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16561

Distr.
LIMITED

PPD.61(SPEC.)
2 November 1987

ENGLISH

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

COMPARISONS BETWEEN INDUSTRIAL STATISTICS AND NATIONAL ACCOUNTS: An Empirical Study on Measures of Manufacturing Value Added*

Prepared by the
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V.87-91402

Contents

Introduction

The concept of value added is of central importance to economic researchers. Information on this measure can be obtained from either of two sources - national accounts or industrial statistics. The use of national accounts data ensures that the analyst access information for a great number of countries, much of it available at both current and constant prices. A drawback, however, is that national accounts data do not provide the degree of detail required to study many important issues. Examples of the latter include the analysis of structural change, trade-production relationshirs, industry-specific studies and cross-industry comparisons.

Industrial statistics are normally the only source of international data which can be used in such investigations. Researchers using industrial statistics as their primary source of data may nevertheless, frequently need to draw on information available from national accounts. For instance, the degree of comparability afforded by industrial statistics (both across countries and over time) is often limited. Inferences with regard to the extent of incomparability can sometimes be obtained by comparing industrial statistics with the corresponding national accounts data. The country coverage available in industrial statistics is also less complete than that provided by national accounts. Here, the analyst concerned with specific issues can make use of the latter set of data to construct rough estimates which will extend the scope of study. Similarly, researchers may require not only industry-specific indicators for a number of countries but also need to relate these to economy-wide measures based on national accounts. For these and other reasons, the quantitative relationships between the two sets of data are important.

Construction of the two sets of data is, of course, not independent. National accountants do not usually carry out regular collection activities. They rely instead on industrial statistics as the basic source for information on value added in the industrial sector. However, the information collected in industrial statistics is not always sufficient for national accounts purposes with respect to coverage of data, concepts and definitions used. Therefore, national accounts carry out imputations, estimations and adjustments to supplement or replace industrial statistics. These practices introduce some measure of disagreement between the two sets of data which can be troublesome for the researcher who wishes to draw on both sources.

This paper summarizes the results of a comparison between value added data drawn from national accounts (NA) and corresponding figures obtained from industrial statistics (IS). The purpose is to determine the extent of agreement between the two sources and to gain some impression of how systematic variations in estimation practices will affect these comparisons. The data used in the study are taken from statistics collected by the United Nations and the United Nations Industrial Development Organization while the scope of the investigation is confined to the manufacturing sector (ISIC 3).[1/]

1/ International Standard Industrial Classification of All Economic Activities, Statistical Papers, Series M, No. 4, Rev. 2 (United Nations publication, Sales No. E.68.XVII.8).

Major reasons for discrepancies are considered in section A. Section B contains a description of the data sources and outlines the basis for selection and analysis of the data. Comparisons between the two data sources are summarized and discussed in sections C, D and E, each of which deals with a different attribute which may contribute to the discrepancy. Section F refers to those countries for which IS was originally obtained from NA while section G discusses implications to users of the data. The underlying data used in the study are presented in the appendices.

A. Major reasons for disagreement between national accounts and industrial statistics

A comparison of the national accounts system with methods for compiling industrial statistics indicates at least four general reasons why estimates of manufacturing value added may differ between the two sources. They include: (i) differences in the coverage of the two data compilation exercises, (ii) the use of alternative definitions of value added, (iii) variations in concept of valuation and (iv) a residual group of other possible reasons for disagreement.

With regard to the first of these issues, value added obtained from NA represents the manufacturing sector's net contribution to gross domestic product. The statement implies that estimates include the activities of all establishments engaged in manufacturing. In contrast, figures reported in IS may be based on information gathered from industrial censuses, annual inquiries or sample surveys. If obtained from a census, data on value added usually refer to all establishments in the manufacturing sector. However, if estimates are developed from an annual inquiry or a sample survey they normally apply to only a subset of the establishments, i.e. those having a size in excess of a pre-determined cut-off point. The cut-off point itself is often defined in terms of the employment size of the establishment but other criteria - for example, annual turnover, use of motor power or type of ownership - are also used. Most countries will take steps to ensure that their published figures are representative of economic activity in all establishments of a size greater than the cut-off point. There are a few instances, however, where an effort is made to estimate the contribution of establishments which are smaller than the pre-determined minimum.

Alternative definitions of value added may be another reason for disagreement between IS and NA. In compiling their industrial statistics most countries follow the United Nations' International Recommendations for Industrial Statistics.[1/] In that case the concept used to derive 'census value added' differs from 'national accounts value added' with respect to the treatment of non-industrial services. Because the census definition refers to the value of output less the cost of materials and industrial services, it is a net concept with regard to the agricultural and industrial sectors of the economy. Value added derived from national accounts, however, is net for the economy as a whole since it excludes the purchases of non-industrial services but includes the receipts for non-industrial services.[2/]

1/ International Recommendations for Industrial Statistics, Statistical Papers, Series M, No. 48, Rev.1, (United Nations publication, Sales No. E.83.XVII.8).

2/ See, Recommendations for the 1983 World Programme of Industrial Statistics, Statistical Papers, Series M., No. 71 (Part 1), United Nations publication, Sales No. E.81.XVII.11, paragraphs 162-167.

A third possible source of disagreement results from the use of different concepts of valuation. When value added is expressed at producers' prices, estimates include indirect taxes but exclude subsidies. The use of factor values, however, stipulates that indirect taxes be excluded while subsidies are included. Depending on the treatment of indirect taxes and subsidies, data may be reported in producers' prices in one source while factor values are employed in the other.

Other possible reasons for disagreement should also be noted. National accounts are intended to cover the entire economy and would normally incorporate estimates for establishments operating in the informal sector. In contrast, industrial statistics often exlude these activities. Discrepancies also occur if industry estimates of value added in IS are derived from output figures which are not consistent with NA. Such could be the case when output figures for IS have been compiled on a 'shipment' basis rather than a 'production' basis and no adjustments have been made for the change in the value of stocks of finished goods. Among other reasons, an obvious possibility is that the definition of the manufacturing sector does not agree between the two sources. The information, as available from one source, may cover the activities as defined under Major Division 3 of the ISIC while the data as available from the other source may include some non-manufacturing activities (e.g. mining, repair services) or ignore certain manufacturing activities (e.g. petroleum refining).

In conclusion, reasons for disagreement between the two data sources may be due to any combination of the foregoing possibilities. The limited coverage of establishments which sometimes occurs in IS would result in value added estimates which are less than the corresponding NA figures. The numerical effects attributable to the use of different definitions of value added will depend on the balance between the cost of non-industrial services charged to manufacturing establishments and the receipts for non-industrial services rendered by these units. In the case of most manufacturing establishments the cost of non-industrial services would likely exceed the amounts received for the provision of non-industrial services. Assuming no other differences between the two data sources, this would imply that a 'census-type' estimate of value added would exceed the corresponding national accounting expression. With respect to different methods of valuation, the relationship between producers' prices and factor values will depend on the value of indirect taxes and subsidies. Finally, if national accounts include estimates for establishments operating in the informal sector, value added obtained from national accounts should be greater than the figure available in industrial statistics.

B. Data sources

The United Nations Statistical Office (UNSO) supplied UNIDO with the national accounts data on manufacturing value added used in this study. Corresponding figures are published by UNSO in the Yearbook of National Accounts Statistics.[1/] For industrial statistics, information

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1/ National Accounts Statistics: Main Aggregates and Detailed Tables, United Nations publication, annual.

available in the UNIDO Data Base was utilized. The structure of the data base allows to access information at several 'stages'.[1/] The data stored in stage I refer to information forwarded to UNIDO by UNSO, i.e., the individual countries' responses to the General Industrial Statistics Questionnaire. The data stored in subsequent stages of the data base reflect UNIDO's efforts to improve the availability, comparability and consistency of industrial statistics. These data are based on information obtained from national and international sources and through field work. UNIDO also performs extensive screening of industrial statistics data at branch level and carries out checks for consistency and comparability. As a result of this screening process data items may be flagged for further inspection and finally these data may be adjusted or replaced. For the present study the original data provided by UNSO, as well as information generated by UNIDO, are utilized (i.e., data obtained from stages I and III of the data base).

Supplementary information with regard to scope, coverage, concepts and definitions was obtained from country notes and footnotes in the respective publications.[2/] The following points were considered in drawing the country sample:

- With regard to scope, does value added refer to the activities covered under Major Division 3 of the ISIC or are some manufacturing activities excluded or non-manufacturing activities included?[3/]

- Do estimates obtained from industrial statistics refer to census value added or is a national accounts definition used (i.e., are the figures net of non-industrial costs)?

- Does value added from industrial statistics refer to all establishments or only to those above a certain cut-off point? Are the estimates adjusted for non-response?

- What concept of valuation is used in industrial statistics and in national accounts?

- In the case of countries with a fiscal year which differs from the calendar year, are data assigned to the same calendar year in both sources?[4/]

1/ See: "The UNIDO Data Base: Primary Sources and Data Base Design" (UNIDO/IS.463); and "Industrial Statistics for Research Purposes: Methodology Applied in Compiling UNIDO's International Data on the Number of Employees, Wages and Salaries, Gross Output and Value Added" (UNIDO/IS.558).

2/ National Accounts Statistics: Main Aggregates and Detailed Tables, 1983, (United Nations publication, Sales No.E.86.XVII.3); and Industrial Statistics Yearbook, Vol.1, General Industrial Statistics, United Nations, various issues.

3/ In some cases, there was a wide discrepancy in the definitions of the manufacturing sector used in national accounts and industrial statistics. Several countries were excluded from the study for this reason. They include Barbados, Costa Rica, Israel, Italy, Netherlands, Portugal, Senegal and Spain.

4/ Countries reporting data according to fiscal year which did not coincide with the calendar year were generally excluded. Countries omitted for this reason were Australia, Bangladesh, Cameroon, Ethiopia, Papua New Guinea, South Africa and Yemen.

Data selection and grouping of countries

Data referring to years prior to 1970 were not considered. For every country only those years were selected for which value added is available both in national accounts and industrial statistics. Based on the supplementary information obtained from the published country notes and footnotes, the selection of countries was performed to ensure a set of data which could serve as a basis for the comparison exercise. In general, only those countries were included for which sufficient information referring to coverage, concept and definition of value added could be obtained. As illustrated in Figure 1, the countries were first separated into two groups: those with industrial statistics referring to a certain cut-off point and those with industrial statistics covering all establishments. Each group was further subdivided into those countries for which value added from industrial statistics referred to census value added and those using a national accounting definition. Finally, a further subdivision was performed to distinguish between those countries using the same valuation concepts for national accounts and industrial statistics and those employing different concepts.

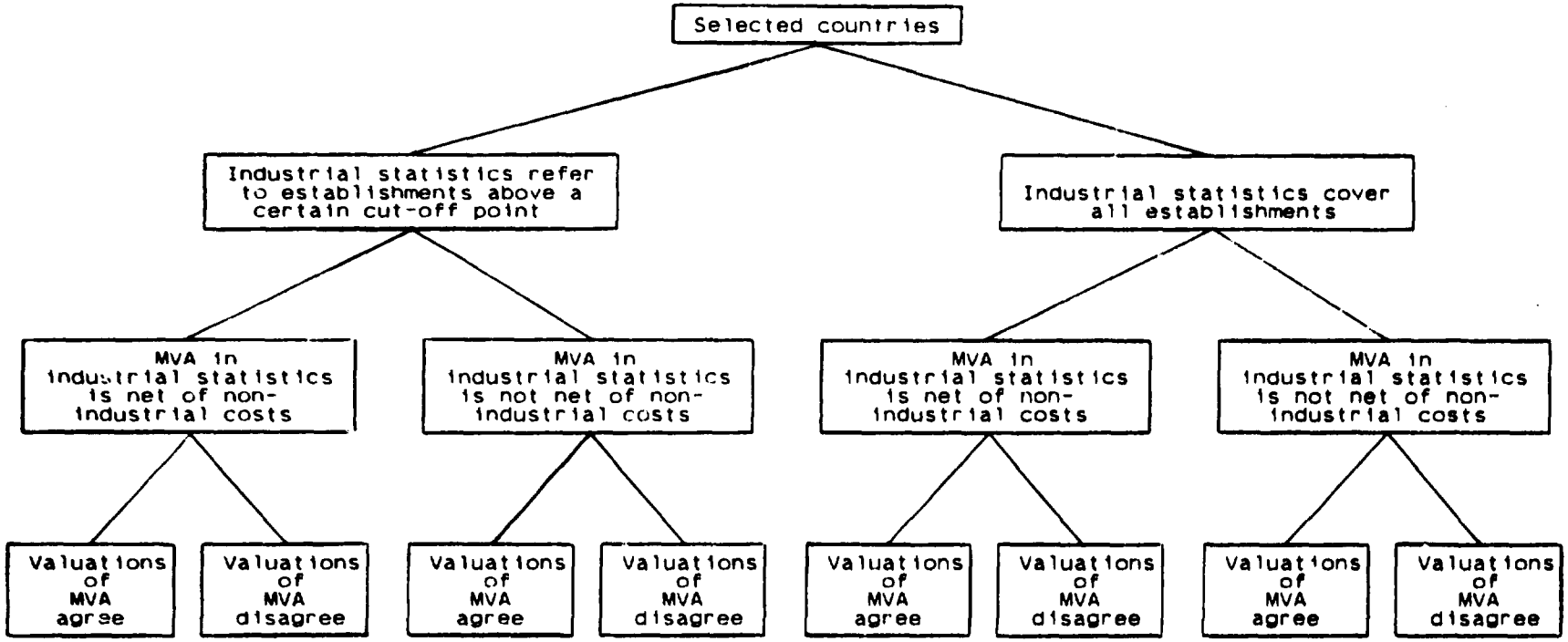
C. The impact of a cut-off point in industrial statistics

The countries in group A (Austria, India, Malawi and New Zealand) represent an 'ideal' set to assess the impact of a cut-off point in industrial statistics. Because the concepts and valuations of value added between IS and NA agree, numerical differences between the two data sets can be mainly attributed to imputations made by national accountants in order to reflect the sector's total contribution to GDP. Thus, it can be assumed that the numerical difference between value added in IS and NA implicitly represents an estimate of that portion of manufacturing not covered by IS. Comparisons based on data from countries in group B can, with some reservations, also be used to assess the impact of the limited coverage of IS. However, the effects of different valuations for value added should also be noted for the latter group.

Ratios between value added estimates from IS and NA were derived for each available year in the period 1970-1984. Table 1 shows the minimum and maximum values of these ratios.[1/] Though the number of observations are too few to support any general conclusions regarding the effects of variations in the cut-off point, comparisons for individual countries often point to rather large discrepancies between the respective sources. In countries where small scale industry accounts for a considerable portion of manufacturing activities, a determination of the cut-off point apparently has major implications for the coverage of IS. The results for India and Malawi, both countries where small-scale manufacturing is thought to be especially important, suggest that the extent of underestimation of value added in IS can be significant. The effects are less severe in case of Austria. The original IS estimates excluded certain establishments with less than 20 employees and the IS/NA ratios range from 74 to 78 per cent. Based on information obtained from national publications, UNIDO performed adjustments to achieve a more complete coverage of establishments. The ratios for the UNIDO estimates range from 84 to 88 per cent. In case of New Zealand, only establishments with one person engaged are not covered by IS. Therefore, the observed ratios

1/ For a detailed presentation of results, see appendix A (tables A.1 and A.2).

Figure 1. Scheme of Country Groups a/



Group	A	B	C	D	E	F	G	H
Number of countries in group	4	8	17	8	8	0	5	3

a/ MVA refers to manufacturing value added.

Table 1 The impact of a cut-off point: value added from industrial statistics (IS) and national accounts (NA)

Country	Period covered	Value added ratio: IS/NA (in %) Minimum	Maximum	Cut-off point: definition of establishments coverage in IS
				Countries classified in group A
Austria	1970-1983	74	78	All establishments of the Industry Section in the Federal Economic Chamber and those with 20 or more employees of the "Gewerbesektion".
	1970-1983	84	88	All establishments of the Industry Section in the Federal Economic Chamber and complete coverage of those in the "Gewerbesektion".
India	1970-1982	53	63	10 or more workers using power, or 20 or more workers not using power
Malawi	1973	--59--		20 or more persons engaged
	1974,1975,1979	56	59	Turnover in excess of 100,000 kwacha
New Zealand	1971-1981	79	89	2 or more persons engaged
	1983	--91--		All
				Countries classified in group B
Belgium a/	1970-1983	87	99	5 or more employees
Fiji b/	1970-1973c/	70	78	All reporting private establishments
	1977-1982	91	106	All reporting private establishments
Honduras b/	1970-1975	82	86	5 or more persons engaged
Indonesia a/	1970-1973d/	36	62	5 or more workers using power or 10 or more workers not using power
	1970-1983d/	32	48	20 or more persons engaged
	1975-1982e/	49	56	20 or more persons engaged
Libyan Arab	1971-1976f/	52	74	20 or more persons engaged
Jamahiriya b/	1977-1979f/	27	31	Unknown
	1980	--48--		Unknown
Luxembourg a/	1970-1982	89	93	20 or more persons engaged
Tunisia b/	1970-1976	83	113	5 or more employees
	1977-1981g/	90	101	10 or more employees
Uruguay h/	1970-1979	127	136	5 or more persons engaged
	1980	--96--		5 or more persons engaged
	1981-1984	117	137	5 or more persons engaged

a/ NA is reported in producers' prices while IS is at factor values.
b/ NA is reported in factor values and IS in producers' prices.
c/ IS is net of depreciation.
d/ IS excludes petroleum refining (ISIC 353) and miscellaneous products of petroleum and coal (ISIC 354).
e/ IS includes estimates for ISIC 353.
f/ IS excludes ISIC 353.
g/ IS is not comparable with previous years owing to [illegible].
h/ NA is reported in factor values. Prior to 1981, IS excludes value added tax [illegible] indirect taxes as well as repair services for the general public. IS is reported in producers' prices after 1980. Beginning in 1980, IS is not comparable with previous years due to changes in methodology.

between 79 and 89 per cent appear to be rather low. Even in 1983, where IS covers all establishments, the IS/NA ratio is only 91 per cent. Apparently, the value estimates available from NA include other adjustments beside those for complete coverage.

For the countries in group B, differences between IS and NA could be attributed to variations in the treatment of indirect taxes and subsidies as well as the effects of a cut-off point. In certain countries the proportion of NA value added covered by IS is nevertheless high and is relatively stable over time. Included in this group are Belgium, Honduras and Luxembourg.[1/] In other countries - for example, Indonesia and the Libyan Arab Jamahiriya - the gap between corresponding sets of estimates is so wide as to suggest that IS can not be considered in relation to NA. One possible explanation for the low ratios is that the IS figures exclude data on petroleum refining (ISIC 353) which is a major industry in both these countries. However, additional information available from national sources suggests that other reasons for the discrepancies may be more important. For Indonesia, UNIDO statisticians could estimate value added in petroleum refining for 1975-1982. These results which are shown as a separate set of ratios in table 1, still indicate a large measure of disagreement between IS and NA.[2/] Similarly, data for the Libyan Arab Jamahiriya excludes petroleum refining in all years except 1980. Even in that year the IS figure for total manufacturing value added is less than one-half the reported NA value. Results such as these suggest that use of a 'high' cut-off point (e.g. 20 or more workers) may result in serious undercoverage - particularly in many developing countries where small scale establishments figure prominently.

Although the discrepancies between IS and NA among the remaining countries in table 1 are generally not great, the effects of the cut-off problem are obscured by the use of different valuations and frequent changes in other collection practices. The IS/NA ratio exceeds unity in most years in the case of Uruguay while the same occurs for one year in the Fijian data[3/]. For Tunisia the ratios observed in years when IS exclude establishments with less than 5 employees cover a rather wide range, i.e. 83 to 113 per cent. Ratios fluctuating with an amplitude of 30 percentage points might suggest that the numerical differences between IS and NA cannot be solely attributed to the combined effects of the cut-off point and different treatment of taxes and subsidies. It is more likely that the NA estimates were not only adjusted for complete coverage but that other (unknown) factors were also considered. In general, however, the ratios in table 1 suggest that a cut-off point in industrial statistics can have a considerable impact on the value added estimates, especially in those countries where small-scale industry is important.

Countries in groups C and D employ different definitions of value added (i.e. a national accounts concept and a census concept). Thus, again, the impact of a decision regarding the cut-off point can not be assessed in

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1/ The reported range for Belgium in table 1 is comparatively wide. However, in twelve out of the fourteen years for which comparable data are available, the ratio lies between 91 and 96 per cent.

2/ IS/NA ratios range between 49 and 56 per cent.

3/ The reader should also note that no adjustments are made for non-response in the Fijian data.

isolation from other sources of distortion. In countries where the cut-off point varies from year to year, the comparison with national accounts can nevertheless reveal some of the effects of changing coverage in IS. Table 2 shows the minimum and maximum values of the ratios for countries in groups C and D. In several cases - Denmark, Greece, Kenya and Singapore - UNIDO statisticians made use of additional information from national sources to carry out adjustments which increased the coverage of IS.

A comparison between adjusted and unadjusted data provides insights regarding the impact of the cut-off point. For Greece, the effect of adjustment to full coverage of establishments was to increase the ratio by an average of 21 per cent per year. Obviously, the exclusion of establishments with less than 10 employees (less than 30 employees for 1981) had a significant impact on the coverage of IS. In Denmark, the adjusted ratio averaged 7 per cent more than the unadjusted measure where the latter excluded establishments with 6-19 employees. An average gain of 14 per cent was realized in Kenyan figures where the revised cut-off point included establishments with 5-49 employees. Finally, in Singapore, the average increase in the adjusted ratio was 2 per cent per year, indicating that the inclusion of establishments with 5-9 employees had a rather modest effect on the coverage of IS.[1/] The availability of data on small-scale industry - even if collected on an irregular basis - can be a valuable source of information to enhance the coverage of IS.

Only limited information on the impact of different cut-off points can be drawn from the IS/NA ratios for the remaining countries given in table 2. In Brazil, for example, the observed ratios are practically within the same range, regardless the coverage of IS. In case of the Philippines, where IS refer to three different cut-off points, the highest IS/NA ratio (68 per cent) can be observed in a year when this data source excludes establishments with less than 10 persons engaged. The lowest ratio (45 per cent) refers to IS data covering all establishments with one or more worker. In such cases the NA estimates, apparently, include provisions for other factors beside the coverage of IS.

D. The impact of different valuations of value added

In order to gain some impression of the effects of differences in valuation (producers' prices or factor values), it is desirable to base comparisons on data sets which agree with respect to establishment coverage and definitions. However, in all cases where comparisons can be made on the basis of different valuation systems there is also disagreement with respect to the coverage, definitions and other sources of distortion.

Thus, information on the effects of different methods of valuation can not be drawn directly from a comparison of IS and NA. Instead, UNIDO carried out a search of national and international sources to obtain national data on manufacturing value added reported in factor values and producers' prices. The exercise yielded information at sufficient detail for fourteeen developed countries and three developing countries. In table 3 the ratios between value added in producers' prices and in factor values are summarized (for detailed results see appendix B). As can be seen from the results the incidence of indirect taxes and subsidies varies considerably between countries.

1/ Results of the comparison between IS and NA for all countries in groups C and D are shown in detail in appendix A (tables A.3 and A.4).

Table 2. Comparison of different cut-off points - Selected countries, classified in groups C and D

Country	Period covered	Value added ratio IS/NA (in %) Minimum	Maximum	Cut-off point: definition of establishment coverage in IS
Brazil	1970, 1980	94	113	All
	1971-1979	94	114	5 or more persons engaged
Colombia	1970	---92----		5 or more persons engaged
	1971-1983	84	98	10 or more persons engaged
Denmark	1970-1984	106	115	6 or more employees
	1973-1984	98	108	20 or more employees
Ecuador[a/]	1970-1980	57	77	7 or more persons engaged
	1981-1982	43	52	10 or more persons engaged
El Salvador	1970-1977	79	119	5 or more workers[b/]
	1978	---107---		5 or more persons engaged
	1979-1983	82	92	selected important industries
Greece	1970-1981	98	111	All
	1970-1973,1976,1977,1980	78	88	10 or more persons engaged
	1981	---88---		30 or more persons engaged
Kenya	1972-1982	101	126	5 or more employees
	1972-1982	88	112	50 or more employees
Philippines	1970-1971,1973-1974	62	65	5 or more persons engaged
	1972,1975	56	68	10 or more persons engaged
	1976-1981	45	64	1 or more workers
Singapore[c/]	1970-1984	95	122	Private establishments with 10 or more persons engaged
	1970-1984	97	125	Private establishments with 5 or more persons engaged
Turkey	1970-1982	80	105	All in public sector, 10 or more persons engaged in private sector
	1983	---80---		All in public sector, 25 or more persons engaged in private sector

a/ IS refers to establishments submitting returns and does not include estimates for non-responding establishments. NA excludes petroleum refining (ISIC 353). Both sets of data are reported in producers' prices although IS excludes indirect taxes referring to alcoholic beverages, tobacco and petroleum products.

b/ The coverage of industries varies slightly from year to year.

c/ NA is reported in producers' prices. IS is at factor values.

Table 3 The impact of different valuations: summary of results obtained for 17 countries

	Manufacturing Value Added Ratio: producers' prices/factor values
Minimum	0.99
Maximum	1.44
Mean	1.16
Standard deviation	0.13

Source: Appendix B.

In all countries but one (Luxembourg), the ratios are greater than unity, indicating that for the manufacturing sector as a whole indirect taxes exceed subsidies. At branch level (ISIC 3-digit) the impact of indirect taxes and subsidies may be quite different. For example, indirect taxes tend to be high for the beverage, tobacco and petroleum industries. Steel and other processing industries are often heavily subsidised. Though available observations are few in number, results of the comparisons clearly suggest that the impact of the different treatment of indirect taxes and subsidies can be significant and should be carefully considered when combining information from several sources.

E. The impact of different concepts of value added

A comparison of IS and NA for the countries classified under groups G and H may serve to assess the impact of different concepts of value added i.e. a national accounting concept or a census definition. In group G are five countries: Canada, Cyprus, Malta, United Kingdom and Zimbabwe. The data compiled by these countries refer to all establishments and concepts of valuations used in NA and IS agree. As can be seen in table 4, IS exceed NA by a significant degree in three countries - Canada, United Kingdom and Zimbabwe. For the other two - Cyprus and Malta[1/] - the differences are comparatively small, ranging between 85 and 102 per cent.

Group H is composed of Hong Kong, Japan and the United States. In these countries IS refers to all establishments and value added is reported according to different valuations in NA and IS. As shown in table 4, IS exceeds NA in all cases. The effects of different concepts underlying value added on the IS/NA ratio can not be isolated owing to the other forms of disagreement noted in table 4. However, the results obtained for Hong Kong, Japan and the United States, together with those for Canada, United Kingdom and Zimbabwe, suggest that value added derived according to the 'census concept' is likely to exceed that reported in national accounts.[2/]

While the countries shown in table 4 refer only to those reporting data for all establishments, it is also worthwhile to consider other national data

1/ The rather low ratios for Malta could partly be due to the fact that IS excludes data for the Malta Drydocks.

2/ See appendix A (tables A.5 and A.6) for a detailed presentation of the comparison between IS and NA for the countries classified in groups G and H.

Table 4. The impact of different concepts of value added

Country	Period covered	Value added ratio: IS/NA (%) Minimum	Maximum
	Countries classified in group G		
Canada	1970-1982	118	128
Cyprus[a/]	1970-1984	95	102
Malta[b/]	1970-1983	85	101
United Kingdom[c/]	1970-1983	122	145
Zimbabwe[d/]	1970-1982	112	119
	Countries classified in group H		
Hong Kong[e/]	1980-1983	120	126
Japan[f/]	1970-1983	101	110
United States[g/]	1970-1983	117	131

a/ IS is reported in producers' prices, but excise duties are excluded. In 1970 to 1975 NA is reported at factor values but beginning 1976 in producers' prices.

b/ IS excludes data for Malta Drydocks.

c/ NA excludes repairs to consumer durables.

d/ IS relates to financial years of individual establishments ending at different times between 30 June of the year indicated and 29 June of the following year. NA refers to the calendar year. IS excludes smelting of copper and nickel.

e/ NA is reported in factor values; IS is stated in producers' prices.

f/ NA is reported in producers' prices. IS excludes indirect taxes as well as subsidies. Beginning 1981, IS refers to establishments with 4 or more persons engaged.

g/ NA is reported in producers' prices and IS is in factor values. IS refers to all establishments excluding those owned and operated by the government. Privately operated government establishments are included. Beginning 1982, data are not fully comparable with those for previous years owing to the change in valuation of inventories.

where IS refer to establishments above a certain cut-off point. Table 5 shows IS/NA ratios for selected countries classified in groups C and D. In most cases the ratio exceeds unity despite the limited coverage of IS. A remarkable case is that of Chile where only establishments with 50 or more employees are covered. IS exceeds NA in all years but one and in 1975 are twice the value of NA. The ratios observed for other countries also tend to be high. Since these ratios reflect the net effect of the differences in coverage and concepts, they might suggest that the effects of a rather low cut-off point in IS can be outweighed by the numerical differences attributable to the different concepts of value added. However, in case of Ghana, where the coverage of IS is limited due to a 'high' cut-off point (30 or more persons engaged), the observed ratios range between 71 and 89 per cent in most years.[1/] Here, the impact of the limited coverage in IS may be so great that it outweighs the numerical effects caused by the different concepts of value added.

F. Manufacturing value added as available in industrial statistics refers to the sector's contribution to GDP

Group F refers to countries for which IS were originally obtained from NA. As expected, there are only small discrepancies between NA and IS in most cases.[2/] These discrepancies are in a few cases caused by different precision of data in the two sources, in some cases it seems that a revision of the data has not yet been reflected in both files.[3/]

G. Implications to users of the data

Depending on the type of data analysis required, the researcher may be concerned about the effects of one or more of the issues considered here. Such concerns may arise when the analyst has need of industry-specific data but, for a variety of reasons, may find it desirable to use these data in conjunction with NA figures.

Table 6 provides one type of comparison on the basis of average annual rates of growth of manufacturing value added for individual countries in the period 1970 to the latest year. Two growth rates,[4/] one derived from NA and the other from IS, were calculated for every country and the ratios between them are shown in the table. Observed differences between the two growth rates are in many cases small. The widest discrepancies occur when IS is not defined in a consistent manner over time. This statement applies, for example, to Fiji (no adjustment for non-response, different treatment of depreciation over time), Libyan Arab Jamahiriya (changing coverage of establishments) and Nigeria (no adjustment for non-response). A remarkable case is Venezuela where, despite the fact that IS conform to a consistent definition over time, the difference between the two growth rates is one of

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1/ See, appendix A, table A.3.

2/ Data are not shown here but are given in table A.5, appendix A.

3/ Data were available for a small number of additional countries which did not provide sufficient information to determine establishment coverage, definitions or concepts of valuation. These countries, which were not assigned to any group, were excluded from the exercise but are reported in table A.8, appendix A.

4/ The growth rates were calculated from manufacturing value added (at current prices) for each year throughout the period indicated, using a semi-log regression over time.

Table 5. The net effect of differences in coverage and concepts - Selected countries, classified in groups C and D

Country	Period covered	Value added ratio: IS/NA (%) Minimum	Value added ratio: IS/NA (%) Maximum	Cut-off point: definition of establishment coverage in IS
Chile	1970-1982	94	201	50 or more persons engaged
Finland	1970-1984	104	112	5 or more persons engaged
Ghana	1970-1983	71	110	30 or more persons engaged
Ireland	1970-1979	120	148	3 or more persons engaged
Panama[a/]	1970-1983	114	144	5 or more persons engaged
Republic of Korea	1970-1983	96	128	5 or more persons engaged
Sweden[b/]	1970-1984	110	123	5 or more persons engaged
Venezuela	1970-1983	90	152	5 or more persons engaged

a/ NA is reported in factor values, IS in producers' prices.

b/ NA is reported in basic values, IS in factor values. IS includes data for dairies, distilleries, breweries and starch factories, irrespective of their size.

Table 6. Ratios between comparable growth rates of manufacturing value added from IS and NA

Country	Period covered	IS/NA
	Countries classified in group A	
Austria	1970-1983	0.99
India	1970-1982	0.94
Malawi	1973-1979	1.03
New Zealand	1971-1983	1.05
	Countries classified in group B	
Belgium	1970-1983	1.09
Fiji	1970-1982	1.19
Honduras	1970-1975	1.08
Indonesia	1970-1983	1.06
Libyan Arab Jamahiriya	1971-1980	0.61
Luxembourg	1970-1982	0.98
Tunisia	1970-1981	0.96
Uruguay	1970-1984	0.97
	Countries classified in group C	
Brazil	1970-1980	1.06
Chile	1970-1982	0.99
Colombia	1970-1983	0.99
Denmark	1970-1984	1.01
Ecuador	1970-1982	0.97
El Salvador	1970-1983	1.05
Finland	1970-1984	1.05
Ghana	1970-1983	0.98
Greece	1970-1981	1.07
Iraq	1970-1977	0.85
Ireland	1970-1979	1.08
Kenya	1972-1982	1.01
Norway	1970-1984	0.97
Philippines	1970-1981	0.95
Republic of Korea	1970-1983	1.08
Turkey	1970-1983	0.96
Venezuela	1970-1983	1.32
	Countries classified in group D	
Egypt	1973-1980	0.96
Mauritius	1970-1984	0.99
Nigeria	1973-1980	1.18
Panama	1970-1983	1.14
Singapore	1970-1984	1.09
Somalia	1970-1979	1.13
Sweden	1970-1984	1.06

Table 6. (continued)

Country	Period covered	IS/NA
	Countries classified in group E	
Botswana	1972-1982	1.01
Dominican Republic	1970-1983	1.01
France	1970-1984	1.00
Germany, Federal Republic	1970-1984	1.00
Jamaica	1970-1984	1.00
Mexico	1970-1984	1.00
Nicaragua	1970-1978	0.99
Peru	1970-1981	0.99
	Countries classified in group G	
Canada	1970-1982	1.03
Cyprus	1970-1984	1.01
Malta	1970-1983	0.99
United Kingdom	1970-1983	1.02
Zimbabwe	1970-1982	1.01
	Countries classified in group H	
Japan	1970-1983	1.05
United States	1970-1983	1.09

the largest observable. Rather small differences can be observed in most of those cases where IS covers all establishments even though value added is derived according to different concepts in IS and NA.

Table 7 shows weighted and unweighted averages of growth rates of individual countries where data were available for the period 1970-1980. For each country growth rates for value added from IS and NA covering this period

Table 7. Comparable growth rates of manufacturing value added, 1970-1980 1/

	NA	IS	Ratio: IS/NA
	(percentage)		
Unweighted average	24.6	25.3	1.03
Weighted average	12.1	12.7	1.05

1/ Averages cover 39 countries.

were derived. In the computation of weighted averages, value added in 1970 from IS and NA (converted to US dollars) was used as the respective weight. Observed differences between the growth rates are again small for the unweighted averages and slightly larger when the weighted averages are determined. The results presented in tables 6 and 7 suggest no substantial discrepancies between growth rates, whether they are based on value added from NA or from IS. However, the ratios between value added from IS and NA, as shown in appendix A and summarized in some of the earlier tables, reveal differences in levels of value added for individual countries and over time. It might be worthwhile to check to which extent the relative position of countries may be different in IS and in NA. In table 8 below, Spearman rank order correlation coefficients between value added from IS and NA covering 39 countries are shown for the years 1970 and 1980. In both years, the rank correlation coefficients are rather high. Thus, despite the observed differences in levels of value added, the relative position of countries is similar for IS and NA.

Table 8. Spearman rank correlation coefficients between manufacturing value added from IS and NA

	1970	1980
39 countries	0.992	0.990

Another way to determine the extent of agreement between IS and NA is to compare structures of value added, i.e. the share of value added for each division (2-digit ISIC) in total manufacturing. Data at a sufficient detail are available for only a limited number of countries. Based on this information, indices of similarity are calculated and shown in table 9. In the majority of cases rather high indices of similarity can be observed, indicating that the structures of value added in IS and NA are very similar. In those countries with somewhat lower indices, the coverage of IS is limited due to a cut-off point (e.g. Ecuador, El Salvador, India, Libyan Arab Jamahiriya and Philippines). Here, the structure of IS value added differs to some extent from the one based on NA due to the fact that IS do not cover certain small establishments.

In conclusion, the comparisons between various indicators shown in tables 6 to 9 suggest that the degree of divergence between IS and NA may not be great but can vary depending on the country. In the case of wide-ranging international studies focusing on rates of growth or broad measures of structural change, a decision to merge IS and NA may not have severe consequences for the quality of the underlying data. The issue becomes more problematic in the case of country-specific studies or even regional studies limited to only a few countries. The analyst may have to refrain from using IS in conjunction with NA in those cases where the former are not consistent over time and/or coverage is significantly limited due to a cut-off point. Observed differences in levels of value added for individual countries and over time should be considered, especially when using the data for country-specific analysis.

Table 9. Comparison of structures of manufacturing value added, selected years

Country	Index of similarity[a/]			
	1970	1975	1980	1983
Austria	96	95	94	93
Belgium	93	91	91	90
Cyprus	...	91[b/]	94	94
Denmark	97	97	97	97
Dominican Republic	100	99	98	...
Ecuador	84	82	80	77[c/]
El Salvador	93	84	82	79
Fiji	...	...	94	99[c/]
Finland	98	98	98	98
Greece	95	93	95	...
India	85	83	85	84[c/]
Kenya	...	93	...	...
Libyan Arab Jamahiriya	83[d/]	64	75	...
Malta	...	82	88	90
New Zealand	95[d/]	97	97	97
Norway	99	94	92	94
Panama	95	96	90	92
Philippines	88	89	90	...
Republic of Korea	91	91	94	90
Sweden	98	98	98	97
United States	97	97	97	97
Venezuela	90	94	93	91
Zimbabwe	98	98	...	...

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a/ The measure of similarity is adapted from an index proposed by Finger and Kreinen and is defined by the formula:

$$I(IS, NA) = \sum_i \text{minimum } [S_i(IS), S_i(NA)] * 100$$

where S_i is the share of division i in total manufacturing. If the distribution of IS and NA are identical ($S_i(IS)=S_i(NA)$ for each i), the index will take on a value of 100. If the structures compared are totally dissimilar (for each $S_i(IS)>0$, $S_i(NA)=0$ and vice versa), the index will take on a value of zero. J.M. Finger and M.E. Kreinen, "A measure of export similarity and its possible uses", The Economic Journal, vol. 89, December 1979, pp. 905-912.

b/ 1976
c/ 1982
d/ 1971

APPENDIX A

TABLE A 1 COMPARISON OF MANUFACTURING VALUE ADDED FROM INDUSTRIAL STATISTICS (IS) AND FROM NATIONAL ACCOUNTS (NA) FOR COUNTRIES CLASSIFIED IN GROUP A

Country	Value added ratio IS / NA (in percent)														Cut-off point, definition of establishment coverage in IS
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	
Austria	74	75	74	77	78	77	77	75	77	75	75	78	74	75	...	All establishments of the Industry Section in the Federal Economic Chamber and those with 20 or more employees of the "Gewerbesektion".
	84	85	85	87	88	88	88	86	87	85	85	86	84	85	...	All establishments of the Industry Section in the Federal Economic Chamber and complete coverage of those in the "Gewerbesektion".
India	63	53	59	61	63	62	63	56	55	56	54	58	58	...	...	10 or more workers using power, or 20 or more workers not using power
Malawi				59	56	57	.			59	.	.	.	.	.	1973: 20 or more persons engaged. Beginning 1974: turnover in excess of 100,000 kwacha.
New Zealand		79	82	85	88	89	87	89	85	87	88	83	.	91	.	Prior to 1983: 2 or more persons engaged. 1983: all.

TABLE A 2 COMPARISON OF MANUFACTURING VALUE ADDED FROM INDUSTRIAL STATISTICS (IS) AND FROM NATIONAL ACCOUNTS (NA) FOR COUNTRIES CLASSIFIED IN GROUP B

Country	Value added ratio IS / NA (in percent)															Cut-off point, definition of establishment coverage in IS
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	
Belgium a/	87	91	92	92	93	94	93	94	91	91	94	99	96	96	...	5 or more employees
Fiji b/	76 c/	78 c/	70 c/	72 c/				106	93	94	91	91	93	.	...	All reporting private establishments
Honduras b/	84	84	80	80	86	86										5 or more persons engaged.
Indonesia a/ d/	36	60	62	52		43	45	43	42	39	40	47	39	38		1970-1973: 5 or more workers using power, or 10 or more workers not using power. Beginning 1975: 20 or more persons engaged.
	37	44	48	47	43	53 e/	53 e/	52 e/	49 e/	49 e/	52 e/	56 e/	49 e/	38		20 or more persons engaged.
Libyan Arab Jamahiriya b/ f/		74	62	52	66	72	68	29	27	31	48		.			1971-1976: 20 or more persons engaged. Beginning 1977: unknown.
Luxembourg a/	93	91	90	91	92	89	91	89	90	91	92	91	91		.	20 or more persons engaged.
Tunisia b/ g/	113	102	89	93	84	89	83	101	97	98	91	90				1970-1976: 5 or more employees. Beginning 1977: 10 or more employees.
Uruguay h/	132	134	156	144	133	137	142	155	143	130	96	117	137	118	124	5 or more persons engaged.

a/ NA is reported in producers' prices, IS in factor values.
b/ NA is reported in factor values, IS in producers' prices.
c/ IS is net of depreciation.
d/ Unless stated otherwise, IS excludes petroleum refining (ISIC 353) and miscellaneous products of petroleum and coal (ISIC 354).
e/ IS includes estimates for ISIC 353.
f/ Prior to 1980, IS excludes ISIC 353.
g/ Beginning 1977, IS is not comparable with previous years owing to reclassification.
h/ NA is reported in factor values. Prior to 1981, IS excludes value added tax but includes other indirect taxes as well as repair services for the general public. Beginning 1981, IS is reported in producers' prices. Beginning 1983, IS is not comparable with previous years due to changes in methodology.

TABLE A 3 COMPARISON OF MANUFACTURING VALUE ADDED FROM INDUSTRIAL STATISTICS (IS) AND FROM NATIONAL ACCOUNTS (NA) FOR COUNTRIES CLASSIFIED IN GROUP C

Country	Value added ratio IS / NA (in percent)															Cut-off point: definition of establishment coverage in IS
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	
Brazil	94	95	94	108	109	110	110	114	114	114	113	.	.	.	.	1970, 1980: all. 1971-1979: 5 or more persons engaged.
Chile	112	117	103	111	124	201	140	119	108	108	108	94	116	.	.	50 or more persons engaged.
Colombia	92	97	94	85	93	87	84	87	88	95	92	97	89	86	.	1970: 5 or more persons engaged. Beginning 1971: 10 or more persons engaged.
Denmark	112	111	112	111 104	112 105	106 98	109 102	112 105	113 105	114 106	112 105	115 108	114 107	110 103	110 103	6 or more employees. 20 or more employees.
Ecuador a/	57	60	57	57	64	60	64	62	77	68	65	52	43	.	.	Prior to 1981: 7 or more persons engaged. 1981, 1982: 10 or more persons engaged.
El Salvador b/	79	82	85	86	95	99	105	119	107	82	84	87	82	92	.	Prior to 1978: 5 or more workers. 1978: 5 or more persons engaged. Beginning 1979: selected important industries.
Finland	104	105	105	104	106	107	108	108	110	110	111	112	112	111	111	5 or more persons engaged.
Ghana	80	83	89	89	83	76	101	110	73	73	73	71	103	79	.	30 or more persons engaged.
Greece	78	78	78	80	102	100	81	85	.	.	88	88	.	.	.	1970-1973, 1976, 1977, 1980: 10 or more persons engaged. 1974, 1975: all. 1981: 30 or more persons engaged.
	100	99	98	98	102	100	102	107	108	109	111	111	.	.	.	All.
Iraq c/	73	65	66	68	64	66	65	53	.	.	.	.	.	.	.	10 or more employees.
Ireland d/	124	126	129	124	129	134	148	133	131	136	.	.	.	.	.	3 or more persons engaged.
Kenya	.	.	88 101	89 102	91 107	96 109	112 126	109 119	92 105	94 108	98 112	90 105	90 104	.	.	50 or more employees. 5 or more employees.
Norway e/	114	113	101	101	104	103	105	107	109	107	106	105	104	104	105	5 or more persons engaged.
Philippines	64	62	56	62	65	68	45	54	59	64	64	52	.	.	.	1970, 1971, 1973, 1974: 5 or more persons engaged. 1972, 1975: 10 or more persons engaged. 1976-1981: 1 or more workers.
Republic of Korea	96	93	99	103	103	105	108	116	123	109	111	118	120	128	.	5 or more persons engaged.
Turkey	105	100	95	97	94	90	93	96	90	80	85	96	98	80	.	1970-1982: all in public sector and those with 10 or more persons engaged in private sector. 1983: all in public sector and those with 25 or more persons engaged in private sector.
Venezuela	104	100	99	93	90	129	148	151	149	152	148	148	149	151	.	5 or more persons engaged.

a/ IS refers to establishments submitting returns and does not include estimates for non-responding establishments. NA excludes petroleum refining (ISIC 353). Both sets of data are reported in producers' prices although IS excludes indirect taxes referring to alcoholic beverages, tobacco and petroleum products.
b/ Prior to 1978, the coverage of industries varies slightly from year to year.
c/ IS includes repair of motor vehicles, but excludes workshops of ship, aircraft and railroad equipment. NA includes agricultural services and related activities such as cotton ginning and pressing, but excludes distribution of petroleum products.
d/ In 1979 IS is not strictly comparable with previous years owing to changes in coverage.
e/ NA is reported in producers' prices. In 1970 and 1971, IS is reported in approximate factor values. Beginning 1972, IS is reported in producers' prices but the value added tax is not included.

TABLE A.4 COMPARISON OF MANUFACTURING VALUE ADDED FROM INDUSTRIAL STATISTICS (IS) AND FROM NATIONAL ACCOUNTS (NA) FOR COUNTRIES CLASSIFIED IN GROUP D

Country	Value added ratio: IS / NA (in percent)															Cut-off point: definition of establishment coverage in IS
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	
Egypt a/				72	81	69 b/	73 b/	83 b/	77 b/	68 b/	71 b/					All establishments in the public sector and those with 10 or more persons engaged in the private sector
Iran, Islamic Republic a/										73	98	107	86	85	..	10 or more persons engaged.
Mauritius a/ c/	91	91	86		98	95	102	93	93	94	93	93	92	91	91	Private establishments with 10 or more employees.
Nigeria a/ d/				110	107	96	99	120	127	..	129	..	..	..	..	Reporting establishments with 10 or more employees
Panama a/	114	121	128	132	126	120	130	125	123	128	134	140	..	144	..	5 or more persons engaged.
Singapore e/	95 97	96 98	98 99	107 109	116 119	107 109	111 113	112 114	113 114	113 120	122 125	114 117	113 115	110 113	112 115	Private establishments with 10 or more persons engaged. Private establishments with 5 or more persons engaged.
Somalia a/	56	54	55	50	51	65	65	57	56	61	..	..	..	..	..	5 or more persons engaged.
Sweden f/	110	111	114	117	114	111	114	119	119	121	118	120	123	120	117	5 or more persons engaged.

a/ NA is reported in factor values, IS in producers' prices
b/ IS is net of depreciation
c/ IS includes repair services except repair of motor vehicles. IS excludes excise duties in case of wine, beer and matches.
d/ IS excludes petroleum refining (ISIC 353)
e/ NA is reported in producer's prices, IS in factor values
f/ NA is reported in basic values, IS in factor values. IS includes data for dairies, distilleries, breweries and starch factories, irrespective of their size

TABLE A.5 COMPARISON OF MANUFACTURING VALUE ADDED FROM INDUSTRIAL STATISTICS (IS) AND FROM NATIONAL ACCOUNTS (NA) FOR COUNTRIES CLASSIFIED IN GROUP E

Country	Value added ratio: IS / NA (in percent)															Cut-off point: definition of establishment coverage in IS
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	
Botswana			98		100	100	98	95	100	100	100	100	100		..	All.
Dominican Republic	98	93	97	101	100	98	99	98	98	100	100	100	99	98	..	All
France	100	100	100	100	100	100	100	100	100	99	99	100	100	100	100	All.
Germany, Federal Republic	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	All
Jamaica	100	100	100	100	100	100	100	100	100	101	100	106	113	100	89	All
Mexico	100	100	100	100	100	100	100	100	100	100	100	100	100	100	101	All
Nicaragua	100	100	102	100	99	100	100	99	100	..	..	..	..	..	..	All
Peru	100	96	101	100	100	100	100	100	100	97	97	101	..	..	..	All

TABLE A 6 COMPARISON OF MANUFACTURING VALUE ADDED FROM INDUSTRIAL STATISTICS (IS) AND FROM NATIONAL ACCOUNTS (NA) FOR COUNTRIES CLASSIFIED IN GROUP G

Country	Value added ratio IS / NA (in percent)															Cut-off point; definition of establishment coverage in IS
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	
Canada	122	122	121	122	125	121	118	122	125	125	122	122	128	..	..	All.
Cyprus a/	99	99	100	100	99	99	95	98	98	99	100	101	102	102	101	All
Malta b/	87	101	91	95	87	85	88	91	88	90	90	89	90	92	.	All.
United Kingdom c/	124	126	122	127	145	133	139	132	130	134	131	132	129	130		All
Zimbabwe d/	119	117	112	113	113	118	113	116	117	116	119	118	115			All.

a/ In 1970 to 1975 NA is reported in factor values, beginning 1976 in producers' prices. IS is reported in producers' prices, but excise duties are excluded.
b/ IS excludes data for Malta Dry Docks.
c/ NA excludes repairs to consumer durables.
d/ IS relates to financial years of individual establishments ending at different times between 30 June of the year indicated and 29 June of the following year. Smelting of copper and nickel is excluded. NA refers to the calendar year.

TABLE A 7 COMPARISON OF MANUFACTURING VALUE ADDED FROM INDUSTRIAL STATISTICS (IS) AND FROM NATIONAL ACCOUNTS (NA) FOR COUNTRIES CLASSIFIED IN GROUP H

Country	Value added ratio IS / NA (in percent)															Cut-off point; definition of establishment coverage in IS
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	
Hong Kong a/											120	123	124	126		All.
Japan b/	103	101	101	105	108	104	104	103	102	108	110	107	106	108		1970-1981: all. Beginning 1981: 4 or more persons engaged
United States c/	118	117	120	123	131	122	123	125	125	131	131	128	129	127		All establishments excluding those owned and operated by the government. Privately operated government establishments are included

a/ NA is reported in factor values, IS in producers' prices.
b/ NA is reported in producers' prices, IS excludes indirect taxes as well as subsidies.
c/ NA is reported in producers' prices, IS in factor values. Beginning 1982, IS is not fully comparable with previous years owing to the change in valuation of inventories.

TABLE A 8 COMPARISON OF MANUFACTURING VALUE ADDED FROM INDUSTRIAL STATISTICS (IS) AND FROM NATIONAL ACCOUNTS (NA) FOR COUNTRIES NOT CLASSIFIED IN ANY GROUP

Country	Value added ratio IS / NA (in percent)														Cut off point: definition of establishment coverage in IS
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	
Argentina a/	88	89	84	87	86	87	86	86	86	86	87	87	86	87	.	All.
Burundi b/		71	65	67	67	76	51	87	71	74	71	.	.		.	Unknown
Paraguay	96	95	95	93	87	94	93	93	91	91	91	91		.	.	All.
Thailand	148	147	147	147	149	147	148	147	148	144	142	141	140	140	.	Unknown.

a/ NA is reported in factor values, IS in producers' prices
b/ NA is reported in factor values, the valuation of IS is unknown.

Appendix B
Comparison of Manufacturing Value Added in Producers' Prices and in Factor Values

Country	Year	Ratio: Producers' prices/ factor values (%)
Australia	1974/1975	105
Belgium	1970	113
Denmark	1970	117
Germany, Federal Republic	1981	109
Greece	1970	136
India	1979	121
Indonesia	1980	116
Ireland	1979	120
Italy	1982	112
Luxembourg	1977	99
Netherlands	1978	104
Norway	1980	104
Spain	1975	111
Sudan	1977/1978	144
Sweden	1975	135
United Kingdom	1975	122
United States	1972	107

Source: Standardized Input-Output Tables of ECE Countries for Years around 1970 (United Nations publication, Sales No. E.82.II.E.23), Standardized Input-Output Tables of ECE Countries for Years around 1975 (United Nations publication, Sales No. E.82.II.E.24), various national input-output tables and national publications.