment are essential, but they are not sufficient. Current information on distributions as well as totals is requisite. What, for example, is the distribution of workers by the age when they enter employment and the age when they leave it? What is the distribution of workers by the number of jobs held during a given year, and by the duration of each job — according, separately, to age, occupational group and sex? What is the distribution of workers according to the number and type of industries in which they worked during the previous year? What is the distribution of workers by earnings, both hourly and annual? What proportion of total man-hours worked each year is contributed by each of the major age and sex groups? Answers to these questions, and to many more, require data on distributions of workers rather than simple summary averages. But the forecasting of business markets, the study of labour shortages, manpower problems — these and many other studies can be effectively prosecuted only if employment and labour force data are available at intervals for distributions of workers.

A third point worth emphasising is the desirability of a periodic review of procedures. This is desirable in order to ensure that the statistics of employment will continuously improve in accuracy, will expand in coverage to meet the demands laid upon the statistical agency, and will decline in unit cost of preparation. Such a review might suggest the introduction of new statistical and administrative procedures, adapting the statistical materials to the changed needs of those who use them, cutting down some series, expanding others; it might be made by the statisticians engaged in the work of preparing such statistics or by a committee of specially qualified experts. In the latter case, the recommendations, because of the disinterest of the experts, might actually win greater support for extensions and improvements in the statistical programme than could be obtained by the statisticians primarily concerned with the work. In providing for such review all

these possibilities should be taken into consideration, with a view to the best development of the statistical programme as a whole.

A final recommendation is this. It is of the utmost importance to build up a statistical staff with ability, scope for action and a keen interest in making these statistics applicable to the problems of today and tomorrow. Given such a staff to seek out the best in the flow of new statistical and administrative techniques and to provide more accurate, more promptly available and more detailed results within given cost limits, it can be expected that the statistical agencies will be ready with the necessary data on employment and unemployment to meet the new problems set by the progress of economic development.

PART V

XVIII. PROPOSED RESOLUTIONS

I

The Sixth International Conference of Labour Statisticians,

Having been convened by the Governing Body of the International Labour Office, and

Having met at Montreal from 4 August 1947 to , and

Realising the importance of an adequate statistical basis for the analysis of economic and social problems of employment and unemployment and in particular for the provision of the information necessary to the formulation and application of policies designed to maintain full employment and to promote economic development, and

Having considered the problems raised by the lack of international comparability of statistics of employment and unemployment, and

Considering, in order to promote the improvement of statistics in each country as well as their international comparability, international standards covering the statistics of employment, unemployment and the labour force, based on the best methods available as tested in the experience of the different countries, should be set by international agreement as a general objective for the development of statistics on these topics,

Adopts, this day of 1947, the following Resolution:

General Objectives

1. A comprehensive system of employment, unemployment and labour force statistics should draw upon all the resources available from a wide range of sources of data and an extensive battery of statistical methods and techniques.

2. In general, employment, unemployment and labour force statistics

(*a*) should be based on standard definitions;

(*b*) should cover

(i) all branches of economic activity;

(ii) all persons, employed and unemployed, who have jobs or who are seeking work, irrespective of age; and

(iii) all industrial status groups; and

(*c*) should provide both benchmark data and series to show current changes.

Employment Statistics

3. (1) For benchmark data comprehensive sources should include population censuses with their classifications of the labour force and the gainfully occupied, the censuses of industrial production with data on persons employed in different industries, social security registration and unemployment insurance records, general population registrations as well as labour force sample surveys.

(2) For series to indicate changes over time, comprehensive sources should include establishment sample statistics, labour force sample surveys, the population censuses and statistics based on social security registrations, on unemployment or other social insurance records.

Unemployment Statistics

4. (1) In addition to the population census benchmark data, the principal sources should include unemployment insurance records covering the population subject to insurance, and labour force sample surveys covering a sample of the entire population.

(2) Where these are not available, the sources should include trade union unemployment records or labour exchange figures on unplaced applicants.

Labour Force Data

5. In addition to the population census materials, comprehensive sources should include labour force sample surveys and other types of data, such as social security and social insurance registration records.

6. The battery of techniques and methods should include in particular the methods of sampling as adapted and applied in the collection of labour force materials and data for establishment series, as well as methods of appraising sources of error and calculating adjustments for departures from recommended standards and definitions.

Principal Definitions

7. To ensure comparability of data and series on employment, unemployment and the labour force within a country as well as between countries, standard definitions and standard classifications relating to employment, unemployment and the labour force should be adopted as set forth below and in the Schedule appended to this Resolution.

8. (1) The "employed" should include all persons who work for their own account or in the employ of others. The "employed" should thus include employers; persons who are self-employed (*i.e.* who work for their own account); salaried employees; wage-earners; and unpaid family workers who are engaged in tasks directly related to the operation of a family enterprise for a minimum of 15 hours a week not including hours spent in unpaid domestic work.

(2) The "employed" should include persons in labour camps if they are free to seek alternative employment; but should not include persons in such camps who are not free to make that choice, or persons confined to prisons or similar institutions.

(3) Persons who are directly employed by any public authority on emergency public relief work should also be included in the statistics of the employed, but where such persons are employed under conditions inferior to those of regular public employees engaged in the same type of work their number should be indicated separately.

9. The "unemployed" should include all persons seeking work on a given day who are not actually employed but are able to take a job if offered one.

10. (1) The "labour force" should include all employed and all unemployed persons, as defined above, together with the armed services.

(2) The "civilian labour force" should include all employed and unemployed persons exclusive of the armed services.

11. "Industrial classification", "occupation" and "industrial status" should be defined as in the Schedule to this Resolution.

Types of Statistics

A. Benchmark Data

12. A population census should be taken at least every ten years and a census covering the major branches of economic activity at least every five years, in order to provide, among other things, basic information essential to the development of adequate statistics of employment, unemployment and the labour force.

B. Current Series

Employment.

13. Series showing the total workers employed should be prepared at least quarterly in the more industrially diversified countries.

14. Employment series should be prepared for each major industrial group in which as much as 5 per cent. of a country's total employment is found, as well as for each industry for which such statistics may be requested by an inter-governmental organisation.

15. In the more industrially diversified countries, consideration should be given to the desirability of preparing separate series for each of the major industry groups and sub-groups specified in the international standard classification of industries. [1]

16. (1) Where seasonal changes in agricultural employment are substantial, estimates of agricultural employment should be made more frequently than once a year.

(2) In the more industrially diversified countries, such estimates should be made quarterly.

(3) In other countries, at least semi-annual estimates are desirable in order to measure agricultural employment at its seasonal maximum and minimum.

[1] In referring to "the international standard classification of industries" the Conference has in mind for the present the minimum nomenclature of industries recommended by the Committee of Statistical Experts of the League of Nations in 1938; but if a revised international standard classification should be recommended by the United Nations Statistical Commission, it would favour the use of such revised standard classification.

17. From one or another of the current series issued in any given country, information should be available on employment for the major geographical regions, for each sex and for the chief age groups.

18. As resources and facilities permit, separate series on employment should be made available for —

(*a*) additional geographical or administrative regions;
(*b*) the chief centres of population;
(*c*) each sex;
(*d*) age intervals as follows: single years of age for juveniles and 10-year age groups for adults.

19. As resources and facilities permit, estimates of employment should be made available at intervals for —

(*a*) the principal marital status groups by sex;
(*b*) the principal occupation groups;
(*c*) groups classified according to the number of hours worked per week;
(*d*) the principal industrial status groups.

Unemployment.

20. Series showing the total numbers unemployed should be prepared monthly in the more industrially diversified countries.

21. Where such information is of significant utility, the unemployed should be classified by industry of last employment and by major occupation group.

22. From one or another of the current series issued in any given country information should be available on unemployment for the major geographical regions, for each sex, and for the chief age groups.

23. As resources and facilities permit, separate series on unemployment should be made available for —

(*a*) additional geographical or administrative regions;
(*b*) the chief centres of population;
(*c*) each sex;
(*d*) age intervals as follows: single years for juveniles, and 10-year age groups for adults.

24. As resources and facilities permit, estimates of unemployment cross-classified by age, sex and duration of unemployment should be provided for those economic regions in which unemployment is most severe.

Labour Force.

25. Series showing the total labour force should be prepared at least quarterly in the more industrially diversified countries.

26. As resources and facilities permit, separate series on the labour force should be made available for —

(*a*) the major geographical or administrative regions;
(*b*) the chief centres of population;
(*c*) each sex;
(*d*) age intervals as follows: single years of age for juveniles and 10-year age groups for adults.

Methods and Techniques

Employment

27. Employment series should be adjusted to comprehensive benchmark data derived from census enumeration or social insurance records as such data become available.

28. Statistics of employment in establishments should include all persons attached to the establishment, regardless of age and regardless of whether or not these persons are actually at work on the date to which the statistics relate.

29. (1) In the case of employment series based on reports from industrial establishments, particular attention should be given, in determining the sample of establishments from which employment reports are to be obtained, to securing proper representation of major industry groups as well as geographical areas and sizes of establishments.

(2) Special attention should also be given to the correction of any errors resulting from failure of establishments to make reports; to securing reports by establishments rather than by firms; and to the comparison of returns from identical establishments at successive dates.

30. From time to time each country should provide such estimates of employment in particular industries or groups of industries as may be needed to make possible a recombination of its employment data into the international standard classification of industries.

31. (1) As resources and facilities permit, periodic studies should be made of the nature and extent of the trend bias which develops, between the dates of adjustments to benchmarks, in employment series based on reports from identical establishments.

(2) On the basis of such studies, methods should be developed to include in the sample a due proportion of persons employed in new establishments.

32. As resources and facilities permit, in countries where employment series are available from different sources, periodic surveys should be made of a sample of returns from each source in order to eliminate any significant double counting or inconsistencies which may exist and to lay the foundation for establishing a unified set of employment series.

33. As resources and facilities permit, seasonally adjusted indices for the chief labour force and employment series should be presented currently in addition to the unadjusted series.

34. As resources and facilities permit, periodic studies of employment as reported by establishments should be made to determine the number of persons who were at work and the number not at work on the date to which the studies relate.

35. As resources and facilities permit, employment series based on reports from establishments should be adjusted if necessary to take account of differences in the employment figures reported to different statistical authorities and of any tendency to include in the reports data which are more inclusive or less inclusive than those requested.

Unemployment

36. Estimates of the total numbers unemployed in any country should wherever possible be based on figures derived either from the operations of an unemployment insurance or other social security system, or from sample surveys of the labour force, or from both sources.

37. Where the definition of the unemployed utilised in any country differs from that recommended above, estimates should be made periodically of the difference between the number unemployed according to the definition in use and the number unemployed as defined above.

38. In the presentation of national estimates of unemployment, primary emphasis should be placed on percentages rather than on absolute figures.

39. (1) The percentage of unemployment should be computed by dividing the number of unemployed in a group by the sum of employed plus unemployed in the same group, *e.g.* the number

of unemployed wage-earners and salaried employees by the sum of the employed plus unemployed wage-earners and salaried employees.

(2) In countries with complete statistics of the numbers employed in all industrial status groups, the chief percentage of unemployment should be computed by dividing the number of unemployed earners by the total civilian labour force.

40. (1) In every country which relies on unemployment insurance statistics for its chief measure of unemployment, periodic studies should be made of the relation between the total number unemployed on the one hand and the number unemployed as reported by the insurance system on the other.

(2) Particular attention should be given to including in the estimates of total unemployment such groups as the following which may be excluded from or inadequately covered by the unemployment insurance statistics:

(*a*) older workers;

(*b*) those who have been unemployed for long periods of time;

(*c*) those not applying for benefits, even though they are unemployed;

(*d*) new workers who have not yet found their first jobs;

(*e*) supplementary workers who enter the labour force in the peak or trough of the business cycle; and

(*f*) industries or occupations which are specifically excluded.

41. In any country in which, through lack of adequate data derived from social security operations or labour force surveys, national unemployment estimates may have to be based on trade unions returns, such returns should wherever possible be weighted in accordance with the numbers employed in the industries to which they relate.

42. In countries which use statistics derived from the operations of employment exchanges as their chief measure or one of their chief measures on unemployment and in which such employment exchanges are not closely linked to the operation of unemployment insurance or the system of social security, studies should be made at intervals to determine the relationship between the total number unemployed and the number of unemployed registered at the employment exchanges.

43. Studies should also be made of the extent to which statistics of the registered unemployed derived from the operations of employment exchanges actually include persons who are employed — either because of failure to exclude them at the time of registration or because of difficulties in keeping the records of the exchanges up to date.

44. As resources and facilities permit, in countries where statistics of the numbers of insured unemployed constitute the main measure of unemployment and where substantial differences may exist between the total number of unemployed and the insured unemployed, surveys of these differences should be used as a basis for constructing an adjusted current index of total unemployment.

45. As resources and facilities permit, series on partial unemployment should be replaced by figures showing the distribution of employed persons according to the number of hours worked in the period covered (week or fortnight).

46. (1) Periodic studies should be made of under-employment, as distinguished from total unemployment.

(2) In particular, consideration should be given to the possibility of obtaining, in the case of industries other than agriculture, information as to the number of persons on short time who are seeking full-time employment.

Labour Force

47. Since the method of labour force sample surveys has proved to be an effective, accurate and reliable technique for obtaining data on employment, unemployment and labour force, as well as on other topics when desired, its use is recommended for serious consideration.

48. All new questions for labour force survey schedules should be pre-tested in different parts of the sample in order to establish definitely what interviewing techniques are actually being used by enumerators and what patterns of answers are being given by respondents.

49. Portions of the sample areas used in labour force surveys should be re-enumerated at periodic intervals in order to check on the interviewing techniques actually used by enumerators.

PUBLICATION

50. The key totals in current employment, unemployment and labour force series should be issued, if necessary on a

provisional basis in the first instance, within one month after the date to which they refer or as soon as possible thereafter.

51. (1) Data as published should be accompanied by a statement of their scope.

(2) Where the chief unemployment series in any country relates to the insured unemployed, current statistics in that series should be accompanied by a brief statement indicating the percentage of the unemployed who were not covered by the series at the date of the most recent comparison between the number of the insured unemployed and the total number unemployed.

52. In any country which publishes more than one series which can be used as an indicator of the level or trend of the numbers employed, or of the numbers unemployed, each series should be accompanied by a statement indicating its chief differences from the others and the most appropriate uses for each. Particular care should be taken to explain any discrepancies between the various series.

53. Each country should provide a brief guide to the major benchmarks and series on employment, unemployment and labour force for the use of the general public.

54. Each country should present in a basic technical publication all available historical estimates of employment, unemployment and labour force, together with full particulars of the sources for the different series of the methods used in compiling them, and of their uses and limitations.

55. Each country should issue, in continuation of the basic volume referred to in the preceding paragraph, an annual publication containing the major series on employment, unemployment and the labour force for current months and for selected benchmark dates, together with a discussion of the major changes which have taken place since the previous issue, and references to the original sources in which more detailed information may be found.

56. As resources and facilities permit, comparable historical estimates should be prepared for the chief employment, unemployment and labour force series, extending back to 1929 and, if possible, to 1919.

Schedule

1. "Industry" is the kind of economic activity or kind of factory, store or other place of business in which a person works

or exercises his occupation; the classification of a person according to the industry in which he is employed is determined on the basis of the nature of the activity of the establishment, irrespective of his occupation.

2. The "industrial classification" to be recommended is the international standard classification. At present the only classification having international recognition is that proposed by the Committee of Statistical Experts of the League of Nations in 1938. In the event of a revised international standard classification being recommended by the United Nations Statistical Commission, the use of such revised standard classification is to be favoured.

3. "Occupation" is the trade, profession or type of work performed by the individual, irrespective of the industry in which he exercises it.

4. "Industrial status" is the position of the individual in respect of his employment: employer, independent worker on his own account (self-employed); salaried employee; wage-earner; and unpaid family worker. In cases where managers and directors are classified as employers, a special sub-division should show managers and directors separately.

II

The Sixth International Conference of Labour Statisticians,

Recognising that the methods and practices which it has recommended in its Resolution concerning employment statistics will, when applied, facilitate the compilation of accurate statistics of payrolls, but being strongly of the opinion that fuller and more comprehensive consideration should be given at the earliest possible moment to the formulation of international standards for statistics of workers' earnings;

Requests the Governing Body of the International Labour Office to place on the agenda of an early session of the International Conference of Labour Statisticians the subject of statistics of workers' earnings with special reference to payrolls and aggregate wages and salaries.

III

The Sixth International Conference of Labour Statisticians,

Noting the desirability of establishing an international standard classification of occupations which would permit

comparisons between the numbers engaged, the rates of remuneration, the hours of work and other conditions in the same or similar occupations in different countries, and noting in particular the need for such a standard classification for use in connection with the national censuses recommended by United Nations Statistical and Population Commissions;

Requests the Governing Body of the International Labour Office to place on the agenda of an early session of the International Conference of Labour Statisticians the subject of an international standard classification of occupations.

IV

The Sixth International Conference of Labour Statisticians,

While satisfied that the Resolution which it has adopted on statistics of the labour force, employment and unemployment, will provide sound basic guidance for the improvement and standardisation of such statistics for some years to come, being confident that further advances will be made from time to time in the methods and techniques of these statistics;

Requests that the Governing Body of the International Labour Office should place on the agenda of a future session of the International Conference of Labour Statisticians the further consideration of international standards for these statistics as soon as such advances, or the experience gained in applying the standards formulated at the present session, would appear to make such further consideration desirable, and that the Governing Body should direct the International Labour Office to continue their studies of these statistics and to publish the results of such studies from time to time.

APPENDIX

Resolutions of the Second International Conference of Labour Statisticians, Geneva, April 1925[1]

II. Unemployment Statistics

(1) In countries in which a widespread system of unemployment insurance exists the information obtained from the working of such a system forms the best basis for unemployment statistics.

(2) These statistics should furnish the following information as a minimum:

(*a*) Annually, the total number of workpeople insured against unemployment, which should be related so far as practicable to the total number of workers.

(*b*) Monthly, the total number of unemployed on a given day in receipt of benefit, and the total number of insured workers unemployed (whether on benefit or not) on the same day.

(*c*) Monthly, the percentage that on a given day the total number of insured unemployed (whether on benefit or not) forms of the estimated number of insured workpeople.

(*d*) Annually, the total amount paid during the year in benefits.

A method according to which, as in the Netherlands, a percentage is calculated between the number of days of unemployment during one week and the total number of days of work which might have been performed is one which is worthy of attention.

(3) Where statistics based on unemployment insurance, compulsory or voluntary, are not available, it is desirable to obtain from workers' organisations the following information:

(*a*) Monthly, the total number of unemployed on a given day and the percentage they form of the total membership covered by the enquiry.

(*b*) Annually, the number of workers covered by the enquiry as a percentage of the total number of workers in the corresponding industries or occupations.

Even when statistics based on unemployment insurance become available it is desirable, for purposes of comparison, to continue trade union statistics as long as they are reliable.

(4) The statistics derived from public employment offices should give:

(*a*) The number of workpeople registered on a given day of the month as seeking work, with the total number of vacancies remaining unfilled on the same day.

(*b*) The number of workers' applications registered; of vacancies notified; and of vacancies filled, during the month.

(5) Employment exchange statistics should be compiled so that as far as possible unskilled workers are distinguished from other classes of workers.

(6) Information as to the state of employment should also be published periodically, if possible monthly, based on returns made by a representative number of employers.

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[1] Studies and Reports, Series N (Statistics), No. 8 (Geneva, 1925), pp. 70-72.

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ed above, it is
~~to obtain~~ at the general
-- occupational census, infor-
mation as to ... ...yment, or that special enquiries
relating to the whole pop... , ... to an adequate sample thereof
should be made from time to time with a view to ascertaining the number and condition of the unemployed.

(8) The statistics indicated in the preceding resolutions should distinguish males and females and should, so far as possible, give figures for separate occupations in the case of statistics arising out of the activities of employment exchanges, and for separate occupations or industries as may be most convenient in the case of trade union and insurance statistics and in the case of special industrial or occupational enquiries. The classifications used should be based on the classifications adopted in the general population census in so far as these are applicable to employment exchange operations.

(9) It is desirable, for comparing statistics of unemployment internationally:

(*a*) that precise and detailed information should be published and kept up to date as to the methods adopted in compiling the various statistics of unemployment; in particular, each country should indicate any legislative or administrative changes affecting the value of its unemployment statistics;

(*b*) that copies of all forms and questionnaires used in collecting the various statistics should be forwarded to the International Labour Office;

(*c*) that in each country an enquiry should be made to determine, as exactly as possible, the representative value of the unemployment statistics in relation to the "ideal statistics" which would give, at any date, the total number of unemployed in relation to the total number of workers. For this purpose it is agreed:

(i) that the ideal population "field" to which the statistics should relate should be all persons whose normal means of livelihood is employment under contract of service, as well as those persons not hitherto wage-earners who seek to become so;

(ii) that the unemployment measured should exclude that due to sickness, invalidity, participation in trade disputes, or voluntary absence from work, and should be limited to unemployment due to lack of employment or work while in employment;

(iii) that the necessary and sufficing condition for being enumerated as unemployed is that the individual must have been not at work for one day at least.

(10) It is desirable that the different statistics of unemployment (insurance, trade union, and employment exchanges) should be presented together, preferably in graphic form, so that they might be co-ordinated and checked one with another and as clear and correct an idea as possible of the fluctuations in unemployment obtained.

(11) Statistics of short-time employment should, if possible, be given separately from those of whole-time unemployment.