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THE STATISTICAL UNIT IN ECONOMIC INQUIRIES

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THE STATISTICAL UNIT IN ECONOMIC INQUIRIES

I.   INTRODUCTION

1.   In accordance with the request made by the Statistical Commission at its tenth session,[1] the Statistical Office prepared a paper, The Statistical Unit in Economic Inquiries,[2] outlining the charteristics of various statistical units that have been used for economic inquiries, some possible definitions of these units, the purposes of which these units were best adapted and the desirability of correlating the statistical units used in a system of economic surveys. That paper, which took account of the views of the expert group of the Conference of European Statisticians[3] as well as those expressed by the Commission, was circulated to the national statistical offices and interested international organizations. The national statistical offices were asked to comment on the paper and to indicate the uses made of various statistical units in their own economic inquiries. They were also asked to indicate the system used, if any, for classifying enterprises according to kind of activity and the extent to which business record keeping practices had been investigated.

2.   Substantive comments on the above paper have been received from thirty-four statistical offices.[4] These comments have been most helpful in preparing this revision not only because of the detailed remarks on particular points discussed in the previous paper (e.g., the definition of the enterprise and the techniques of relating establishment-based and enterprise-based data), but also because they provided a wealth of information on country practices. Some specific problems

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1/   Resolution 4 (X), paragraph 40, Report of the Tenth Session of the Statistical Commission, E/3126.

2/   E/CN.3/L.50.

3/   The Statistical Unit in Economic Statistics - Report of the Expert Group, Conf. Eur. Stats/81, 17 April 1959.

4/   Comments relating to document, E/CN.3/L.50, were received from the statistical authorities of the following countries, territories and regional bodies: Austria, Barbados, Belgian Congo, Canada, Chile, China, Czechoslovakia, East Africa, El Salvador, Federal Republic of Germany, Finland, France, Ghana, Guatemala, Hungary, India, Iraq, Japan, Mauritius, Netherlands, New Zealand, Nigeria, Panama, Philippines, Portugal, Puerto Rico, Singapore, Spain, Sweden, Thailand, United Kingdom, United States.

encountered in the use of particular statistical units were also indicated and questions were raised that show a need for further discussion and explanation of a number of points. The nature of the comments received clearly shows the interest of the national statistical offices in defining the respective roles of the enterprise and its sub-divisions in a system of economic inquiries in the light of uses for different types of data and the problems of collecting these data from business units. Further, several countries have embarked on concrete programmes to reorganize and co-ordinate their economic inquiries so that data stemming from different surveys can be related and enterprise-based data can be related to data for sub-divisions of the enterprise.

3. Like its predecessor, this revised paper is exploratory in character; and a number of countries, in stressing the preliminary and experimental nature of their own work in this field, expressed the view that it is too early to attempt more than this. In any event, it is probably best to view these studies of the statistical unit as an attempt to establish a framework within which inquiries into specific subject fields can be designed in a co-ordinated fashion. Thus, it is intended that this discussion of the general problem of statistical units and their relation to each other serve the following major purposes: (i) provide a backdrop against which the question of an appropriate and practical statistical unit for particular kinds of economic inquiries can be discussed (e.g., on financial transactions, productive activities, employment, etc.) (ii) indicate the necessity of and techniques for relating the various statistical units to one another and enterprise-based data to data based on sub-divisions of the enterprise, and (iii) outline further work needed on these questions both at the national and international levels. In stating these purposes, it is, of course, assumed that certain needed data are appropriate only to the enterprise while other data can successfully be related to, and are needed for, its sub-divisions. In addition, the question of the classification of the enterprise according to kind of economic activity is also considered in this paper.

II. SOME GENERAL REMARKS

4.   From the comments received it is apparent that the majority of countries have found a need for inquiries based both on the enterprise and on its sub-divisions. Further, a number of countries, for the reasons indicated below, are moving toward a system of economic inquiries in which enterprise-based and establishment-based data are complementary and are collected in a form that makes possible their direct comparison and integration.

5.   Every productive enterprise must be concerned with both the techniques, means and "real" results of production and the financing of this production. While these two preoccupations of the enterprise are certainly related, this relation is not necessarily simple or direct and the management of each is frequently carried on at quite different levels. This fact is generally reflected in business records. Thus, profits and losses of the enterprise - which in part often result from purely financial transactions - arising out of all of the activities of the enterprise are usually summarized at the enterprise level. Similarly balance sheets are most often drawn up summarizing the assets and liabilities of the whole enterprise.[5/] All countries compiling financial data have, for this reason, used an enterprise unit[6/] for their collection. Data summarizing the more specifically "productive" activities ("productive" in a broad sense) of the enterprise are usually available for sub-divisions of those enterprises engaging in more than one group of related activities or carrying on their activities at more than one location. That is, for example, the wholesaling enterprise generally records separately the sales and at least the direct costs relating to each major line of goods handled or to each sales office, and the manufacturing enterprise would record the inputs and outputs and labour costs for each subsidiary plant. And since there is a marked need for such data in summarizing the activities of individual industries, all countries have collected these and similar data for sub-divisions of the enterprise wherever possible.

5/   In the United States, it has been reported, large enterprises tend to draw up at least partial profit and loss statements and balance sheets for sub-divisions of the enterprise.

6/   Not always using the same enterprise level, however See paras. 30-35 below.

6.   Many of the users of economic data require that these data relate to well defined kinds of activity. In most cases, however, the kinds of data needed for detailed analysis are those relating directly to the "real" activities of enteprises; studies of input-output relationships, cost-price ratios, labour-productivity analyses, studies of the relative efficiency of productive units of different size, etc. are commonly of interest. Also for the market research analyst or the government agency or businessman interested in the construction of a new factory, both economic and demographic data in a wealth of industrial and regional detail may well be required. And for economists interested in the structure of production and the variation in the problems of different kinds of business units, data classified by kind of business, and location and size of unit will be needed. It is to serve purposes such as these that many countries publish infrequent economic census data in great detail.

7.   Many of the uses of financial data do not require their identification with narrowly defined kinds of activity. Problems concerning the sources and availability of credit and financing, for example, are generally more closely related to the organizational form and size of the enterprise than to its kinds of activity. Also questions of tax policy (e.g., turnover taxes and profit or income taxes) frequently arise in terms of legal enterprise entities and value data concerning the activities of the enterprise are clearly of interest here.

8.   Because they have generally been designed to serve different purposes, investigations into the financial side of economic activity have, in almost all countries, been quite independent of investigations into the real aspects of production, and little attention has been devoted to the co-ordination of these separate surveys. In recent years, however, increased use of systems of economic accounts and increased concern with projection of economic conditions have led to efforts to relate real and financial data systematically and to eliminate discrepancies between the two sets of data that might be caused by differing coverage or shifts in definitions from one survey to another. In this connexion, the Expert Group of the Conference of European Statisticians pointed out that - "For economic analysis and economic planning it was desirable to have not only isolated data on different items, but also to know the relationship between these items, e.g., between production and income, the distribution of income, consumption

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and investment as well as the financing of these items."[7] Beyond the desirability of clarifying the relationships between these aggregates for the economy as a whole or for broad areas of the economy, however, there is a real need for knowing the character of these relationships between and within individual industries as well as the varying rates of change over time in the activities of each industry.

9.   Some of the national economic accounts that measure the level of activities of an economy, and describe the relations between these activities, are often constructed in terms of the enterprise and its characteristics. This is true, for example, of flow-of-funds and related accounts. Also, a number of the summary tables used in relating gross domestic product, the expenditures on the gross product, and income generated in productive activities have often, in practice, been constructed on an enterprise basis. The enterprise, however, often engages in a broad range of activities. Hence, analyses that attempt to deal with the nature of, and relations between, the productive activities that generate the domestic product, national income and financial flows must be based on data for statistical units which are more homogeneous and more manageable - such as the "establishment" or the "kind of activity unit". Tables showing the industrial origin of gross domestic product, gross domestic capital formation by industrial use and, in particular, input-output matrices are examples of analytical tools used to bring into sharper focus the contribution of and relations between various kinds of productive activity.

10.   Until comparatively recently, systems of national income accounts, flow-of-funds accounts, and input-output matrices have been constructed independently of one another. Now, however, there is much interest in integrating and comparing these accounts - neither of which is possible without first relating enterprise-based data and establishment-based data. And the need to compare these accounts exists not only at the level of national aggregates that summarize the activities and transactions of the whole economy, but for the individual entries in these accounts that relate to narrowly defined economic sectors. That is, there is a need to relate the financial transactions of the enterprise to the various productive activities that give rise to these transactions.

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[7]   Conf.Eur.Stats/81, para. 7.

11. Even though most countries have generally found it possible to assemble a wide range of economic data for the establishment-type units, there are important items of data on productive activities which may be recorded in the business unit on an enterprise basis only. This applies to some of the items needed in computing the contribution to the gross or net domestic product. Therefore, in cases where the enterprise is engaged in a broad range of activities, some means must be found for allocating such items to the different classes of activities. Where the gross domestic product is estimated on the basis factor income payments originating in the various segments of the economy, interest paid, certain transfer payments, profits out of current income, wages and salaries, rent and other expenses of central offices, etc. must be allocated and added to the data on wages, salaries, and rent payments which are obtained on an establishment, or kind-of-activity, basis. And, if the product approach to estimating contribution to the gross domestic product is used, certain general costs, such as advertising and other business services, and the costs of central offices, transportation and storage must be allocated to the separately treated activities of the enterprise. Allocation according to kind of activity is also necessary for fixed and working capital formation and depreciation in those cases where central offices, transportation and warehousing are important. For the preceding types of allocation it is necessary, of course, not only to know the structural relations between the enterprise and its constituent elements, but also to select data for the latter which are useful in apportioning the figures that are available only for the enterprise as a whole.

12. In addition to the enterprise-type data which can be realistically apportioned among sub-divisions of the enterprise, there are other kinds of enterprise data which cannot be so treated. Much of the financial data for the enterprise would fall in this category and certain data such as that concerning new orders, intended changes in inventories, and planned expenditures for fixed assets have normally been collected only at the enterprise level, and it is difficult to find a satisfactory means of allocating these data to sub-units of the enterprise. The significance of all of these items of data, however, could be better assessed in the context of more information about the range of activities within the enterprises to which they relate. The relation between new orders, deliveries, and

inventory changes, for example, is of particular interest in forecasting economic developments. But this relationship could be more meaningfully interpreted if new orders could be examined in conjunction with current deliveries and inventory changes distributed on a kind-of-activity basis within enterprises which are classified by their own industry. Similarly, the value of financial and other enterprise data would be enhanced if cross tabulations were available of a number of items by kind-of-activity of the enterprise vis-à-vis the kinds of activity of its sub-units.

19. Practical considerations also dictate the need for establishing a definite correspondence between the enterprise and its constituent elements. That is, the multi-unit enterprise should be split into subsidiary statistical units in such a way that all its activities fall uniquely within one or another sub-division,[8] and the relationship of the subsidiary units to each other and to the parent enterprise should be clearly identified. Then much of the data needed and collected for the sub-divisions of the enterprise can be aggregated to an enterprise total. Otherwise, some of the same items of data (e.g., sales, value of stocks, capital expenditures) would have to be collected for the enterprise as well as for its sub-divisions. Also classification of the enterprise in terms of the kinds of activities of its constituent units, which is an efficient way to assign industrial classifications to enterprises, becomes practicable when the relationship between the former and the latter units have been precisely delineated. Further, panels of establishments or kind-of-activity units can be used as the frame for a sample of enterprises where these sub-units are identified by the enterprise with which they are associated. In terms too of the design of different economic inquiries, in which the use of a variety of statistical units may be appropriate it is important to have clearly delineated the relations between the various statistical units in order to avoid overlapping inquiries or the omission of important areas.

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[8] In this connexion it should be noted that the definition of the establishment and the proposals concerning the treatment of central offices and other ancillary units contained in Proposed Revision to the International Standards in Basic Industrial Statistics, E/CN.3/257, were devised to attain this objective.

III. THE ENTERPRISE

A. Introduction

14. The comments made on the previous paper, E/CN.3/L.50, as well as the descriptions of the uses to which an enterprise concept is put clearly indicate that a single definition of the enterprise is neither possible nor necessarily desirable. Further, it does not seem possible to suggest a set of fixed definitions that would be applicable internationally. There does, however, appear to be considerable agreement on the usefulness of certain kinds of definitions of the enterprise and on the various objectives envisaged for statistical surveys in which the enterprise plays a part. In the following discussion the enterprise definitions used in a number of countries are examined in relation to the three main types which are described at the outset. The kinds of information gathered from these units in the several countries are also indicated. At the conclusion of this section an attempt is made to outline the main objectives that enterprise inquiries (as well as inquiries in which the enterprise is a subsidiary statistical unit), may serve and to indicate the type of enterprise definition best suited to these objectives.

B. Definitions of the Enterprise and National Practice

15. Three main types of enterprise definitions appear to be in common use throughout the world. These are set out below.

16. The legal entity: any individual proprietorship or association of persons carrying on a business undertaking - included are all such forms of association as the partnership, firm, company, corporation, or any of the many varieties of these forms of association or organization. In general, this unit is a legally recognized entity possessing the right to conduct business in its own name - i.e., enter contractual agreements, incur liability for debts, establish bank accounts, etc. In those countries where business enterprise is, for the most part, owned and controlled by government, the "enterprise" is analagous (organizationally) to the "legal entity" - being usually defined as the unit having a single administration with the right to conclude contracts, an independent production plan, an independent current bank account, and a self-contained system of bookkeeping with independent balance sheet and profit and loss statements.

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17. The other two commonly used definitions of the enterprise - which have no counterpart in those countries where business enterprise is owned and controlled by government - produce units that are collections of "legal entities". (i) The group of legal entities, bound together by ties of ownership, for which consolidated profit and loss statements and balance sheets are maintained - where "ties of ownership" is defined as more than 50 per cent ownership of the equity (or net worth) of each legal entity by the other members of the group. This concept has also been extended somewhat to include legal entities the control of which is acknowledged even though less than 50 per cent of the equity is owned by the parent organization. (ii) The group of legal entities bound together by ties of ownership, where "ties of ownership" is defined as above. This second definition simply dispenses with the requirement that consolidated accounts be maintained. As noted below, a further extension of the enterprise concept has been used in the study of foreign investments. In such cases a foreign enterprise has been considered attached to the parent organization if the parent owns any equity in the foreign enterprise and exercises a voice in its affairs.

18. In the countries of Eastern Europe, the enterprise - as defined in paragraph 16 above - is the basic statistical unit for all economic inquiries. Unlike its counterpart in the West, however, the enterprise in the centrally managed economies engages in a relatively narrow range of activities. That is, the activities of the enterprise are technologically associated, and strenuous efforts are made to keep the "profile" of the enterprise clean. As an example of this, it is reported from Hungary that the large Csepel Works, which before the second World War was a single enterprise, now consists of eighteen independent enterprises, each devoted to its own specialty. Even in Eastern Europe, however, purely technological considerations sometimes dictate that the enterprise include vertically or horizontally integrated operations and where this is the case the enterprise is generally required to report separately on its different operations as well as on its total activity.

19. In the Eastern European countries a very broad range of financial and physical data is collected for the enterprise - and, where necessary, for its separate activities. And since these data relate to units rather narrowly defined in terms of kind of activity, analysis of the relationships between financial and "real" activities and between economic sectors is much simplified.

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20. In the countries where economic activity is largely the province of private business, the enterprise can assume complex forms that make analysis of enterprise activities, or even precise definition of the boundaries of the enterprise, difficult. Establishing the boundaries of a business enterprise can be difficult (i) where it is necessary to isolate business assets and liabilities from personal assets and liabilities of individual proprietors and of certain types of partnerships,[9] and (ii) where it is desirable to treat as a single enterprise a group of legal entities commonly owned or bound together by ties of ownership.

21. The problems encountered with the unincorporated[10] business have been mentioned by the Federal Republic of Germany, Finland, India, Sweden and the United States. The laws governing the unincorporated business - requirements for registration, stipulation of the kinds of records to be maintained or filed, etc. - vary from country to country, but generally these laws are far less exacting than for limited liability businesses. For the partnership, of course, there are cogent reasons other than legal for maintaining accounts of business activity. Because of this, data on assets, liabilities, income and expenditure as well as data on productive activities have been more easily collected for partnerships than for single proprietorships, whose reasons for maintaining an adequate system of accounts are far less compelling.

22. Recently pilot studies were undertaken in the United States to study the financing experience of unincorporated business. As a part of this study it was necessary to develop methods for obtaining profit and loss and balance sheet data from these businesses. As might be expected, it was found that partnerships were far more apt to maintain such accounts than were single proprietorships; and even where accounts were kept for a proprietorship they tended to be less complete. In general, data on business income and, to a slightly lesser extent, expenditures were, because of the United States income tax requirements, almost invariably

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[9] Isolation of business income and expenditure may also be a problem for these kinds of units, but it is generally less acute.

[10] The term "unincorporated" is intended to cover all forms of business organization in which the liability of the owners is not limited. Limited liability forms of organization (e.g., the corporation, limited partnership) are required in virtually all countries to maintain independent accounts such as balance sheets and profit and loss statements.

available. Records relating to certain assets and liabilities - e.g., accounts receivable and payable - were also commonly found, but other items of assets and liabilities proved to be more difficult to collect. Even where regular books were kept, the single proprietor tended to mix certain business assets and liabilities with his personal account. This was true, for example, with respect to cash and financial assets (such as shares, bonds, etc.) and financial liabilities (e.g. loans) as well as for physical assets intended both for business and personal use. In order to fill in the frequently found gaps in the business accounts of the single proprietors, information was requested on personal assets. In addition to requesting the value of these personal assets - cash, bonds, shares, insurance and real estate - the respondent was asked to indicate, where appropriate, the amount of outstanding loans secured by these assets. In addition the net income from these personal assets was requested.

23. In a number of cases it is desirable to treat as a single entity the group of legal entities bound together by ties of ownership. The tracing of ownership ties and the identification of these business families, however, is not always easy. In some countries, of course, certain kinds of companies are required by law to declare their ownership of other companies when the extent of that ownership is sufficient to assure control (usually ownership of more than 50 per cent of equity). In such cases an identified family of legal entities is a matter of public record, but in many countries, it seems, these legal requirements for declaring ownership do not exist and in those countries as well as among the unincorporated businesses in all countries ownership ties must be the subject of special investigation. Some of the techniques that might be used for this identification are indicated in Section VI. In the following paragraphs the enterprise definition used in a number of countries is indicated together with some comments received regarding the difficulty of identifying families of legal entities and the desirability of so doing. In Section C below some general remarks are set out concerning the statistical objectives that can be served by the various enterprise concepts.

24. In the Federal Republic of Germany, the "legal entity" definition is preferred on grounds of desirability and, particularly, practicality. This unit is considered desirable because it can provide the full range of financial and "real"

data required and these data are amenable to more detailed classification by kind of activity than would be data for the enterprise more broadly defined. Further, the turnover tax is imposed on sales of the "legal entity" and it is considered essential to collect enterprise data in a form directly relatable to turnover tax data. And as a practical matter, it was noted that ownership connexions between "legal entities" were difficult to trace.

25. The comments from the Belgian Congo, New Zealand, Portugal, Spain and the Latin American nations also expressed a decided preference for the "legal entity" definition of the enterprise. In Finland and Sweden, on the other hand, the "legal entity" definition is preferred largely on practical grounds. Financial data are obtained in Finland as a by-product of the income and property tax reporting and this tax is imposed on each legal entity. A similar tax law in Sweden also specifies the kinds of records that must be maintained by the legal entity and so it is felt that data can be more uniformly and consistently reported for this unit. Laws also exist in Sweden which require that certain records be kept on a consolidated basis for groups of owned legal entities, but the content of these records is not specified and hence both quality and content varies considerably.

26. In Canada, the Netherlands, the United Kingdom and the United States approximations to all three enterprise definitions outlined at the beginning of this section are used at various times for the collection of data depending on the objectives of the inquiry and the practical problems of collection. The collection of data on corporation profits has in Canada been found to be easiest where the enterprise is defined in terms of the group of legal entities for which consolidated accounts are maintained. And as the economic decision - making unit of interest for studies of concentration and as a source for economically significant financial data the family of legal entities constitutes the preferred statistical unit. Income tax regulations, however, do not allow the filing of consolidated returns, and since current estimates of corporation profits are linked to a tax statistics base, the collection of profits data on a "legal entity" basis would, for this purpose, be preferred.

27. In the Netherlands, employment data for the smallest legal entity are compiled in alternate years from the results of the quarterly surveys into mining,

manufacturing and the production of electricty and gas. This unit also appears in
the annual production inquiries and inquiries relating to fixed capital formation,
along with the enterprise more broadly defined. For the annual surveys on
profits, financial assets and liabilities of corporations and the quarterly surveys
on assets and liabilities as well as in the decennial censuses of industries
the broader definition of the enterprise is used because of the importance of
obtaining data on the basic decision making unit.

28. In the United Kingdom an inquiry into direct investment overseas is conducted
in which the relationship of the parent legal entity (company) with both
subsidiary and associated companies overseas is examined. Associated companies are
defined as all those with which the parent group of companies has a continuous
connexion by virtue of shareholdings that the parent regards as a trade
investment. Also the group of companies connected by ownership links is used for
the collection of balance sheet data (in the United Kingdom such combines must
by law maintain consolidated accounts). The "legal entity", however, is used for
the collection and tabulation of profit statistics in the United Kingdom. The
comments from the United Kingdom also noted that "for some purposes the
identification of the enterprise as the smallest legal entity is convenient, but
this is a concept very far removed from the more meaningful concepts of the
enterprise".

29. A commonly used definition of the enterprise in the United States includes the
group of legal entities bound together by direct ownership (more than 50 per cent
of equity) as well as the legal entities the control of which is acknowledged.
This unit is employed, inter alia, in the quinquennial censuses of business,
manufactures and mineral industries where use of this unit provides a convenient
means of control as well as an appropriate unit for studies of concentration.
For the collection of quarterly statistics on plan and equipment expenditures and
quarterly balance sheet and income statement data the largest unit for which
consolidated accounts are maintained serves as the statistical unit. Here
attention is focussed on the decision making unit. Further, addressing questions
of this type to the enterprise level at which the most consolidated accounts
are kept simplifies the reporting process. The "tax paying entity" defined by the
social security legislation in the United States corresponds to the "smallest

legal entity" concept. Hence employment and wage and salary information garnered from these tax reports relate to the enterprise so defined (although most such units submit separate reports for each subsidiary establishment). In addition, the Bureau of Old Age and Survivors Insurance (administering the social security law) prepares statistics on employer population and business births and deaths using the smallest legal entity concept. The income tax laws - from the administration of which much of the basic financial data on business enterprise emerges - allow the corporation to report on the basis of fully consolidated accounts or on a basis less than a complete consolidation. The "tax paying unit" is, therefore, not consistently defined in this case.

C.   Summary

30.   In most countries a considerable volume of statistical data emanates from the administration and reporting requirements of particular laws. This is particularly true in the case of financial and related data which are frequently the by-product of tax reporting. From the comments received it appears that tax laws usually specify as the tax paying unit the legal entity, although in some countries different tax laws may specify different tax units (viz., in the United States where the social security tax is based on the smallest legal entity, while income tax data may be reported at a consolidated level if the reporter so wishes). From the fact that administrative requirements often provide a flow of accessable statistical information, two conclusions are apparent: (i) from a cost and convenience point of view it is clear that these sources of data should be utilized, and (ii) in many cases the formulation of policy decisions with respect to certain laws requires data not produced by the normal administrative requirements of these laws and supplementary information for units equatable to the legally stipulated entity must be gathered.

31.   While administrative records frequently provide a convenient source of information in a useful form, the requirements of economic analysis and much public policy formulation dictate that a broader concept of the enterprise be considered. Thus a number of countries conduct direct inquiries in which the objective is to isolate the largest aggregation of legal entities for which consolidated accounts are maintained. There are several reasons why the enterprise so defined

is preferable to the smallest legal entity for analytical purposes,[11]/ but perhaps
the more important are the following. A prime reason for collecting enterprise-
based data is for the assessment of the debtor-creditor relations, the
liquidity position, the sources and uses of funds and the interrelationships
between financial and "real" transactions of enterprises. Within a group of
legal entities bound together by ties of ownership, the accounts of each separate
entity would include the value of bonds, shares, loans, etc. issued by other
members of the group, whereas a set of consolidated accounts for the group as a
single entity would eliminate the financial and other transactions taking
place within the group. These internal transactions, or the decision to hold the
liabilities of other members of the same family, etc. are generally undertaken
for reasons quite different from those governing transactions external to the
group. Further, the internal transactions of a group of associated business
entities occur, more often than not, at arbitrary values, and reflect not the
decisions of the individual entity, but the decision of the management of the
group. Further, decisions on financing investment, etc. are generally taken at
this level on the basis of market considerations affecting both financial
transactions and the desirability of expansion or contraction of the various
"real" activities of the whole family. From the point of view of economic
significance, therefore, it is preferable to consider the group as a single
entity.

32. Practical considerations also make it difficult to rely entirely on
administrative records such as tax returns for enterprise data. Complete tax
returns are usually submitted only once a year, and tabulation of these returns -
slowed down as it is by administrative exigencies - generally takes considerable
time. For current analysis and policy decisions, however, such data are required
much more frequently than annually and the data are needed rapidly. For this
reason too direct enterprise inquiries are conducted in many countries.

33. In a number of kinds of economic surveys, the enterprise plays a part even
though no data relating to the enterprise as a whole are required. It is, for
example, in an establishment-based industrial or distribution inquiry, desirable

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11/ These and other matters concerning enterprise activities are discussed in
greater detail in Statistics of Enterprises, E/CN.3/260.

to identify the enterprise owning each individual establishment or kind-of-activity unit. Since it is only necessary to trace ownership links for this purpose - waiving the requirement that consolidated accounts exist - it may often be possible to define the enterprise very broadly.

34. In order to analyse concentration of ownership or control of economic activities, it is obviously desirable to trace interlocking lines of control as far as is practicable. In a number of countries tracing control to the extent that this control is exercised by majority ownership is easy; tracing control lines beyond that point, however, will generally presuppose a willingness on the part of enterprises to declare that control is exercised. In other countries it appears that even tracing direct majority ownership may be difficult.

35. For the study of direct investment in foreign companies and of the transactions taking place with such units, it is possible to identify the organizational links and collect the information needed without requiring that consolidated accounts exist for the entire combine. Here again, of course, the possibility of discovering these links depends on the existence of legal provisions that make disclosure of this information mandatory or the willingness of respondents to declare that these links exist.

IV. SUB-DIVISIONS OF THE ENTERPRISE

A. Introduction

36. As indicated earlier, many of the most common and most useful analyses of economic data involve the isolation of reasonably homogeneous industry groups; and often the segregation of these data by relatively small regions. A glance at the national publications containing the results of basic economic inquiries offers convincing evidence that these classifications are almost universally considered important. Fortunately a great majority of enterprises[12] carry on their activities in one identifiable location and are sufficiently specialized that data relating to the enterprise can be assigned a relatively narrow industrial and geographic classification. There are, however, more complex enterprises, diversified with respect to activity and dispersed over a wide geographic area, and though comparatively few in number, such enterprises usually account for a large proportion of total economic activity. If, then, geographic or industry by industry analyses are wanted, some way must be found to carve up these complex enterprises into statistical or tabulation units more amenable to such analyses. In this section the discussion centers on the problem of sub-dividing the enterprise into more homogeneous statistical units.

37. While there is often an emphasis on producing economic data assignable to specific kinds of activity and to location, this emphasis shifts in kind and in degree depending on the kind of data to be gathered or the kind of survey to be undertaken. In most cases, of course, the surveyor is at least partially at the mercy of the available enterprise records; but frequently the question is not one of availability but of convenience - that is, the enterprise could, with sufficient time and effort, assemble certain information for specified sub-divisions. Often, however, the uses for which the data from a particular survey are destined make it unnecessary to insist that the enterprise go to such lengths, and concessions are made that ease the reporting burden. In the following parts of this section three commonly used sub-divisions of the enterprise are discussed - the establishment, the local unit and the

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12/ Defined in any of the ways discussed above.

kind-of-activity unit. For convenience these will, as a group, be referred to as establishment-type units. In addition, the technical and ancillary units, which differ in nature from the establishment-type units, are described together with some of their uses.

B.   The Establishment-Type Units

(a)   Some general considerations

38. It was noted in the previous section that in the countries of eastern Europe with a centrally managed economy the aim is to restrict the profile of the enterprise to technologically associated activities. This is done, of course, because it facilitates planning and control. The enterprise itself then is also a kind-of-activity unit. In the countries of the West, the multi-activity private enterprise also tends, for much the same reason, to compartmentalize its operations since the management of the enterprise invariably wishes to plan and control its operations effectively, to know the performance of each major line of activity and to assess, at least roughly, the contribution of each to the over-all profit picture of the enterprise. The need for enterprise management to maintain effective operating control also frequently leads to the division of some management responsibility among geographically separated units. This is equally true in the West and in the countries of eastern Europe.

39. The need to manage effectively the various sections of an enterprise and to assess, evaluate and plan their activities leads to the establishment of accounting procedures that isolate these sections. The data needed by the enterprise for these purposes, however, and the extent and kind of compartmentalization established for record keeping purposes vary from enterprise to enterprise as well as from industry to industry and from country to country. Where mining, manufacturing or processing activities are involved, differences in machinery and equipment, type of personnel, raw materials and products all make it highly desirable, if not mandatory, to establish at least some operating records for each group of technologically and physically associated activities. Generally, for these reasons, records on employment and wages and salaries are maintained for separate locations in virtually all industries. Data on goods received and products produced or shipped are also generally recorded for separate

locations at least in quantitative terms. In certain enterprises and in certain industries, however, value data - particularly cost data - are recorded for lines of activity without regard to location. This situation is commonly found in wholesale and retail businesses and is not uncommon in certain industrial enterprises.[13]

40. Even though a multi-unit enterprise maintains many operating records for establishment-type sub-units, there remain both conceptual and practical difficulties in sub-dividing enterprises into establishment-type units. Important among these is that not all the activities of the enterprise can be uniquely assigned or allocated to one or another of its subsidiary units. In general, these would be ancillary activities - activities carried on to facilitate, or in support of, the productive activities of two or more of the subsidiary units, or transactions the profits or losses of which accrue to the enterprise as a whole. Many of the financial transactions of the enterprise fall in the latter category, and since these bear little or no relation to the kinds of productive activity engaged in nor to the physical dispersion of the productive facilities, it is often impossible to allocate these transactions to the subsidiary units. It is for this reason that items of data relating to financial activities are not recommended in the Draft Revisions to the International Standards in Basic Industrial Statistics or in the International Recommendations in Statistics of Distribution[14] which suggest that establishment-type units be the basic statistical units.

41. The ancillary, supporting activities carried on centrally by all multi-unit enterprises have been dealt with in a variety of ways. Examples of such ancillary units are central administrative offices, central warehouses and electric generating stations, etc. The common characteristic of these units is that they provide goods or services to more than one subsidiary unit - goods or services which do not enter into the final, marketable product of the enterprise. To avoid the difficulties of allocating the activities of these

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[13] It is interesting that in the United States, it is reported, a considerable and growing proportion of the large industrial corporations maintain records at the establishment level on a basis which follows reasonably satisfactory economic concepts. These records, it was noted, which often include profit and loss and balance sheet accounts for individual establishments, have been developed as a management tool rather than to facilitate the collection of government statistics.

[14] E/CN.3/257 and Statistical Papers, Series M, No. 26.

central ancillaries among the serviced establishments or kind-of-activity units,
it has been recommended[15]/ that such units be conventionally treated as separate
statistical units, classified to the main activity of the operating units served.
A number of countries follow this practice with but minor variations. In other
countries these ancillary activities are conventionally allocated to the most
important of the establishments served. In still other countries the enterprise
is asked to allocate the ancillary activities among the establishments served.

42. In most cases the magnitude of the central ancillary functions of an
enterprise are relatively so small that there is little practical significance
attaching to the kind of treatment accorded them. In a few instances, however,
and for some kinds of ancillary activities this may not be true. Own account
production of electricity and capital construction for own use constitute, in
some countries, an important part of the total of such activities. Where this
is the case, treating ancillary construction units and power stations as though
they were separate statistical units has obvious advantages in that these units
can then be classified either to the activity of the units served or, by
supplementary classification, to their own activity, depending on the purpose
for which particular tabulations are being made. A further advantage of treating
central ancillary units as separate statistical units is that it assures that
these units are not overlooked. This may be important where both the enterprise
and sub-divisions of the enterprise are used as statistical units and it is
desirable to establish links between them.

43. Another, sometimes serious, problem can arise when the multi-unit enterprise
has been sub-divided. The problem occurs primarily for the vertically integrated
enterprises where transfers of goods and services between subsidiary units are
important. The difficulty is that in the records for the subsidiaries these
intra-enterprise transfers are often valued in an artificial way that bears little
or no relation to the market value of the goods transferred or to their actual
cost of production. At times this failure (from the economist's point of view)
of an accounting system to yield the kind of value figures desired reflects simply

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15/ See E/CN.3/257.

the accounting convenience of the enterprise. In other cases tax legislation conditions accounting practice in this respect. This problem has been noted in a number of countries, but the responses to the problem have varied rather widely. From Finland, for example, it is reported that the sales tax provisions occasionally make it more profitable for a multi-unit enterprise subject to this tax to value intra-enterprise transfers at the smallest possible figure - the result being that an extraordinarily large margin appears at the point where goods leave the enterprise while the subsidiary establishments show a very low, and often negative margin. On the other hand, in areas where the sales tax does not apply, the manufacturing establishments may, for simplicity, record their shipments at retail values. In the Netherlands this same problem has been encountered, and in the new system of annual inquiries it is avoided by requesting only quantity figures for intra-enterprise transfers of goods. Presumably value figures for these transfers are, if needed, imputed by the statistical office.

44. In those countries where value figures are requested for intra-enterprise shipments, the usual practice is to try to approximate market values. This is the case, for example, in Canada, the United Kingdom and the United States. In the United States, furthermore, there appears to be a marked tendency for the large corporations to value internal transactions at prevailing market prices in their internal accounts as a means of providing an objective measure of the performance of the various establishments of the enterprise.[16] In a few cases, however, a market price may not be the most meaningful valuation price for a commodity moving through an enterprise. The United States has given as an example of such a condition an integrated pulp and paper manufacturer. It was found that valuing the pulp, which literally flowed from the pulp to the paper mill, at the price of pulp sold through the market to independent paper producers yielded unrealistic measures of the relative contributions of the pulp and paper sections of the integrated enterprise. In general, none the less, market value is the most meaningful way to measure intra-enterprise transactions.

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[16] See also footnote [12].

(b) The operational definition of the establishment

45. In concept, the establishment is equated to the simple enterprise which carries on a fairly specialized set of activities at one location. The establishment, then, encompasses not only those activities specifically related to the main marketable production of the enterprise, but also those supporting or ancillary activities without which there would be no production and which themselves exist only because there is a marketable production. Data related to the establishment, therefore, provide a picture not only of the truly productive activities of the enterprise, but also of the peripheral activities which the main production must support. In extending the establishment concept to the complex enterprise, therefore, the objective is to sub-divide the enterprise into a collection of units, each of which is as nearly as possible like a simple enterprise. Such an approach, to the extent that it is successful, has the virtue of producing statistical units which can not only be meaningfully classified by industry, location and size, but, particularly when analysed by industry, the data relating to these units provide a complete view of the activities and resources, both direct and indirect, attributable to each of these groups.

46. To apply the establishment concept effectively in practice, a reasonably clear idea of what is meant by "single activity" or "kind of business" is required. Quite obviously "single activity" should not be so narrowly defined that only the most specialized unit qualifies as an establishment. On the other hand, a definition that would allow too broad a grouping of diverse activities would defeat the objective of producing data assignable to usefully homogeneous industry groups. The problem here, then, is essentially the same as that attending the compilation of an industrial classification - in both cases it is desired to define the narrowest, most homogeneous groupings of economic activities that can relatively easily be delineated in the real world. To be able to isolate a particular grouping of activities in practice implies that in the great majority of cases, industry is organized and records are maintained in such a way that the data related to the technical aspects of this group of productive activities are separately available. Approaching the problem of defining the establishment along these lines, some countries have created the

headings of an industrial classification through an investigation of the usual groupings of activities and then defined the establishment in terms of the narrowest headings of that classification.

47. Similarly the problem of defining "separate location" is solved in a practical way by reference to the record keeping and organizational arrangements of industry. One of the most important results of the imposition of the single location restriction, of course, is that it allows for analysis of the collected data by small areas. This attribute can often be retained, however, with a relatively broad interpretation of "single location" so long as the unit defined falls entirely within the smallest area by which the data are to be classified. In other respects, however, varying definitions of "single location" may have a marked effect - e.g., on the number of units counted and, of course, on size tabulations.

48. In order to make clear to enumerators and respondents that the basic establishment concept should be modified, where necessary, to fit the actual organization and records of a particular enterprise, some countries have found it necessary to include in their establishment definition an explicit statement relating the establishment to existing organizational and record keeping arrangements of the enterprise. With a view to defining the establishment in operational terms, the dependence of the definition on business organization and records and on the types of data sought might be phrased in the following manner.[17]

> That group of activities, carried on under a single ownership
> or control at one location, which contribute indirectly as well
> as directly to the production of the most homogeneous group of
> products or services for which separate records are maintained that
> can provide the data concerning production and the materials, labour
> and other resources (both direct and indirect) going into the production
> of this group of products or services.

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[17] See also Proposed Revisions to the International Standards in Basic Industrial Statistics, E/CN.3/257, Annex I; and the International Standard Industrial Classification of All Economic Activities, Statistical Papers, Series M, No. 4, Rev.1.

49. While it is usually suggested that the establishment definition, for practical reasons, be geared to the record keeping practices of most multi-unit enterprises, it is not intended that the establishment be defined simply as the "unit for which each respondent wishes to report". Once a definition to which most respondents can conform has been established for each industry group, it is important that all respondents conform in all major respects to that definition. Of course, where deviations are minor it is not worth-while to attempt to elminate them.

(c) The local unit

50. Unlike the establishment, no restriction is placed on the range of activities to be included in this unit. In practice, of course, the local unit and the establishment are most often identical, and as already noted the local unit is sometimes the nearest approximation to the establishment that the record keeping system of the particular enterprise allows even though restriction with respect to range of activities is desired. In addition, however, the local unit has been specifically used as a basic unit in its own right for economic inquiries.

51. Among those countries making specific use of the local unit, definition of "single location" varies considerably. In the Federal Republic of Germany, for example, the local unit (Arbeitsstätte) is defined as that part of an enterprise occupying a single piece of land undivided by any public street, road or railroad. Such a piece of land could, in some instances, be sufficiently large to contain several buildings and a number of activities. In the Netherlands and in Sweden "single location" is, for some surveys, defined to include all units of the enterprise located within a municipality or within the smallest area for which data are to be published. A similar extension of the idea of "single location" is reported from Ghana.

(d) The kind-of-activity unit

52. There are two ways of defining the activity unit in current use. The definition used by the United Kingdom, the United States[18] and Finland makes an activity unit equal to the sum of all the establishments within an enterprise that would be classified to a particular industry. In the Netherlands, on the other hand, the activity unit is defined to be the sum of all technical units[19] that would be classified in one industry group. In reality this variation in definition produces two quite different statistical units. One of the advantages of defining the activity unit as the sum of the establishments in each industry group is that, with the exception of the central ancillary activities of the enterprise, the items of data relating to each activity group add up to the total for the enterprise. In other words this means that more of the enterprise's activities and resources are allocated to specific industry groups. This would be true, for example, in the case of employment. Using the Netherlands' approach only the operatives directly engaged in technical units are included in the activity unit - other operatives or manual workers and administrative, clerical workers being grouped together for the whole enterprise. On the other hand, a finer and more homogeneous division of the enterprise's directly productive activities may be possible using the Netherlands' approach, and where very detailed data regarding narrow industry groups are wanted - as, for example, in certain productivity studies - this has advantages. There is, however, the factor that with the growing automation of industrial processes, the line between operatives and overhead technical personnel is becoming increasingly less clear. Because of this, it has been suggested that the direct relationship of the technical staff to the proper functioning of any process should be taken account of in productivity analyses. It should be noted that the activity unit defined as a collection of technical units must be used as a supplementary statistical unit if the aim is to cover all activities. In the Netherlands it is used as a supplement to and in conjunction with the enterprise.

18/ For some purposes, e.g., in requesting the distribution of manufacturers' sales, the United States uses a commodity line approach to define the activity unit.

19/ See part C below for a discussion of the technical unit.

C.   The Technical Unit

53.   The establishment-type units described above are composed of both technical and ancillary units. The technical units comprise all those activities going directly into the production of the particular types of goods and services that constitute the main business of the whole unit, whereas the ancillary unit provides goods or services which do not themselves enter into any of the products of the unit.[20] The collection of all the technical units of an enterprise, therefore, unlike the establishment-type units, does not include all the activities of the enterprise.

54.   While there have been attempts to use the technical unit as a basic statistical unit, the difficulty of relating all the usually required items of data to this kind of sub-unit and the lack of consistency in the way production is organized have led to the abandonment of this approach. Use of the technical unit as a supplementary statistical unit, however, has met with much greater success. The establishment, for example, is best defined operationally in terms of the availability of records for the items of data needed. With the establishment so defined, there will be, within each industry group, a variation between establishments in the precise scope of their activities. Thus, one establishment manufacturing machine tools may produce castings in its own foundry while another may purchase its castings from an independent unit. If, in this situation, certain key items of data (particularly numbers employed and, possibly, output) can be obtained regarding the foundry as a technical unit, the two original establishments can be more meaningfully compared and a more complete picture can be drawn of all foundry activities. Even when the pragmatic establishment definition yields a set of homogeneous units within an industry group, the broad range of activities encompassed within each establishment may prompt the use of the technical unit for the collection of certain items of data concerning the separate subsidiary activities. Establishments in the basic steel industry, for example, may engage in blast furnace operations and steel making and rolling operations. Even though every establishment in this industry covers all these operations, it may be of considerable interest to collect some data regarding each activity.

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[20]   See International Statistical Industrial Classification, Statistical Papers, Series M, No. 4, Rev.1, p. 3.

55. Another and important reason for using the technical unit as a supplementary rather than as a basic statistical unit is that by definition it excludes all those activities which depend on, but are not directly connected with the main productive function. Were the technical unit, therefore, to be used as the sole statistical unit, only a partial accounting of the totality of industrial activities would be obtained.

56. What has been said above concerning the use of the technical unit as a supplementary statistical unit is, of course, equally applicable to the ancillary units of the establishment.

D. Sub-divisions of the Enterprise as They Appear in Practice

57. Although reports from the great majority of countries specify the use of an establishment concept in many surveys, it is clear that in all but a handful of cases it is the local unit that is accepted as the statistical unit. Further it appears that in a number of countries the term "establishment" is considered synonymous with "local unit". From India, for example, it is reported that in the future separate reports will be required from a single "establishment" for each of a list of "scheduled" industrial activities. Clearly the "establishment" used in India in the past has most probably been the local unit. The United States statistical authorities also state that only rarely would the complex of industrial activities in a single location require that the local unit be divided into two or more establishments. Instructions for the censuses of business, manufactures and mineral industries specify the rather stringent conditions under which the local unit is split as follows:

> "Where a single physical location encompasses two or more distinct and separate activities for which different industrial classification codes seem applicable, such activities should be treated as separate establishments and classified in separate industries, provided it is determined that: (1) such activities are not ordinarily associated with one another at common physical locations; (2) no one industry description in the United States Standard Industrial Classification includes such combined activities; (3) the employment in each such economic activity is significant (usually 100 or more employees in mining or manufacturing activity, and fifty or more employees in

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activities other than these); (4) reports can be prepared on the number
of employees, their wages and salaries, and other establishment-type data."

It is apparent that, operating under specifications such as these, an attempt
to split the local unit would be made only where the secondary activities of
the unit are particularly important and the record keeping practices of the
unit make possible the split.

58. In the Federal Republic of Germany, as in the Netherlands, the local unit
has long been used - particularly in the general economic censuses. In Germany
an extension of the local unit concept (Betrieb) is also used for the monthly
industrial survey. The "Betrieb" (a local unit except that all auxiliary units
whether or not separately located are included) is, however, requested to
provide certain items of data separately for each of its lines of activities.

59. The kind-of-activity unit probably started life as an approximation to the
establishment concept. The success of the unit has, however, been marked in a
number of countries and explicit use of the kind of activity unit has grown
enormously. In the Netherlands, the kind of activity unit[21] is now being used
as a supplementary statistical unit to the enterprise in annual inquiries into
employment and certain inputs and outputs of the pulp and paper industry, and
the textile and wearing apparel industries. In addition an approximation to
the establishment concept is maintained for the quarterly reporting of employment
data and the local unit, technical unit and enterprise will figure in the
regular decennial economic censuses. The United Kingdom, too, in the 1957 Census
of Distribution and Other Services, obtained all data (except employment and
salaries which were gathered for the establishment) on a kind-of-activity basis
for multi-unit retail enterprises with more than ten outlets. Further, it is
reported from the United Kingdom that a broad kind-of-activity unit is to be the
basis for future annual reporting of industrial activity. Under the new system,
the enterprise will report separately for each of thirty-one activities if more
than one of these figure in its range of activities. Again, however, it is

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21/ Defined as the sum of technical units.

/ ..

expected that establishment reporting will be maintained for infrequent benchmark industrial inquiries. In the past, the United States, while accepting the kind-of-activity unit in special cases, specified no general conditions for its use - treating it rather as an acceptable deviation from the establishment when necessary. Recent studies in the United States indicate, however, that wholesaling enterprises are organized and maintain many of their accounts along kind-of-activity lines - i.e., the enterprises tend to be departmentalized according to the kind of commodities handled. And the kind-of-activity is now used for the regular monthly wholesale trade inquiries. Other studies in the United States suggest that in that country it may often be possible to use the activity unit for the collection of virtually the entire range of real and financial items of data. The United States statistical authorities emphasize, however, that the importance of area and size analyses make it imperative, even in cases where the kind-of-activity unit is extensively used, to collect certain items of data - e.g., employment and sales - on an establishment basis.

60. The Dominion Bureau of Statistics, in commenting on some aspects of the statistical unit question, emphasized the desirability of getting consistency in the definition of the establishment among the various economic surveys. Thus, employment data are often collected in surveys that are separate from surveys into industrial production, and both are independent of capital investment surveys, etc. In Canada it has been found that although two surveys were presumably based on the establishment, the boundaries of the establishment were drawn differently in each case. Relating the data from the separate surveys was, therefore, difficult. In part this situation exists because of the different levels within the enterprise at which different items of data are summarized. To solve this problem, the Bureau has embarked on a two year programme designed to establish a standard directory of establishments for use in all economic surveys. For this purpose the definition of the "establishment" will be tailored to the records of the individual enterprise. That is, each multi-unit enterprise will be carved up into the most narrowly defined statistical units for which the full range of establishment-type data[22] can be reported. It is expected then

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22/ In general, those items of data listed as appropriate to an establishment-type unit in Annex 1.

that in any survey in which an item of establishment-type data is sought, it will be sought from the standard establishment. Of course, certain of the items of data may be available for sub-units of the standard establishment, and where this is the case, and the item in question is required for a more narrowly defined unit, it can be collected for that sub-unit, but always in conjunction with a total for the whole of the standard establishment. Following this system all establishment-based surveys will be relatable in an unambiguous manner.

61. From Czechoslovakia it is reported that although the enterprise is the basic statistical unit and always provides the channel through which economic data are collected, a number of important items of data are regularly collected for sub-units of the enterprise. In the monthly industrial survey, for example, the following kinds of data are collected for the local unit: employment, wages and salaries, time worked (including man-hours, lost and overtime), labour turnover, production costs, quantity of output and its value at constant prices. Records are also available within the enterprise that provide data for each separate kind-of-activity engaged in by the enterprise - e.g., data on labour, production, fixed assets and several financial items. Consistent and uniform reporting at these various levels of the enterprise is, of course, facilitated by the standardization of record keeping and accounting systems.

62. In Sweden the most commonly used sub-division of the enterprise has been the establishment. Often, however, the single location restriction has been relaxed to allow combined reporting of units that fall within the smallest area for which data are to be published. For annual industrial inquiries, establishment data have been supplemented by employment data on a technical unit basis although it is reported that difficulties are encountered because of the number of persons simultaneously engaged in several such units. For current inquiries on production, consumption and stocks, the kind-of-activity unit has been introduced in order to facilitate and speed up reporting and processing procedures.

63. In Finland both the establishment and the kind-of-activity unit are commonly used - the establishment most extensively in industrial inquiries and wholesale trade, the kind-of-activity unit in retail trade. Further, in the 1953 general economic census these two units were used in conjunction with the enterprise and

whenever the enterprise chose to report on a kind-of-activity basis, supplementary data - e.g., employment, wages and salaries, sales - were separately requested for each establishment included within the kind-of-activity unit.

E.   Summary

64. An analysis of the reports from the national statistical offices indicate a strong preference for the establishment (local unit) in most benchmark inquiries. This preference is, however, frequently modified by the circumstances of particular industries - for example, in construction, transport and communication, which by their nature have no fixed location, the kind-of-activity unit is often used. The general preference for the establishment in benchmark economic inquiries stems, of course, from the desire to have a unit to which a meaningful size measure can be applied and to have economic data relating to usefully narrow kind of activity classes and to well defined, small geographic areas. Further, since many countries of the world rely on field enumeration for the infrequent benchmark surveys, the establishment (or the local unit) is often an eminently practical choice, since this is perforce the reporting as well as the statistical unit.

65. For annual and current economic inquiries there is little or no emphasis on analysis of data by size of unit, and considerably less emphasis than for benchmark inquiries on regional analysis - except for employment and related data and, possibly, sales. On the other hand there is appreciably more interest in speed of reporting and hence a much increased interest in fitting the reporting scheme to the convenience of the respondents. Among those countries where an attempt has been made to gear economic inquiries to the convenience of the respondents, it appears that in many cases summary records at the kind-of-activity unit level provide the greatest range of data related to the "real" activities of the enterprise. This has been particularly true in wholesale and retail trade and services, and to a more limited extent true for certain industrial enterprises. The items of data that have often been more easily reported on a kind-of-activity basis are those relating to inputs inventories and capital expenditures. In addition, some countries noted that for the kind-of-activity unit it is frequently possible to collect certain financial data.

66. It is clear from the comments received that a number of countries are moving rapidly toward the use of all the establishment-type units. Further, the choice of the specific unit used is based increasingly on the record keeping practices of prospective respondents. However, record keeping practices of business, according to the national statistical offices' response to a request for information on this point, have been subjected to little systematic investigation. In a number of countries it is common practice to approach respondents before embarking on a new or revised survey, to ascertain their ability or willingness to provide the required data at an appropriate level, but in few cases have enterprise records been investigated to find at what level or levels of the organization each item of a broad range of data might conveniently be provided. The programme of the Canadian statistical bureau implies that such an investigation will be undertaken and in the United States record keeping practices with respect to a few items of data have been systematically surveyed on a limited sample basis. And in the Netherlands, an industry by industry investigation of records is being carried out as their new system of annual industrial surveys is introduced. But in general many gaps exist, particularly at the international level, in the knowledge of national accounting and record keeping practices.

67. To the extent that accounting practices vary from enterprise to enterprise and from country to country, reliance on the availability of records for the definition of statistical units could create problems of consistency or homogeneity in classification groups to which these statistical units are assigned. As much for domestic economic analysis as for international comparisons, it is often essential to know the homogeneity of industrial classifications. That is, it is of interest to know two facts about a set of data assigned to a particular industrial activity group - (i) to what extent do the activities of the units classified to the group include those not properly belonging there; and (ii) do the units included in a particular classification heading account for all or a large share of the activities in question or do other units, carrying on these activities as a secondary occupation, account for a significant proportion of these activities? The Expert Group of the Conference of European Statisticians also called attention to this problem and suggested that countries should consider

publishing such measures of homogeneity.[23/] Hungary, Poland, the United Kingdom and the United States do already publish these measures for their industrial classifications – Hungary and Poland for the enterprise, the United Kingdom and the United States for the establishment classification. In addition the United States computes similar homogeneity measures for their enterprise classification.

[23/] See Conf.Eur.Stats.81, 17 April 1958.

V. THE RELATIONSHIP BETWEEN THE STATISTICAL UNIT AND THE ITEMS OF DATA TO BE COLLECTED

68. The foregoing discussion has emphasized the function of the statistical unit in reaching certain desired statistical objectives and the role played by the record keeping practices of the business enterprise in determining the kind of statistical unit that can be successfully employed for an economic inquiry. In the present section specific items of data are presented together with the reasons, or conditions under which, records might be expected to exist at the level of the various statistical units already described.

69. It is well to bear in mind that the problems discussed here are, in a sense, rather limited. For the typical enterprise that carries out its business at a single location and engages in a narrow range of activities, no problem of splitting the enterprise exists. Such enterprises - numerically speaking - constitute the vast majority of the business community in every country. As pointed out earlier, however, the multi-location, multi-activity enterprises are often very important in terms of the magnitude of their operations[24] - though there is, even here, a tendency to specialize activities at particular locations.

70. In view of the economic importance of the multi-unit enterprises and their relatively small numbers, a detailed investigation of their record keeping practices would seem to be both practicable and highly desirable. Certainly a knowledge of these practices would greatly facilitate the design of a realistic system of economic inquiries. In addition, if these studies were carried out in a number of countries, it would aid materially in drawing up realistic international recommendations regarding the choice of appropriate statistical units for the collection of specific items of economic data.

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[24] In this connexion it may be interesting to note that tabulations from the 1954 Censuses of Business, Manufactures and Mineral Industries in the United States reveal that of the 2,783,977 companies (enterprises) included in the census only 68,133 (i.e., 2 per cent) were considered multi-unit. These multi-unit companies, however, employed approximately 52 per cent of the 29.5 million persons employed by all companies within the scope of the census. See Company Statistics, 1954, Censuses of Business, Manufactures and Mineral Industries, Bulletin CS-1, United States Department of Commerce, Bureau of the Census, Washington, D.C.

A. Items of Data Appropriate to the Establishment-type Units

71. The items of data suggested as appropriate to the establishment-type unit are employment; man-hours; wages and salaries; labour turnover; capacity of power equipment; expenditures for fixed assets; inventories; sales,[25] shipments and production; purchases,[25] goods received and consumption of goods and materials, the cost of industrial services (repair, maintenance, etc.) and transport and communication supplied by others and the cost of sub-contract work let out.[26] The names given here to the items of data are most appropriate to industrial units, but equivalent items are appropriate to units engaged in the distributive trades, services and other activities. These items, it will be noted, all relate more or less directly to the "real" activities of the enterprise - to the process of production, distribution, etc.

72. The subsidiary statistical units chosen for an enterprise for which the foregoing items of data are to be collected, should meet two conditions: (i) in order to be able to relate establishment and enterprise based data as well as to obtain complete coverage of the enterprise's activities, the aggregation, where appropriate, of each item of data over all the subsidiary statistical units should be equal to that which would be reported for the enterprise as a whole and (ii) for each subsidiary statistical unit, summary records must be available which provide the items of data required. The first requirement - that of covering the whole of the enterprise's activities - can be solved by making provision to ensure that the activities of each element of the enterprise are included in one or another of the statistical units delineated. This can often be accomplished by treating central administrative offices, warehouses and other ancillaries serving more than one subsidiary unit of the enterprise as independent statistical units as suggested earlier. The second condition can only be met with certainty through a knowldedge of the record keeping practices of the enterprise. Where an investigation of the record systems of respondents indicates that the records vary with respect to

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25/ "Sales and purchases of a subsidiary establishment" are understood to mean "sales to or purchases from other enterprises".

26/ A list of these items of data will be found in the Annex I.

the kind of unit for which different items can be provided, either the list of
items must be truncated to fit a narrowly defined statistical unit or the
definition must be broadened to the point where the whole list of items can be
uniformly related to the same kind of unit. In view of the fact that the
relationship between the various items of establishment-type data are of
considerable interest, the second alternative has advantages. If, then, in
certain areas of industry, this more broadly defined statistical unit encompasses
too heterogeneous a grouping of activities, a restricted number of items of data
may be obtained on the basis of a sub-unit more restrictively defined. The
specific items of data and the kind of sub-unit to which they might be related
in particular cases can, of course, be ascertained from an investigation of the
available records.

73. Almost of a necessity, records regarding employment, and other labour data
and wages and salaries are maintained on a local unit level - except, of course,
in the highly mobile industries such as construction, transport, etc. To collect
these data on an establishment basis, however, may sometimes require the splitting
of a local unit along kind of activity lines. Here there may be a problem of
allocating to each kind of activity the personnel engaged in ancillary
activities - administrative and technical personnel, persons engaged in
maintenance, ancillary power plants, etc. In the majority of cases, however,
since it is only rarely that it is necessary to split the local unit, little
difficulty has been encountered in obtaining labour data on an establishment
basis. With respect to the other items of establishment-type data, as already
noted, experience has varied considerably from country to country and from one
industry to another.

74. Frequently, difficulties are reported in the valuation of certain of these
items of data (e.g., inventories, shipments and production, goods received and
consumption, current expenditures on fixed assets) when attempts are made to
collect them for sub-divisions of the enterprise. To the extent that shipments
of products and receipts of goods and materials involve transactions of the
subsidiary establishment with other enterprises, the valuation problem is no
different than for a single unit enterprise. Frequently, however, the subsidiary
unit obtains its materials and ships its products to other units of the enterprise

/...

and no market value attaches to these transactions.[27] In some cases and in some countries use of the kind-of-activity unit has eased some of these valuation problems.

75. In addition to presenting the same kind of valuation problems as shipments and deliveries, the valuation of production and consumption involves ascertaining the price or value appropriate to the time at which production or consumption takes place. In general, this value can only be approximated and the degree of approximation is independent of the statistical unit chosen.

76. When dealing with statistical units that are sub-divisions of an enterprise, the problem of incomplete coverage of the enterprise's total activities has been most acute in terms of the reporting of expenditure for or value of physical assets and inventories. The problem occurs when assets such as trucks or other mobile equipment are shared between two or more units or more than one unit draws upon a common stock of materials. The suggested treatment of ancillary units serving more than one unit of an enterprise as independent statistical units frequently provides a solution to this problem. Similarly complete coverage of the sales and purchases of an enterprise can be assured by treating the central sales or purchasing organization of the enterprise as a separate statistical unit.

B. Items of Data Appropriate to the Enterprise

77. Most of the items of data appropriate to the establishment or other sub-divisions of the enterprise are also appropriate to the enterprise. in the sense that such data could be summarized at that level. In many cases, however, reporting details on labour, production, wages and salaries at the enterprise level would prove to be burdensome to the respondents - particularly if the enterprise has been broadly defined. In addition, as already mentioned, the establishment-type items of data are considerably more meaningful when collected on a basis that allows for the maximum possible distinction between kind of activity and location.

27/ See footnote 12/ above.

78. A list of the items of data specifically appropriate to the enterprise is included in Annex I to this paper. These items relate primarily to activities associated with the functioning of the enterprise as a whole. One of the most important areas covered by these data is net income and its distribution. Related to these, of course, are the costs and receipts of the enterprise. A number of the sources of costs and receipts are also included in the list of items appropriate to sub-units of the enterprise. However, certain costs - advertising, business services, interest, etc. - are often not allocated among constituent units of the enterprise. Similarly, there may be elements of the total gross income that arise out of purely financial transactions and these, in general, would not be allocated to the sub-units. Financial data of the kind found in a balance sheet are also included in the list of enterprise statistics - indebtedness, net worth capitalization, etc., all of which are meaningful chiefly at the enterprise level. It should be noted, however, that financial data such as these found in balance sheets or profit and loss statements and general overhead costs will often be allocated among the legal entities or even the kinds of activity units (e.g., divisions making up the enterprise). If this is so, it would, of course, be desirable to take advantage of the possibility of classifying the data to categories more homogeneous with respect to kind of industrial activity than is possible when the more broadly defined enterprise is utilized as the statistical unit.[28/]

79. Another area covered by the list of enterprise statistics relates to management intentions - intended investment in fixed assets and planned changes in inventory holdings, for example. These data are of increasing interest to economic analysts and considerable effort is going into a refinement of survey techniques to make these statistics reflect future actions more accurately. These data, as in the case of many of the items of financial and over-all cost data, may also be available for kind-of-activity sub-divisions of the enterprise.

28/   Although for some purposes these data relating to the legal entity are not
      as useful. See paras. 31-34 above.

C.   Items of Data Appropriate for Collection from Both the Enterprise and Its Sub-Divisions

80. The Expert Group of the Conference of European Statisticians suggested that in major economic inquiries at least the main items of data should be tabulated on the basis both of the enterprise and of one or more sub-units of the enterprise, [29] and the desirability of such tabulations is further emphasized in the following section. Normally, of course, such tabulations would be made on the basis of sub-units of the enterprise that were actually used as statistical or tabulation units for the various economic surveys conducted. These tabulations would provide both a description of the internal structure of enterprises and benchmark data which could be the base for subsequent surveys employing a variety of statistical units. And, as suggested earlier, they could be used for inter-relating sets of data collected for different units and for analysis of the activity composition of the enterprise.

81. In most countries it is only at infrequent intervals that economic inquiries of sufficiently broad coverage are conducted in which it would be profitable to collect the same data on the basis both of the enterprise and one or more sub-units of the enterprise. And in broad, general economic inquiries, it is the usual practice to gather a very limited range of information. These considerations, plus the fact that relatively few items of data are readily collected in a consistent fashion at both the enterprise and sub-unit level, make it apparent that very few items of data (e.g., sales, employment) should be collected on more than one basis. These items would provide a useful control over the coverage of all the enterprise's activities as well as permit the statistical delineation of the structure of the enterprise. As noted above, however, items of data, gathered only for sub-divisions of the enterprise, are often usefully aggregated to an enterprise total. Therefore, in the list, set out in Annex I, of items of data appropriate to both the enterprise and its sub-divisions, items are included that may be more conveniently collected at the sub-division level - items useful as a medium of control and those useful in delineating the statistical structure of the enterprise. In addition, the

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29/ Conf.Eur.Stats./81, 17 April 1958.

reported experience in collecting certain items of data in different countries
varies considerably - i.e., in some countries it seems perfectly possible to
collect the item in question for sub-divisions of the enterprise, while in other
countries collection is only possible at the enterprise level. Items of this
kind are value of inventories, capital expenditures, unfilled orders, rents,
and accounts payable and receivable; and, because of the lack of agreement on
the unit best suited to their collection, these items too are included in the
list of those appropriate to either the enterprise or its sub-divisions.

VI. TECHNIQUES OF INTEGRATING ENTERPRISE AND ESTABLISHMENT-TYPE UNITS

A. Introduction

82. Section II of this paper was devoted in large part to a summary of the needs for relating enterprise and establishment-type data. And throughout the paper mention has been made of the importance of defining sub-divisions of the enterprise so that these sub-divisions cover all the activities of the enterprise and do not overlap. In this section certain techniques of collecting information on the structure of enterprises are examined and the usefulness of these techniques for control purposes is indicated. Also considered are some methods of tabulating inquiry results to bring out the structure of the multi-unit enterprises and to interrelate data for enterprise and establishment-type units.

B. The Consolidated Register

83. The Working Group on Industrial Statistics of the Conference of European Statisticians expressed the view that basic to delineating the relationship between various statistical units employed in economic inquiries was the compilation of a register identifying the multi-unit enterprises and providing certain information both for the enterprise itself and for each sub-division of the enterprise normally utilized as a statistical unit - e.g., the separate legal entities included within the enterprise (where appropriate), and the establishments and/or kind-of-activity units of which it is composed. For each of these units this information might include: identifying information (trade name, legal name, address, etc.), employment, industry and geographic codes, and an indication of the relationship between the members of the enterprise family.
84. Many countries already have at least partial registers of economic units. Often, however, these registers have been compiled independently for each survey programme. That is, one register would be compiled for establishments engaged in industrial activities, another for establishments engaged in wholesale and retail trade, etc. Separate compilation of enterprise registers and registers of establishment-type units have been particularly common. In a number of cases, independent registers for separate surveys covering the same economic area would in fact delineate the statistical units differently even though these units were

called by the same name.[30] Because of the overlapping of independent registers, the common lack of a consistent application of even the same statistical unit definition, and the omission of many economic units from all registers prepared for statistical use, compilation of a consolidated register of the kind described in the previous paragraph must often be undertaken afresh. In some cases, of course, files and records developed for administrative use can provide all or most of the information needed for such a register, but in many countries the necessary information must be gathered from the enterprises directly.

85. Since the enterprise itself can, and often does, span two or more major divisions of economic activity, a general economic census programme could be an excellent channel for obtaining the data needed for constructing a general register of economic units showing the structure of the economy and the internal structure of the enterprise. A number of countries already include an infrequent general economic census in their survey system, but few to date have utilized this census to describe the structure of the enterprise.

86. Because the usual general economic census covers even the very small economic units and one of its principal aims is the production of small area data, it is often conducted as a field inquiry and the establishment or local unit is the basic statistical unit. In order to elicit the information needed to identify associations of these basic units into enterprises few questions are required, and these can also provide a very effective control on the coverage of multi-unit enterprises. The questions that might be asked of the establishment or local unit are the following: (i) Does the owner of this unit own or operate any other unit? If "yes", (ii) What is the name and business address of the owner? If the unit approached is the seat of the owner of two or more units, a separate questionnaire might be prepared in which three additional questions are asked of the owner: (i) What are the names and addresses of all units owned or operated by this company (firm, corporation, etc.)? And, if it is desired to trace the lines of enterprise beyond the legal entity stage: (ii) Is this company (firm, corporation, etc.) owned (or controlled) by another? And, if "yes": What is the name and address of the owning (or controlling) company? And, (iii) Does this company

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[30] See, for example, the description of Canadian experience in para. 60 above.

(firm, corporation, etc.) own (or control) another? And, if "yes": What are the names and addresses of the companies owned (or controlled)? If, in addition to these identifying questions, the head office of an enterprise is asked to report its total employment and the employment of each of its subsidiary companies and establishments (or local units), the basic information is then available for the compilation of a consolidated register. Further, the data reported by the head office can be used to assure that all subsidiary units report properly.[31/]

87. Earlier it was noted that a consolidated register could in some countries be compiled from existing administrative records. In France a register of establishments - both commercial and industrial - already exists. This register is compiled by the Institut National de la Statistique et des Etudes Economique (INSEE) on the basis of the records in the Ministry of Finance and the Social Security Service. While each establishment registered carries the identification and address of its parent enterprise and an indication of whether or not the parent is a multi-unit enterprise, the establishments belonging to multi-unit enterprises have never been collated directly with the parent enterprise. INSEE is now engaged, however, in compiling, from the basic establishment register, a register of multi-unit enterprises.

88. It should perhaps be re-emphasized that in all countries the number of multi-unit enterprises is relatively small. Already noted was the fact that only 2 per cent of the enterprises covered in the 1954 censuses of business, manufactures and mineral industries in the United States were considered multi-unit. And from the Philippines it is reported that of the 2,071 large (20 employees and over) establishments engaged in manufacturing, 140 are owned by forty-seven enterprises (legal entities). The disproportionate importance of these forty-seven

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31/ A variation of this technique is used in the United States for the quinquennial censuses of business, manufactures and mineral industries. For these censuses - which are conducted by mail - a pre-canvass of the enterprises is undertaken and a listing of subsidiary firms and establishments, together with employment data for each, is requested. These forms then provide the basic control mechanism for the main census. A similar listing by the enterprise is also requested at census time as well as certain financial data for the enterprise as a whole.

enterprises, however, is indicated by the fact that in 1957 they produced 32 per cent of the value added in manufacturing.

89. It should be noted that use of the technique of identifying the ownership of establishment-type units and control checking through the enterprise need not be confined to a general economic census. It is equally valuable as a control device for special inquiries into industrial, distribution or other kinds of activity. Further, contact with the enterprise makes possible the collection of certain peripheral information that is otherwise difficult to get - expenditure or new plant not yet in operation, for example.

90. A number of countries have indicated that plans are in process for the establishment of a consolidated register of economic units. The Canadian programme of unifying the establishment definition for all surveys has already been mentioned. As an additional part of that programme a register of the standard establishments is to be set up, including an identification of the parent enterprise. In the United States a special annual survey of several thousand large enterprises is being considered in order to keep the register resulting from the census up to date. This survey is designed to obtain information on organizational structure - i.e., parent company, subsidiaries, divisions, establishments and other statistical sub-units. Also some key financial and employment data are to be gathered at the enterprise level. In addition a summary of mergers, acquisitions, disposals, and other changes in corporate structure is to be requested as well as changes in the location of industrial activities of individual establishments.

C. Interrelating the Enterprise and Establishment-Type Units

91. In addition to its usefulness as an operational control, identification of ownership groups makes possible the tabulation of diverse economic data in a co-ordinated fashion. Many of the advantages of and the needs for tabulations that permit the direct inter-relating of these data are presented in Section II of this paper. In this section some of the techniques useful in producing those tabulations are described and examples of tabulations that might be prepared are indicated.

92. In order to undertake tabulations that show, simultaneously, items of data according to characteristics of the establishment-type unit to which these data relate as well as by characteristics of the enterprise owning that unit, each item of data must be identified by the appropriate characteristics of the sub-unit from which it comes and by the characteristic or characteristics of the owning enterprise that are of interest. Here the discussion centres on two characteristics - (i) the main kind of activity of the establishment-type unit and of the enterprise,[32] and (ii) whether or not the enterprise includes two or more establishment-type units. That is, if punch-card equipment is being used, each card carrying an item of data - say number of persons engaged - relating to an establishment, must also carry (i) the industry code of the establishment, (ii) the industry code of the enterprise (which may be the same as or different from the former), and (iii) a code indicating whether or not the parent enterprise owns or operates other establishments.

93. Tabulations that show the relationship between enterprises and their sub-units can, of course, be made in a number of ways and the form in which the results of such tabulations are presented can likewise vary considerably. Essentially, however, these tabulations produce a matrix in which an item of data based on an establishment-type unit is distributed in one direction by the industrial classification appropriate to that unit and in the other direction by the industrial classification appropriate to the enterprise of which the establishment-type unit is a part. A diagram of such a matrix, in which employment is assumed to be the item of interest, is set out below. For simplicity it is assumed that establishments and enterprises are classified to kind-of-activity at the same level of detail. In fact, it might often be advantageous to emply a more detailed classification for the establishment-type unit. Further, of course, a number of items of data other than employment might appropriately be distributed in this form - value added (or gross margins, sales, revenues, etc., depending on the industry), shipments, wages and salaries, capital

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[32] See Section VII below for discussion of the classification of enterprises by kind-of-activity.

expenditures, number of establishment-type units[33] (with number of enterprises indicated at the margin), etc. would all be useful.

94. The presentation of data for establishment-type units in matrix form provides a considerable amount of information concerning the structure of the economy and of the business enterprises within that economy. Four ratios that may be useful as objective measures of certain structural characteristics are defined below as well as in conjunction with the diagram.

95. The degree of industrial specialization of all enterprises is a measure of the extent to which, in each enterprise industry category, the enterprise includes only establishments classified to the same industry category. The degree of industrial specialization of multi-unit enterprises provides an equivalent measure leaving out of account the single unit enterprises. Together these ratios indicate the mixture of activities outside the scope of the classification group encompassed by enterprises whose main activities place them in that group. Like the analogous measure of specialization suggested for establishment-type units,[34] this ratio provides a test of the industrial classification system for enterprises.

96. The coverage ratio is designed to measure the extent to which enterprises classified to a particular industry heading include all establishments (or establishment-type units) classified to that same industry heading. A low ratio here indicates either that the enterprise industry category is too narrowly defined or that a large portion of the activity in question is carried on as a secondary occupation by multi-unit enterprises.

97. The fourth ratio defined, the relative importance of multi-unit enterprises, indicates the extent to which a particular kind of activity is carried on by establishments belonging to multi-unit enterprises. It is, therefore, one measure of the concentration of ownership within particular industries.[35]

33/ The interpretation of this number would be quite different, of course, depending on whether the unit is the establishment, the local unit or the kind-of-activity unit.

34/ See para. 67 above.

35/ In Annex II a numerical illustration of these ratios is presented.

DISTRIBUTION OF EMPLOYMENT (OR OTHER APPROPRIATE ITEM OF DATA)
BY INDUSTRY OF ESTABLISHMENT-TYPE UNIT
AND BY INDUSTRY OF PARENT ENTERPRISE

Industry of Enterprise \ Industry of Establishment-type Unit	Enterprise Data	Total	1	2	3	i	n
Total Single unit				x_{22}			
Multi-unit				$\sum_{j=1}^{n} y_{2j}$			
1 Single unit							
Multi-unit				y_{21}			
2 Single unit		x_{22}		x_{22}			
Multi-unit		$\sum_{i=1}^{n} y_{12}$	y_{12}	y_{22}	y_{32}	y_{i2}	y_{n2}
3 Single unit							
Multi-unit				y_{23}			
i Single unit							
Multi-unit				y_{2i}		y_{ij}	
n Single unit							
Multi-unit				y_{2n}			

x_{ij} = 0 except where $i=j$

x_{22} = employment in establishment-type units classified to industry '2', belonging to single unit enterprises.

y_{22} = employment in establishment-type units classified to industry "2", belonging to multi-unit enterprises classified to industry "2"

$\sum_{j=1}^{n} y_{2j}$ = total employment in establishment-type units classified to industry "2", belonging to multi-unit enterprises (regardless of industrial classification of the enterprise)

$\sum_{i=1}^{n} y_{12}$ = total employment in multi-unit enterprises classified to industry '2'.

Analytical Ratios

1. Degree of industrial specialization of all enterprises classified in industry '2'

$$= \frac{x_{22} + y_{22}}{x_{22} + \sum_{i=1}^{n} y_{12}}$$

2. Degree of industrial specialization of multi-unit enterprises classified in industry "2"

$$= \frac{y_{22}}{\sum_{i=1}^{n} y_{12}}$$

3. Coverage ratio (i. e. extent to which enterprises classified to industry "2" include all establishment-type units classified to industry '2')

$$= \frac{x_{22} + y_{22}}{x_{22} + \sum_{j=1}^{n} y_{2j}}$$

4. Relative importance of multi-unit enterprises in industry '2'

$$= \frac{\sum_{j=1}^{n} y_{2j}}{x_{22} + \sum_{j=1}^{n} y_{2j}}$$

/ ..

98. A matrix of the kind shown above can also be profitably used in the allocation of certain enterprise-based data to more narrowly defined kind-of-activity sectors. It may, for example, be required to distribute "contribution to gross domestic product" computed for enterprises classified to a particular industry. If the enterprises in question are engaged entirely in the kinds of activity in which the computation of value added is available on an establishment or kind-of-activity basis, these data can serve very well for the distribution required. In some cases, however, - e.g., where the enterprises span manufacturing and wholesale trade and value added is not computed for the latter - it may be necessary to distribute the contribution to gross domestic product in two stages - first to wholesale trade and manufacturing, perhaps on the basis of wages and salaries, and then within manufacturing on the basis of the distribution of value added and within wholesale trade on the basis of wages and salaries or sales.

99. Some data frequently collected at the enterprise level cannot be directly allocated to kind-of-activity sectors.[36] New orders, intended changes in inventories and planned expenditures for fixed assets are items of this kind. Even though these items themselves are not directly allocable to kind-of-activity sectors, their significance for the various sectors can be better assessed if other related data - e.g., shipments and inventories - have been tabulated in a form that defines the kind-of-activity structure of the enterprises classified to each industry category.

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[36] See also para. 12 above.

VII. CLASSIFICATION OF THE ENTERPRISE BY KIND-OF-ACTIVITY

100. Reports from the various countries indicate that several criteria are used for assigning a "main kind-of-activity" classification to the enterprise. The most widely used criterion is employment - i.e., the activity of the enterprise employing the greatest number of persons is designated the main activity for purposes of classification. In addition, however, sales (or turnover), wages and salaries, and value added have been used, and often combinations of these items. In France, for example, commercial enterprises are classified on the basis of turnover, while employment data determine the classification of industrial enterprises. In the United States, classification takes place in two stages[37] - (i) kind-of-activity in which wages and salaries are greatest determines the major division (mining, manufacturing, wholesale trade, retail trade, selected service trades, or public warehouses) within which the enterprise falls, and (ii) below the division level, value added is the criterion for determining kind-of-activity within the mining and manufacturing divisions, and wages and salaries in all other divisions.

101. The majority of the comments received from the national statistical offices indicate that less study has been devoted to the problem of devising a useful industrial classification for enterprises than has been given the question of classification systems for establishment-type units. Further, it is apparent that the differences in the organization and range of activities of enterprises among countries are more marked for enterprises than for establishment-type units, but whether these differences are too great for the construction of a useful, internationally comparable classification system remains to be investigated. A useful tool for such an investigation would be a matrix presentation similar to that described in the previous section, of certain key items of data. Available for many countries these matrices would provide an objective measure of the similarity between countries in the activity composition of enterprises. In addition, of course, a matrix of this kind is extremely useful in the construction of an appropriate national industrial classification system for enterprises.

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[37] For the 1954 censuses of business, manufactures and mineral industries.

102. While it is not possible to set out any absolute criteria for the establishment of industrial classification groups for enterprises, there would probably be general agreement on the following points· (i) The industrial classification system used for establishment-type units should be directly convertible to the enterprise classification system by the simple combination of the detailed headings of the former. (ii) A heading should not be so narrowly defined that a large percentage of the activities of enterprises classified to that heading fall outside its scope (i.e., the degree of industrial specialization should be fairly high). Within these two restrictions two approaches have been adopted - (i) collapsing of the detailed headings of the usual classification system used for establishment-type units to a 3 or 2 digit level, and, (ii) the addition of special headings that combine these same detailed headings, sometimes across sub-group, group, or even division lines, to take care of integrated enterprises. The first approach has in the past been the most common. At present, however, several countries are working on enterprise classification systems of the second type. The reason for this is apparent. In certain industries, a high degree of vertical integration is common - in many cases an integration that brings within a single enterprise all stages from the production of raw materials through the marketing of finished products. If such enterprises are common in a particular industry, it would be impossible to stay within a two digit group - or even in some cases a 1 digit division - of an establishment-type classification system and achieve an acceptable level of industrial specialization for enterprises classified to that industry.

103. The petroleum industry is an example of one in which the enterprise commonly covers extraction, processing and marketing. In recognition of this it may be desirable to raise an independent heading for integrated petroleum enterprises in addition to the headings appropriate for the more specialized enterprises that are unequivocally assignable to either the extraction, the refining or the marketing of petroleum and its products. Other examples of activities frequently combined within integrated enterprises are iron mining with steel making, coal mining with coking, and many kinds of manufacturing with wholesale (and sometimes retail) trade.

104. Creation of additional headings in an enterprise classification to take care of integrated enterprises means that there is no equivalent heading in the

establishment-type classifiction from which the enterprise classification is
derived. In terms of the matrix tabulation described in the previous section,
this means that no establishment-type unit is classified to an integrated heading,
but rather to its own main activity as defined by the establishment-type
classification system used. In this way the integrated enterprises are identified
for what they are and at the same time the matrix describes the range and
magnitude of their separate activities.

VIII. CONCLUSION

105. In view of the broad general interest evinced by the national statistical authorities in the statistical unit and the part it plays in the matter of collecting and compiling economic data as well as its relation to the questions of international comparability and the construction of useful classification systems, the Statistical Commission may wish to invite the Secretary-General to:

(i) Issue a technical study based on the present document, revised in the light of the Commission's comments and extended to include more detailed accounts of national programmes for the study of record-keeping practices, for the joint tabulation of data by characteristics of enterprise and establishment-type units and other information pertinent to the statistical unit question, and

(ii) Undertake further consultation with the national statistical offices and regional organizations with a view to promoting systematic investigation of record-keeping practices, the compilation of consolidated registers of economic units, the joint tabulation of key economic data by the characteristics of the enterprise and establishment-type units as well as the evaluation of establishment-type industrial classification schemes and the exploration of the nature of possible enterprise-type classifications.

ANNEX I

ITEMS OF DATA APPROPRIATE TO THE MAJOR TYPES OF STATISTICAL UNITS

A.   Data Appropriate for Collection Primarily for the Establishment-Type Unit

   1.   Shipments (including shipments of individual goods)

   2.   Production (including production of individual goods)

   3.   Deliveries (including deliveries of individual goods)

   4.   Consumption (including consumption of individual goods)

   5.   Cost of industrial services

   6.   Cost of sub-contract work

   7.   Duties and indirect taxes

   8.   Employment

   9.   Labour turn-over

 10.   Man-hours worked

 11.   Wages and salaries

B.   Data Appropriate for Collection Primarily for the Enterprise-Type Unit

   1.   Intended capital expenditures

   2.   Planned changes in inventories

   3.   New orders

   4.   Cost of business services such as advertising

   5.   Rent received

   6.   Royalties paid and received

   7.   Interest paid and received

   8.   Dividends received

   9.   Capital gains and losses

 10.   Distribution of income

     a.   Direct taxes

     b.   Dividends paid

     c.   Undistributed income

/...

      11. Financial assets

          a. Cash

          b. Investments

          c. Loans

          d. Other financial assets

      12. Intagible assets

      13. Financial liabilities - loans and other indebtedness

      14. Net worth

          a. Paid-in capital

          b. Earned surplus

C. Data Appropriate for Collection for Either, or Both, the Establishment-Type Unit and the Enterprise-Type Unit

      1. Employment

      2. Value of inventories

      3. Value of and expenditures on fixed assets

      4. Sales (including sales of individual goods or services)

      5. Purchases (including purchases of individual goods or services)

      6. Unfilled orders

      7. Rents paid

      8. Accounts payable

      9. Accounts receivable

ANNEX II

NUMERICAL ILLUSTRATION OF THE RATIOS DISCUSSED IN SECTION VI, C

1. The ratios set out in the table below were computed from data published by the United States Bureau of the Census for the 1954 Censuses of Business, Manufactures and Mineral Industries.[1] The data shown relate to only two of the 122 special industry categories devised for the classification of enterprises - "metal mining" and "retail grocery stores". In each case the ratios (in terms of percentages) have been computed for only two items of data "number of establishments" and "employment". In the original publication data are also shown for "wages and salaries", "value added" (or where appropriate, "sales", "revenues" or "receipts") and, for mining and manufacturing, "capital expenditures".

	Metal Mining		Retail Grocery Stores	
	In terms of no. of establishments	In terms of employment	In terms of no. of establishments	In terms of employment
Degree of industrial specialization of all enterprises in the industry	97.6%	86.5%	99.3%	95.7%
Degree of industrial specialization of multi-unit enterprises in the industry	89.2%	82.9%	92.7%	91.5%
Coverage ratio	92.1%	48.4%	99.5%	98.1%
Relative importance of multi-unit enterprises	26.5%	88.2%	9.9%	54.2%

[1] Company Statistics - 1954 Censuses of Business, Manufactures and Mineral Industries, Bulletin CS-1, U.S. Department of Commerce, Bureau of the Census, Washington, D.C., Table 2.

/...

2.   From the data given above, the following few points might be noted:

(i)   <u>Metal mining</u> - Enterprises whose main activity is metal mining are
fairly well specialized in that activity (only 13.5% of their
employment is in establishments not classified to metal mining). It
appears, however, that about 52 per cent of all persons employed in
metal mining are employed by enterprises that have metal mining as
a secondary activity (i.e., a coverage ratio of 48.2 per cent). This
means that if it is desired to examine metal mining activities, one
would not be too troubled by the mixture of activities within metal
mining enterprises, but if metal mining enterprises were to be the only
units of observation, the greater portion of metal mining activities
would be left out of consideration altogether.

(ii) <u>Retail Grocery Stores</u> - Here it is apparent that the enterprises in the
retail grocery business are highly specialized; further, that the retail
grocery business is not important as a secondary occupation of multi-
unit enterprises. Therefore, the collection of enterprises classified
to the retail grocery business would present a relatively clear
kind-of-activity profile and provide virtually complete coverage of
this kind of activity.

(iii) In both metal mining and the retail grocery business it is apparent
that the establishments belonging to multi-unit enterprises are much
larger than those operated by single unit concerns - i.e., only
26.5 per cent of all establishments engaged in metal mining belong to
multi-unit enterprises, but these employ 88.2 per cent of all persons
engaged in metal mining establishments and, similarly, in the retail
grocery business only 9.9 per cent of the establishments employ
54.2 per cent of the persons engaged. In this connexion, it would,
of course, be advantageous to have additional tabulations showing the
distribution of employment (and other items of data) by size of
establishment and by size of enterprise. Such tabulations are presented
in the publication cited in footnote 1.