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THE CHOICE OF AN APPROPRIATE STATISTICAL UNIT FOR

ECONOMIC INQUIRIES

(Memorandum by the Secretary-General)

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THE CHOICE OF AN APPROPRIATE STATISTICAL UNIT FOR

ECONOMIC INQUIRIES

I. INTRODUCTION

1. The Statistical Commission, at its ninth session, requested the Secretary-General to study the question of the statistical unit[1] most appropriate for different types of economic data, with particular reference to the use of the establishment and the enterprise.[2] The question of an appropriate statistical unit is of interest for several reasons. First, in certain practical situations the establishment, which has been a commonly used unit for the collection of economic statistics, has been difficult both to define and to identify. In addition, the collection of certain items of data on an establishment basis has sometimes proven difficult. Moreover, there are a number of items of economic data appropriate only to the enterprise and it would be highly desirable to be able to relate such items of data to those most appropriately gathered on the basis of the establishment or some other sub-division of the enterprise. In this paper the discussion will be centered on the appropriateness of various statistical units, having in mind the items of data to be collected and their uses, the kind of business organization to be found in different segments of the economy [3] and the type of inquiry to be undertaken. Together with the general discussion, the lines along which certain countries are attempting a solution to the statistical unit problem will be indicated and suggestions for further investigations that may prove fruitful will be set out. The attributes of four possible statistical units will be examined – the establishment, the local unit, the "kind of activity" unit and the enterprise.

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[1] The term "statistical unit", as used throughout this paper, is synonymous with the term "reporting unit" as previously used.

[2] See Report of the Ninth Session of the Statistical Commission, E/2876, Resolution 6 (IX) pg. 8.

[3] See Annex for list of items of data that have been considered.

2. In terms simply of the number of business units, those that present a problem with regard to defining an appropriate statistical unit are relatively few. It is, however, true that the few multi-unit, multi-activity business enterprises that provide these problems are usually important in a nation's economy out of all pro-portion to their numbers.[4]

3. The choice of a statistical unit for the various economic inquiries - bench-mark, annual, current and surveys of intentions - is of considerable importance for several reasons. The kind of unit or units chosen will, (i) determine the way in which data can be compiled and analysed and hence the uses to which these data may be put, (ii) determine the extent to which the results of one survey can be related to the results of other surveys in the system, (iii) have a definite impact on the ease or difficulty with which respondents are able to provide the required data and (iv) determine the speed and cost of the data collection.

4. It should be noted that in the sections which follow, the comments pertaining to each unit apply when that unit is employed as the basic statistical unit for an inquiry. No matter which unit is chosen as the basic statistical unit - i.e., the ideal which one would like to approximate - it may at times be necessary to accept some other unit as the only practicable approximation to the basic unit chosen.

II. STATISTICAL UNITS IN USE

A. The Establishment and the Technical and Ancillary Unit

5. The basic concept of an establishment has been that of a single economic unit engaging in a single kind of business under a single ownership at a single location. The store, workshop, mine and factory that are often found in mining, manufacturing and trade - independent economic units that control their own activities and make their own decisions - are close approximations to this simple concept. Also, the organizational arrangement of the multi-unit enterprise into management units often provides sub-divisions of the enterprise that meet quite adequately the separate location and single activity criteria of the simple establishment concept. In addition these management units, while not economically independent, usually retain a considerable degree of autonomy with respect to the utilization of the direct factors of production.

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[4] The problem of statistically isolating the separate economic activities of house-holds, while an important consideration in some countries, is of a quite different character from the problem posed by the multi-unit enterprise and is not dealt with in this paper.

6.   In addition to the fact that the establishment is usually a practical
statistical unit, its merits are twofold: (i) being restricted, conceptually in
any event, to a single kind of activity, data related to the establishment are
readily classifiable to homogeneous industry groups - a form in which economic data
are particularly useful for analysis; (ii) because of the single location require-
ment, establishment based data are readily aggregated at virtually any level of an
area classification for the purpose of regional analyses. These two characteristics
are very real and desirable and to them can be attributed, in large measure, the
general popularity of the establishment concept. Related to these attributes is
the fact that the establishment provides a useful unit for examining the relation-
ship between size or other characteristics and technological efficiency as well as
a unit by which to measure business births and deaths related both to kind of
activity and region.

7.   The establishment is distinguished from the technical and ancillary units of
which it is composed. The technical units comprise all those activities going
directly into the production of the goods or services that are the main business
of the establishment, while the ancillary units - administrative offices, power
plants, warehouses, etc. - provide services exclusively, or largely, for the
establishment, or produce goods and/or supplies for the use of the establishment,
which goods or supplies do not themselves become an integral part of any product
of the establishment. Both the technical unit and ancillary activities carried
out by and for the establishment are included within the usual establishment
definition.

8.   While there have been attempts to use the technical unit as a basic statistical
unit, the difficulty of relating all the required items of data to this sub-division
of the establishment and the lack of consistency in the way production is organized
in different establishments have led to the abandonment of this approach. Attempts
to use the technical unit as a supplementary statistical unit, however, have met
with much greater success. As is pointed out in the following section, the establish-
ment is most practically 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
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 establish-
ment 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 of these
operations, it may be of considerable interest to collect some data regarding each
activity.

9. Certain ancillary activities have very commonly received special treatment.
Own account or force account construction[5] units and ancillary power plants, for
example, often produce such a large percentage of the total construction or electric
power of a country that data concerning these ancillaries are necessary to a complete
coverage of these fields. In fact, a number of countries, finding that certain of
these important activities are commonly carried on simply as an adjunct to other
lines of business, have adopted a functional rather than the more common institu-
tional approach in the investigation of these activities.

a.   The operational definition of an establishment

10. 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 objec-
tive of producing data that is assignable to usefully homogeneous industry groups.
The problem here, then, is essentially the same as that attending the compilation
of an industrial classification[6] - in both cases it is desired to define the narrow-
est, 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

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5/   Construction undertaken by the establishment with its own labour for its own
     use.

6/   See, for example, Draft Revisions in the International Standard Industrial
     Classification of all Economic Activities, E/CN.3/243.

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.[7]
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 establish-
ment in terms of the narrowest headings of that classification.

11. 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 restric-
tion, 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 with-
in 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.

12. In order to make clear to enumerators and respondents that the basic establish-
ment 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 might be phrased
in the following manner.[8]

"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 (or separate estimates can be
made) 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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[7] See Section III below for a discussion of the items of data appropriate to the
establishment.

[8] For discussion of a similar definition, see the Draft Revisions to the Interna-
tional Standards in Basic Industrial Statistics, E/CN.3/L.40.

In some cases records will be kept only on the basis of separate plant location, without regard to the similarity of the separate activities carried on at that location (a "local" unit). In other enterprises the records might be maintained for separate activities without reference to the separate locations at which these activities are carried on (a "kind of activity" unit). In the limiting case it may be that the enterprise maintains no separate records for either separate activities or separate locations. In very many cases, however, the enterprise will delegate some authority to the management of a "single kind of business" carried on at a "single location", and this delegation of authority will generally carry with it an obligation to maintain at least some operating records.

13. It is apparent from the discussion above and the proposed definition that the ease of isolating an establishment, narrowly defined with respect to kind of activity and location, is a function of the list of items of data to be collected. Records concerning certain items of data may be universally available for units very restrictively defined in terms of industry and location, while the record keeping practices concerning other items may make it impossible to obtain the required data except for fairly broad aggregations of activities. Confronted with a list containing items of data for which records are commonly maintained at varying levels within the enterprise, the question arises whether it is better to limit the list of items of data in the interest of maintaining homogeneity of industry and area classifications, or to broaden the definition of the establishment sufficiently that all the desired items are collectable for the same unit, accepting thereby the resultant blurring of industry and/or area lines. The relationship between specific items of data and the establishment is discussed in Section III below.

14. It was stated earlier that in principle an ancillary unit is included as an integral part of the establishment which it serves. However, an ancillary unit attached to a multi-unit enterprise, serving more than one subsidiary unit of that enterprise, is probably best treated as a separate statistical unit. This approach not only avoids the difficulties of allocating the activities of the ancillary unit among the serviced establishments, but assures that such ancillaries are covered in the inquiry. The United States adopted this approach for the 1954 census of business, manufactures and mining and the government statisticians of the Scandinavian countries are considering, inter alia, this same treatment for all large ancillaries in future inquiries in their countries.

B. The Local Unit

15. As mentioned above, the local unit is that portion of an enterprise occupying a single location. Unlike the establishment, no restriction is placed on the range of activities to be included in the unit. In practice, of course, the local unit and the establishment are very often identical. There are in most countries, however, enough cases of local units engaged in diverse activities that are separately reportable that the systematic adoption of the local unit as the basic statistical unit can result in the collection of data for less homogeneous industry classes than would be desirable.

16. While from the point of view of the analytical use of industrial statistics it is undesirable to give up a restriction on the range of activities, practical consideration of the level at which the necessary records are maintained may dictate considerable relaxation of this restriction. Even in those countries where the establishment approach is accepted in principle, the conditions under which any attempt is made to split the local unit are limited. The United States, for example, specifies these conditions in the following manner:

> "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 50 or more employees in activities other than these); and (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.

C. The Kind of Activity Unit

17. In essence, the definition of this unit retains the "single economic activity" idea of the establishment and discards the single location restriction. As in the case of the establishment and the local unit, the determination to use the kind of activity unit should be based on a knowledge of the organization and the record keeping practices of industry.

18. The most obvious application of the kind of activity unit is in those industries having, by their nature, no fixed location for their activities. Construction and transport and communication are industries of this type and for them the kind of activity unit has commonly been used. A second use of this unit has been in current industrial and other inquiries where there is an emphasis on analysis of the data by homogeneous industry groups, but where structural information and classification by area are unimportant. In this case, of course, its use depends on whether the respondent enterprise maintains its records along kind of activity lines for the items of data required. In the Netherlands, the kind of activity unit is now being used as a basic statistical unit in annual inquiries into the employment and certain inputs and outputs of the pulp and paper industry. The use of the kind of activity unit for these items of data was based on an investigation of the organization and records of the industry.

19. A third area in which organization and record keeping have called for some use of the kind of activity unit has been wholesale and retail trade. The United Kingdom in the 1957 Census of Distribution and Other Services, for example, will obtain all data (except employment and salaries) on a kind of activity basis for multi-unit retail enterprises with more than 10 outlets. The United States, while accepting the kind of activity unit in special cases, has specified no general conditions for its use.

D. The Enterprise

20. The most commonly used definition of an enterprise is in terms of the legal entity - i.e., the smallest, legally defined entity engaging in economic activities. There is, however, much to be said for the use of a broader definition of the enterprise couched in terms of ownership or control. Certainly such a definition is more meaningful in determining the structure and distribution of industrial owner-ship and the concentration of economic influence. Also if it is desired to gather

data relating to industrial combines, for each of which there is central policy determination - those combines which are the real economic units in a broad sense - the ownership and/or control definition is preferable.

21. From an operational view, too, the broader definition of the enterprise has merit. The United States, for example, early adopted a definition based on owner-- ship or control in order to make possible the prepublication disclosure analyses required by law.

22. There can, however, be serious operational difficulties in determining precisely what is meant by "control". The problem stems, of course, from the fact that considerably less than 51 per cent ownership of the stock or net worth of a company may constitute an effective control of that company and that there are kinds of control exercised without benefit of formal ownership. To avoid this operational difficulty, the United States Bureau of the Census uses the concept of "admitted control" - i.e., a legally independent entity is considered as owned or controlled by a parent enterprise if 1) a majority of the stock is held by the parent enterprise or 2) the parent and the subsidiary legal entity state that there is control. Little investigation of a systematic nature has been undertaken to determine the best of the alternative ways of defining the enterprise, although such an investigation might well prove worthwhile.

23. The enterprise, as the smallest legally defined entity, is the narrowest unit from which it is possible to obtain purely financial data. Other items of data, too, may be more conveniently reported on this basis than for any of the sub-divisions of the enterprise.[9] The adoption of the enterprise as the sole statistical unit for economic inquiries, however, would result in considerable loss in terms of clear industry and geographic distinctions and thus severely limit the uses to which the data might be put.

24. Considerable attention has been devoted to the problem of the classification of enterprise data - particularly to the problem of establishing a meaningful industrial classification. The difficulty in developing a reasonable industrial classification arises because the diversity or homogeneity of enterprise activities is often quite unrelated to technological considerations. There is, on the contrary, considerable evidence to suggest that financial and economic considerations are the determining factors. Further, the evidence suggests that in many countries

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[9] See Section III below.

the larger enterprises, particularly, tend to consciously diversify their activities in an effort to stabilize their financial position and decrease their dependence on the economic fate of any single product or line of activity.

25. Most commonly enterprise data have been assigned an industrial classification at the broad levels of an industrial classification, based on the main activities of the enterprise. The United States, for example, uses this approach and classifies the enterprise at the two-digit level[10] of their normal industrial classification. In Western Germany, however, a somewhat different approach is under study. There the possibility of classifying the enterprise in terms of combinations of activities is being investigated. The success of this approach will depend on whether there are specific combinations of activities common to various enterprises or whether the combination of activities encompassed within each enterprise is more or less unique.

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

26. The foregoing discussion has emphasized 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.

27. 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 – though there is, even here, a tendency to specialize activities at particular locations.

28. 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

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[10] Approximately the same degree of diversity of activities is encompassed within the U.S. two-digit classification as would be found at the major group (2-digit) level of the International Standard Industrial Classification of All Economic Activities. As a result of this approach, manufacturing enterprises in the U.S. can be classified to only 21 categories while manufacturing establishments are classifiable to any one of 450 categories.

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 an appropriate statistical unit for the
collection of economic statistics.

29. Within the limits imposed by the actual organization of business and the
availability of records, the selection of a statistical unit for the collection
of a particular set of items of data depends, as previously indicated, on the
analytical uses to which these data are to be put. Since a greater insight into
the productive activities of an economy can be gained by a detailed analysis of
these activities by relatively narrow industry groups, data directly related to
productive activities are particularly valuable when gathered on a basis that
allows for this detailed analysis. To plan both government and business projects
also requires detailed factual data concerning the economy. The intelligent formu-
lation, for example, of long range, costly projects such as major investments in
new factories, schools, roads, etc. requires detailed analysis of both economic
and demographic data for the relatively small geographic areas likely to be
affected. However, the need for a detailed analysis of benchmark data (particularly
small area analysis) is more pronounced than for such an analysis of current data
where the emphasis shifts to speed of collection and compilation and lowered cost.
None the less a current statistical programme is generally called upon to provide
not only general economic indicators, but also specific facts regarding commodity
production and inventories, prices, etc. - facts which are required for the framing
of short range policy regarding marketing, financing, etc.

A. Items of Data Appropriate to the Establishment, the Local Unit or the Kind
of Activity Unit

30. The items of data suggested as appropriate to the establishment, the local
unit or the kind of activity unit fall roughly into two groups - (i) data concern-
ing goods, equipment, personnel, etc., that are physically associated with the
unit or intimately associated with the productive activities and (ii) data concern-
ing services directly related to the physical plant or to the operation of the
unit for which the unit would generally be charged. Within the first group fall
items such as employment; wages and salaries; capacity of power equipment; fixed
assets; inventories; sales, [11] shipments and production; purchases,[11] deliveries

[11] "Sales and purchases of a subsidiary establishment" are understood to mean
"sales to or purchases from other enterprises".

and consumption of goods and materials; etc. In the second group are such items as the cost of industrial services (repair, maintenance, etc.) and transport and communication supplied by others and the cost of sub-contract work let out.[12] These items of data are frequently referred to as "establishment type" data.

31. The subsidiary statistical units chosen for an enterprise, from which the foregoing items of data are to be collected, must meet two conditions: (i) the aggregation 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 problem - that of covering the whole of the enterprise's activities - can be solved by making provisions 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 in the Draft Revisions to the Standards in Basic Industrial Statistics.[13] The second condition can only be met with certainty through a knowledge of the record keeping practices of the enterprise. Where an investigation of the record systems of the respondents indicates that the records vary with respect to 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 a technical or ancillary unit basis. 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 the investigation of records.

12/ A detailed list of these items of data will be found in the Annex to this paper.

13/ E/CN.3/L.40.

32. Almost of a necessity, records regarding employment and wages and salaries
are maintained on a local unit level. 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. The majority
of countries, however, have encountered little difficulty in obtaining labour
data on an establishment basis.

33. To a number of the other items of data in the first group (e.g., inventories,
shipments and production, deliveries and consumption, current expenditures on
fixed assets, etc.) both physical and value measures apply. Of these two it is
a realistic value measure that is difficult to obtain on other than an enterprise
basis. To the extent that shipments of products and deliveries of goods and
materials involve transactions of the subsidiary establishment with other enter-
prises, the valuation problem is no different than for a single unit enterprise.
Frequently, however, the subsidiary unit obtains its materials and ships its pro-
ducts to other subsidiary units of the enterprise and no realistic market value
attaches to these transactions.[14] In the main, one of   two techniques has been
used to cope with this problem – (i) request the book value of inter-plant transfers
(a value which often reflects only the direct costs of production) or (ii) request
only quantities of individual products in inter-plant transfers and apply to these
quantities – where possible – the appropriate market prices. (If part of the
production goes into the market, this value can, of course, be immediately imputed
to the portion shipped as an inter-plant transfer.)

34. 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 approxima-
tion is independent of the statistical unit chosen.

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[14] In the United States, however, it has been found that, to a much greater extent
than has been commonly supposed, multi-unit companies tend to approximate
market values in their internal records of inter-plant transfers.

35. While the valuation problems connected with the foregoing items of data are similar for the establishment, local unit and kind of activity unit, the levels at which it might be expected to find records concerning quantitative and related value measures for these items may vary. Since it is in terms of output that kind of activity is defined, data regarding sales, shipments and production and stocks of finished goods are most likely to be obtainable at the establishment level. Records concerning deliveries and consumption of materials going directly into the production process and stocks of these materials are also likely to be available for manufacturing establishments, but enterprises engaged in distribution have sometimes had difficulty in providing these data on an establishment basis. The difficulty arises particularly in retail trade where the individual outlets of the enterprise are relatively small and summary records of receipts from central warehouses and of stocks on hand may not be maintained. It may be, however, that summary records along kind of activity lines exist in the central office. Records relating to the input and stocks of auxiliary materials, such as supplies, electricity and fuels, may also be unavailable on an establishment basis and these may be important cost elements in the computation of value added by the establishment.

36. 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. A 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.

37. Except for sub-contract work let out, the cost of industrial services (repair, maintenance, transport, etc.) may, in many cases, be more difficult to collect for sub-divisions of the enterprise than the items discussed above - more difficult because, being less directly related to the production units in a physical way, there may be a greater tendency to maintain summary records at the enterprise level only.

B.   Items of Data Appropriate to the Enterprise

38.   Most of the items of data appropriate to the establishment or other sub-
division 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 on 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 kinds of activity and location.

39.   A list of the items of data specifically appropriate to the   enterprise is
included in the Annex 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 enterprise 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 a sub-unit of the enterprise. However, certain costs -
advertising, business services, interest, etc. - are not generally allocated among
the 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 - indebted-
ness, net worth, capitalization, etc., all of which are meaningful only at the
enterprise level.

40.   Another area covered by the list of enterprise statistics relates to intended
activities - 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 the survey techniques in
order to make these statistics reflect future actions more accurately.

IV. RELATIONSHIP BETWEEN THE STATISTICAL UNIT AND VARIOUS
SEGMENTS OF THE ECONOMY

41. An investigation of the record keeping practices of multi-unit enterprises, such as suggested in Section III above, to ascertain the level at which records are normally maintained for each item of data, would, of course, provide information regarding the variations in the bookkeeping of various segments of the economy. A knowledge of these varying bookkeeping systems would then be invaluable in devising the most practicably homogeneous statistical unit appropriate to each segment of industry - homogeneous, that is, with respect to kind of activity and location. Even though little of a systematic nature has been done toward analyzing the records of industry, a knowledge of the nature of certain industries and the experience of countries in data collection provide an idication of the kind of statistical unit that will most probably be useful for different segments of industry.

42. The establishment concept has been most easily applied to the multi-unit enterprise situation in dealing with manufacturing concerns. This is most probably due to two main factors, (i) a manufacturing operation requires a fixed location and (ii) the kind of processing, equipment, materials, etc., needed for the manufacture of each group of products is often sufficiently specialized that separate management is usually indicated - particularly when each of the manufacturing activities is carried out on a fairly large scale. In the mining industry, too, the establishment has generally been successfully employed - although the definition is often expanded to include all wells, shafts or pits that tap a single deposit.

43. For the most part, the establishment concept fits well with the organizational arrangements found in the enterprise engaged in the production of gas, electricity or steam - particularly with regard to the kind of activity requirement. It may, however, be necessary in some cases to accept a group of producing plants as a single unit. Provided the group so accepted is contained within an area as small or smaller than the areas for which data are to be published, nothing is lost by accepting this deviation.

44. As previously noted, most countries that have adopted the establishment approach in principle have in fact usually treated the local unit as the practicably

obtainable approximation - particularly where the diversity of activities within the local unit is not too great or the secondary activities are of very minor importance. But where the local unit includes such disparate activities as mining and manufacturing or manufacturing and distribution on a large scale there has, in many cases, been a serious effort made to obtain separate data for each activity.

45. Both the United Kingdom and the United States have used the kind of activity unit in their basic distribution inquiries (see para. 19 above). Many other countries, however, have retained the use of the establishment in this area, and certainly with respect to certain items of data, such as retail sales, retention of small area distinctions serves useful analytical purposes.

46. The kind of activity unit has also been employed with the further restriction that the group of separately located units included in the kind of activity unit be confined to a relatively small area. When used in this fashion, however, it is generally considered simply as an acceptable deviation from the establishment.

47. The Netherlands is the only country that has reported the use of the kind of activity unit as a basic statistical unit in a manufacturing inquiry. There the items of data collected on this basis are restricted primarily to purchases and deliveries, inventories, shipments and sales. It should be noted that for a country as geographically small and homogeneously developed as the Netherlands, the analysis of much of the economic data by regions may be of considerably less interest than for a large country with marked regional differences.[15]

48. The enterprise has been used almost exclusively as the statistical unit for inquiries into the activities of banking and financial institutions. In addition, it has been very generally employed for the construction and transport and communication industries. The use of the enterprise approach here stems from the fact that, by their nature, the activities of these industries are not confined to a single location. While the use of the enterprise is generally the only practical statistical unit for these industries, enterprises, only a portion of whose activities are devoted to construction or transport,[16] are not usually dealt with as a single unit. In such cases the construction activities would be separately reported on a kind of activity basis.

15/ Employment and wage and salary data, it should be noted, are collected, in the quarterly surveys, on a local unit basis.

16/ Other than own account construction or transport.

V. RELATIONSHIP BETWEEN ITEMS OF DATA AND
TYPE OF INQUIRY

49. At several points heretofore allusion has been made to the varying purposes and requirements of benchmark, annual and current economic surveys. In essence, the benchmark survey provides the detailed structural blueprint of the economy and its activities, while the annual and current surveys supply a moving picture of these activities. Most structural data, therefore, while they provide the basis on which the annual and current surveys are designed, are themselves the subject of investigation only in benchmark inquiries.

50. Among those items of data which are commonly gathered in all three types of inquiry, there is a marked difference in the usefulness of detailed analysis. In addition, the ease of collecting these different items on a basis that allows detailed analysis varies. Labour and quantitative production data, for example, are available more quickly and, generally, are more easily collected for the sub-divisions of a multi-unit enterprise than for the enterprise as a whole. Further, these items of data can provide key indicators of changing activity in different industries — indicators that make possible the isolation of the source of changes that affect the whole economy. For these reasons, virtually all countries have collected labour and production data on an establishment basis in all inquiries.

51. At the other end of the scale, the detailed analysis of inventory data — particularly by geographic location — is of considerably less importance. Also the ease of collecting these data may change significantly as between benchmark, annual and current surveys. Summary records on the value of inventories may be maintained only at the enterprise level, and unless the enterprise maintains a perpetual inventory record, it may be very difficult to obtain these data except at end of year periods. As a result, while it has been common to collect inventory data on the same basis as other establishment type data in infrequent and annual inquiries, current data is often obtained on an enterprise basis. For roughly similar reasons, current data on wholesale and retail sales and capital expenditures — which are critical indicators of current economic activity — are frequently collected at the enterprise level.

VI. THE RELATIONSHIP BETWEEN THE STATISTICAL UNIT AND
THE TYPE OF ECONOMIC INQUIRY

52. A system of economic inquiries is intended to cover a nation's economy in
two dimensions - it should provide, on the one hand, a picture of all the economic
activities and, on the other, a view of the change and development of the economy
over time. To produce this overall picture a number of countries have relied on
a series of independent censuses - each covering a different segment of the economy.
Particularly with such a system of independent surveys it is important to make
sure not only that no segment of the economy remains uncovered, but that there is
no overlapping of the surveys. This means that the statistical units for each
inquiry must be so chosen that this end is accomplished. So, for example, it
would be unwise to adopt an establishment approach in a census of manufacturing and
then adopt a purely enterprise approach in the census of distribution. If the
statistical units were so chosen, it is probable that the very appreciable portion
of the distribution activities carried on by essentially manufacturing enterprises
would escape both inquiries.

53. When designing an annual survey, which is generally on a sample basis, it is
a common practice to rely on the results of a previously conducted census as the
basis for the inflation of sample data to cover the whole field of inquiry. Such
a technique is, of course, much more efficient than that of taking an independent
sample quite unrelated to the census. Similarly, current inquiries and surveys
of intentions may be rooted in both the annual and benchmark surveys.

54. To be able to interrelate these various surveys, however, implies that the
statistical units used for each are relatable. Thus, if the enterprise is the
statistical unit employed for a programme of sample inquiries on intended
expenditures for fixed assets, it would be highly desirable to be able to relate
the sample estimates to the actual expenditure for fixed assets of all enterprises
in the field under study during some base year. This can only be done, however,
if data in the base year have been collected or can be aggregated on an enterprise
basis.

55. As stated above, one of the most important objectives of a programme of
economic inquiries is the production of an overall picture of a nation's economy
such as that provided by a system of national accounts. To build a system of

national accounts it becomes necessary to fit into a single framework data from
a variety of sources - including data obtained on an establishment basis and data
that is obtainable only on an enterprise basis. In analyzing gross domestic
product by industrial origin, for example, it is necessary to allocate certain
overall costs of the multi-activity enterprise, such as costs of business services,
etc., among the separate industrial activities of the enterprise. To be able
to make such an allocation or, conversely, to aggregate establishment based data
to an enterprise level, requires a knowledge of the relationship of the enterprise
to its constituent parts.

56. A number of countries have established no statistical links between establish-
ment based and enterprise based statistics - often viewing the two sets of data as
products of unrelated statistical programmes designed for different purposes.
Increasingly, however, with the growing interest in interlocking systems of
national accounts and other analytical tools, there is recognition of a need to
determine with some precision the relationship between the activities of the enter-
prise and the activities of its constituent elements. Also, the desirability of
keying those current statistics collected on an enterprise basis with the benchmark
figures from an establishment based inquiry leads to consideration of ways and
means of interrelating these two types of data.

57. The suggested investigation of bookkeeping practices would make possible the
delineation of appropriate statistical units within the multi-unit enterprise and
provide a qualitative picture of the organizational structure of these enterprises.
In addition, however, certain facts or items of data are needed concerning each
multi-unit enterprise and each identified sub-unit of these enterprises in order
to furnish the bridges across which enterprise and establishment type data may be
joined and to provide a frame for the design of a subsequent system of interrelated
economic surveys.

VII. CONCLUSION

58. As the foregoing discussion indicates, the problem of choosing an appropriate
statistical unit reduces to a question of balancing the data requirements of
economic analysis against the very practical considerations of business organiza-
tion and record keeping, cost and time. In view of this dependence of data collec-
tion on business organization and records, it is perhaps surprising that so little

systematic investigation of the internal structure of business has been carried through. Certainly the number of difficulties encountered in the collection of certain items of data from sub-divisions of the multi-unit enterprise would indicate that a specific analysis of organizational forms is warranted - particularly so since it is often difficult to differentiate, on the basis of the usual inquiry, between problems stemming from lack of appropriate records arising out of unrealistic assumptions regarding business organization, and problems of interpretation of the questions asked.

59. Another related field in which study might profitably be initiated, concerns methods of interrelating establishment type and enterprise data. As noted above, all countries, in compiling national accounts and other statistical summaries, face the problem of fitting these different types of data into a unified framework. While certain conceptual problems would remain, a survey, designed to yield data concerning the internal structure of the enterprise, could provide the means of examining the relationships between the enterprise and its constituent parts.

60. In the light of the above, the Commission may wish the Secretary-General to:

(i) Obtain the views of Governments and other interested bodies on this paper, appropriately modified on the basis of the discussions of the Commission;

(ii) Consult with Governments, looking toward a coordinated investigation of the forms of business organization and record keeping practices with regard to selected items of data - such an investigation to be carried out in countries with differing economic characteristics and varying institutional arrangements;

(iii) Develop suggestions regarding the kinds of data that can be related to the enterprise and its constituent parts which would provide a basis for interrelating enterprise and establishment type data - inter alia, structural characteristics of the enterprise and its parts - and the techniques that might be employed in the collection of these data.

ANNEX

ITEMS OF DATA

A. Establishment Type Data

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. Man-hours worked
10. Wages and salaries

B. Enterprise Data

1. Intended capital expenditures
2. Planned changes in inventories
3. New orders
4. Unfilled orders
5. Cost of business services (including advertising)
6. Rent received
7. Royalties paid and received
8. Interest paid and received
9. Dividends received
10. Capital gains and losses
11. Distribution of income
    a. Direct taxes
    b. Dividents paid
    c. Undistributed income

ANNEX (continued)

12. Net worth

    a. Paid-in capital

    b. Earned surplus

13. Financial assets

    a. Cash

    b. Investments

    c. Loans

    d. Other financial assets

14. Intangible assets

15. Financial liabilities

    a. Loans and other indebtedness

C. **Items of Data That May Be Appropriate to Either the Enterprise or the Establishment or to Both**

1. Value of inventories

2. Value of fixed assets

3. Capital expenditures

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

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

6. Rents paid

7. Accounts payable

8. Accounts receivable