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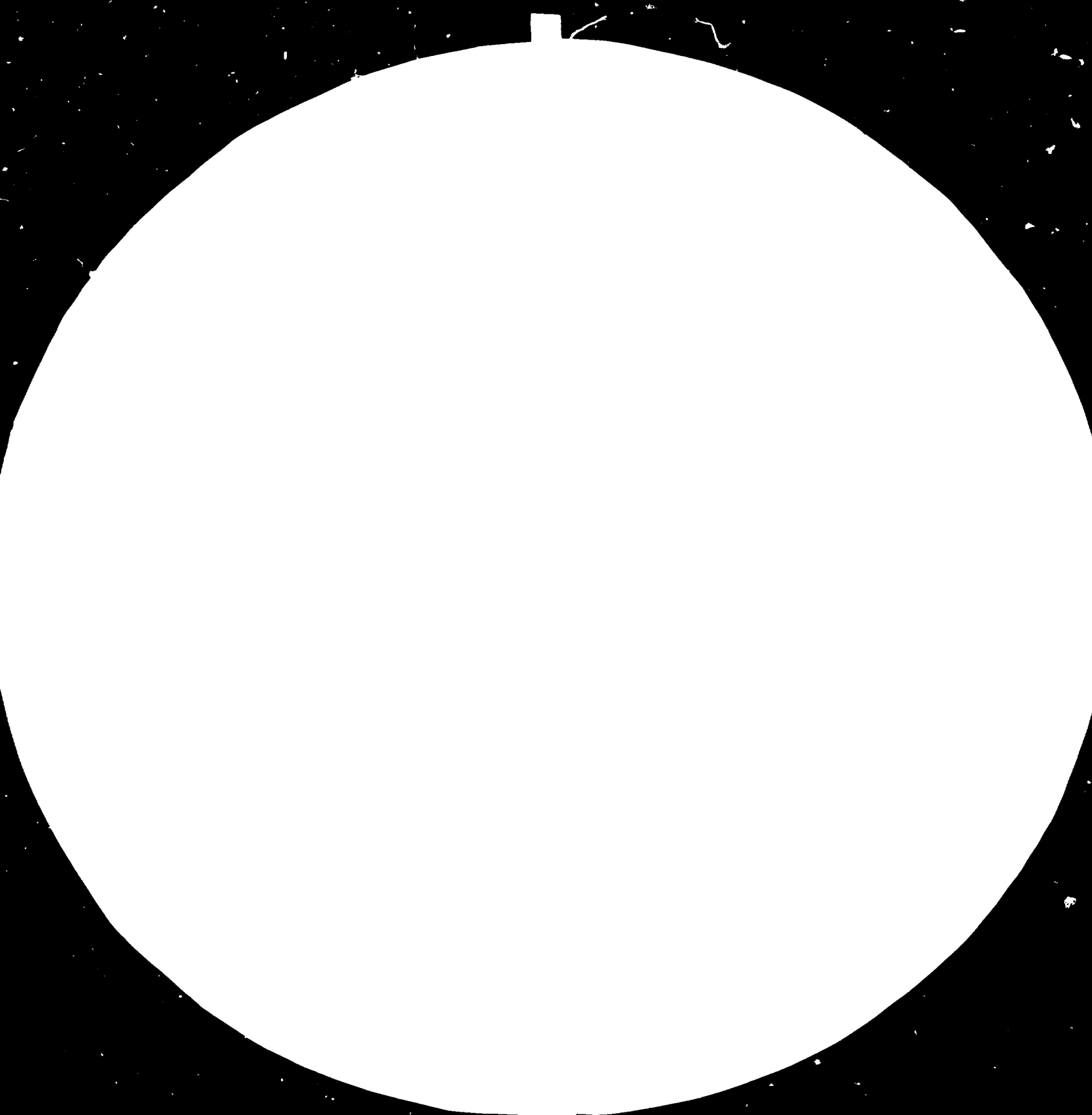
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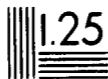
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Procedures for Standardising UNIDO Valuation Methods  
for Value Added in Manufacturing

by

14236

Angus Maddison

(13th August 1984)

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Possibilities for Standardising (GNP) Valuation Methods  
for Value Added in Manufacturing

The consultant's task was defined in Mr. Ballance's letter of 19th April, 1984, Mr. Roz's cable of 24th May and in discussions with Mr. Ballance in Vienna between 24th June and 5th July 1984.

The problem is that many countries (14 OECD countries and 19 others) do not follow the UN Statistical Office recommendation to submit information at producer prices,<sup>(1)</sup> but instead provide estimates at factor cost. In some other cases the valuation procedure is unclear. Amalgamation of values on different definitions produces inconsistent aggregate statements of regional shares in total world output, and even more significant distortions in the case of commodities like alcoholic beverages, tobacco, and petroleum products which are generally the ones most heavily taxed. These differences will also distort growth rates. Most OECD countries in fact seem to prefer factor cost valuations as they reflect real production costs and scarcities, and the UNSO also uses factor cost valuation for its world industrial production index weights. For these reasons, it would seem desirable to have both sets of valuations for all countries.

The first task of the consultant was therefore to examine national or other sources (industrial censuses, input/output tables, and national accounts material, UNSO information from countries which supply information on more than one valuation basis etc.) in order to see whether individual country adjustments could be made to convert to producer price valuation. It was hoped that this search and other relevant information might reveal a systematic enough pattern of producer price/value added relationships to warrant the construction of "synthetic" conversion factors which could be

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(1) "Output should be measured in producers' prices, that is at the establishment price charged to the customer. The valuation should include all duties and taxes which fall on products when they leave the establishment. Any subsidies received should be excluded. Price rebates and discounts and allowances on returned goods allowed to the customer should be deducted". See Recommendations for the 1983 World Programme of Industrial Statistics, Statistical Papers, Series II, No. 71 (part I), p. 50, UN, New York, 1981.

applied to countries where information on valuation is inadequate.

The difference between the two valuation concepts is as follows:

The factor cost valuation (FC) plus indirect  
taxes (I) minus subsidies (S) = producer prices (PP)

The first task was to look at the 14 developed market economies (OECD countries) which report to UNSO on a factor cost basis, and to draw up tables showing the ratio  $\frac{I - S}{FC}$ , which could be used as upward adjustment coefficients to the UNSO returns. We started first with these countries, both because their weight in world production is very substantial, and because they are the group for which the factor cost valuation is proportionately most prevalent. In addition to the 14, I also examined the <sup>3 OECD</sup> countries where the UNIDO Secretariat treated valuation as "unknown", and the other six OECD countries where producer prices were known.

The extent of the data search was conditioned by library facilities, which were poor. The UNIDO/UN Library facilities were excellent for UNSO material, fairly adequate for input/output tables,<sup>\*</sup> but unexpectedly deficient in census of production reports, and even more exiguous in terms of individual country national accounts publications. In the two latter areas, the consultant established that the Austrian Central Statistical Office Library holds out some prospects, which I did not fully exploit for lack of time and because there is no stack access. The library and files of the OECD Statistics Division supplemented this gap (courtesy of Derek Blades) for OECD countries, and use was also made of developing country national account material in the OECD Development Centre. The standardised input-output tables of LCF were also a useful source as they cover 18 OECD countries as well as 4 in Eastern Europe.

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(\*) The input/output tables are in the computer and can be printed out with impressive speed, but most of this data bank material has been transcribed from other sources and is usually marked as "original not checked". The original source is often not clearly stated and I found some minor errors, e.g. in the U.S. table, the units are described as "tens of Dollar" instead of "million dollars". In every case I used the latest I/O table available in the UNIDO file, but for the U.S.A. there must be a later one than that in the file.

### Conclusions

A detailed analysis of sources investigated is described and tabulated below. For OECD countries the search was reasonably successful in providing coefficients for converting from a factor cost to a producer price valuation. However, it was only in the case of Germany, Italy, Luxembourg, the Netherlands, Norway and Sudan that our preferred source was available frequently enough to permit annual adjustment of the country returns to UNSO.

From the evidence of these countries and for other countries (Indonesia and U.K.) where we had information for more than one year it was clear that the ratio of indirect taxes minus subsidies to value added at factor cost can change substantially within a given country, even from year to year (see Luxembourg and Sudan). This is particularly true of petroleum refining where tax rates have generally varied a good deal in response to the OPEC shocks, but it is also true for other groups. There are therefore clear dangers in extrapolating the "correction coefficient" to years for which information is lacking.

For UNIDO purposes, it would be desirable to have the same breakdown for the correction coefficients as one finds in the Yearbook of Industrial Statistics, i.e. 28 three digit ISIC groups, and 9 three digit groups, or 37 items altogether. In most cases, the national sources do not use this breakdown or classification. In Australia, India and the U.S.A. it was much more detailed. In the case of countries included in the standardised ECI input-output tables, the detail was limited to the 9 two digit ISIC groups plus the three digit item for oil refining.

Table 2 shows the danger there would be in using ECI ratios for ISIC code 31 "food, drink and tobacco" to estimate mark-ups for individual items within the grouping. Three digit items within this group are very heterogeneous in their tax incidence, with tobacco generally having the highest taxation rates and food products generally being subsidised.

Because of these serious problems, it hardly seems advisable for UNIDO to embark upon a standardisation exercise which involves annual adjustment of present submissions from secondary sources. The results of such an exercise would only be minor in terms of countries effectively brought into line. However, the information here assembled could be exploited profitably in the periodic exercises to provide benchmark weights for

Table 1

Incidence of Indirect Taxes and Subsidies  
on GDP and Manufacturing Value Added at Factor Cost

|             |        | Indirect<br>Taxes as<br>Percent of GDP<br>at Factor Cost | Subsidies as<br>Percent of GDP<br>at Factor Cost | Indirect<br>Taxes Minus<br>Subsidies as<br>Percent of GDP<br>at Factor Cost | Indirect<br>Taxes Minus<br>Subsidies as<br>Percent of Manu-<br>facturing Gross<br>Value Added<br>at Factor Cost |
|-------------|--------|--|--|---|---|
| Australia   | 1974/5 | 12.65  | 0.59   | 12.06   | 4.57 (1/c)  |
| Belgium     | 1970   | 14.59  | 1.50   | 13.09   | 13.17 (1/c)   |
| Denmark     | 1970   | 20.21  | 3.15   | 17.07   | 17.08 (1/c)   |
| Germany     | 1981   | 14.41  | 2.07   | 12.33   | 9.02 (NA)   |
| Greece      | 1970   | 16.82  | 0.96   | 15.86   | 36.07 (1/c)   |
| Ireland     | 1979   | 17.72  | 10.12  | 7.61  | 20.17 (C)   |
| Italy       | 1981   | 11.47  | 3.35   | 8.12  | 11.52 <sup>a</sup> (NA)   |
| Luxembourg  | 1977   | 14.54  | 3.89   | 10.65   | - 0.59 (C)  |
| Netherlands | 1978   | 13.80  | 2.85   | 10.94   | 4.34 (1/c, NA)  |
| Norway      | 1980   | 18.87  | 7.65   | 11.12   | 3.55 (NA)   |
| Spain       | 1975   | 7.11   | 1.21   | 5.90  | 10.69 (1/c)   |
| Sweden      | 1975   | 15.56  | 3.44   | 12.12   | 34.65 (1/c)   |
| U.K.        | 1975   | 14.46  | 3.91   | 10.56   | 21.84 (1/c)   |
| U.S.A.      | 1972   | 10.36  | 0.65   | 9.72  | 7.47 (1/c)  |
| India       | 1979   |  |  | 12.86   | 20.94(1/c)  |
| Indonesia   | 1980   |  |  | 3.54  | 15.73(C)  |
| Sudan       | 1977/8 |  |  | 12.83   | 43.84(C)  |

a) 1982

Source: Tables 4-16 below; German national accounts; OECD, National Accounts 1963-1981, vol. II, Paris, 1983; and World Bank, World Tables, third edition, Vol. I, Baltimore, 1984.



Ratio of Indirect Taxes (minus Subsidies)  
to Gross Value Added at Factor Cost

(Percentages of value added)

|             |        | Tobacco         | Drunk          | Food    | Food, Drink<br>& Tobacco | Petroleum<br>Refining |
|-------------|--------|-----------------|----------------|---------|--------------------------|-----------------------|
| Australia   | 1974/5 | 5.15            | 5.36           | 4.48    | 4.65                     | 37.51                 |
| Belgium     | 1970   | n.a.            | n.a.           | n.a.    | 31.73                    | 845.11                |
| Denmark     | 1970   | 734.10          | 223.51         | - 15.49 | 66.14                    | -                     |
| Germany     | 1981   | 85.06           | 35.75          | 0.23    | 25.42                    | 73.21                 |
| Greece      | 1970   | n.a.            | n.a.           | n.a.    | 71.67                    | 464.86                |
| Ireland     | 1979   | ---- 74.07 ---- | - 2.00         |         | 40.03                    | -                     |
| Italy       | 1982   | n.a.            | n.a.           | n.a.    | 25.70                    | 93.13 <sup>a</sup>    |
| Luxembourg  | 1977   | n.a.            | 27.66          | - 13.76 | 58.11                    | -                     |
| Netherlands | 1978   | --- 139.55 ---- | - 27.06        |         | 0.20                     | 20.53                 |
| Norway      | 1980   | 1,320.00        | 267.60         | - 54.96 | - 13.23                  | - 12.85               |
| Spain       | 1975   | n.a.            | n.a.           | n.a.    | 20.68                    | 440.65                |
| Sweden      | 1975   | n.a.            | n.a.           | n.a.    | 164.26                   | 5,115.12              |
| U.K.        | 1975   | 622.22          | 156.45         | - 29.17 | 70.59                    | 351.59                |
| U.S.A.      | 1972   | 106.56          | --- 21.45 ---- |         | 27.76                    | 118.63                |
| India       | 1979   | 27.02           | 35.07          | 19.72   | 23.63                    | 5.31 <sup>b</sup>     |
| Indonesia   | 1980   | 56.90           | 57.74          | 5.82    | 39.08                    | n.a.                  |
| Sudan       | 1977/8 |                 |                |         | 52.42                    | -                     |

a) "energy products"

b) "petroleum products"

Source: Tables 4-16 below, and German national accounts.

industrial production indices, particularly if they could be supplemented by output from national statistical offices.

It is clear that there is in fact a good deal of information in national statistical offices of OECD countries which would permit the authorities there to submit estimates on either valuation basis if they could be persuaded to make the effort. It might be worthwhile to set up an ad hoc statistical working party designed to achieve this particularly if UNIDO/TKSO could arrange this jointly with the OECD Secretariat. In order not to put too big an initial reporting burden on statistical offices, I would suggest that such a working party might be convened in connection with the benchmark weighting years.

In 10 of the countries, the preferred information came from input-output tables, 4 from industrial censuses, and 4 from national accounts (the Netherlands being the only country we found where an annual input-output table is integrated in the national accounts).

As the input-output tables are a major source of information, and the one which is most readily available in the UNIDO data bank, UNIDO might well find it useful (and be able) to exercise some influence on their construction. It would be useful for instance to ask the ECE in their standardized exercise which seems now to be quinquennial to break down the three groups, food, drink and tobacco separately and to press <sup>more</sup> for comparable information on taxes and subsidies.

It is likely that different statistical sources will have a different degree of coverage of manufacturing. Input-output and national accounting treatment will usually include upward adjustment of industrial census returns to allow for non-response or omission of small firms below the cut-off point. They may possibly use different techniques to adjust for work in progress, unsold stocks etc., though these should not be important if countries follow UNSO guidelines in industrial statistics. On the other hand, industrial censuses tend to draw the boundary of the manufacturing sector more broadly than is the case in national accounts, where some associated service activities are classified elsewhere. The 1972 U.S. Census of Manufactures contains some information on this which is included as Annex 3.

The existence of such definitional discrepancies of the scope of manufacturing will affect the incidence of taxes and subsidies to a degree

to which I have not been able to investigate, but which can be checked to some degree by comparing the values in the tables in this report for similar items reported in the Yearbook of Industrial Statistics.

Given the difficulty in adjusting to producer price valuations over time for individual countries for which there is alternative valuation information, there is reason to be dubious about the utility of efforts to construct "synthetic" adjustment coefficients for countries for which such coefficients are not available.

It is clear from tables <sup>1 and 2</sup> that the incidence of indirect taxes and subsidies varies much more between countries in manufacturing than it does for GDP as a whole. In manufacturing, the average tax-subsidy ratio varies from - 0.59 per cent in Luxembourg to 43.84 per cent in Sudan, whereas the incidence for GDP in these two countries is 10.65 and 12.33 per cent. The range is very wide within the European Community which has made very big efforts to standardise the structure of indirect taxes and subsidies. The variance is wide even between big European Community countries like Germany and the U.K. where the manufacturing sector is less specialised than in small countries. It is 9.02 per cent for manufacturing in Germany and 21.84 per cent in the U.K. The difference is wider for individual industries or products. Thus in Germany, the net indirect tax-subsidy burden on tobacco products was 85.06 per cent, in the U.K. 622.22 per cent; for drink the ratio was 35.75 per cent in Germany and 156.45 per cent in the U.K. In German food products the ratio was a very small net tax of 0.23 per cent; in the U.K. a subsidy of 29.17 per cent.

Some of these inter-country differences in tax rates are due to differences in the output mix (e.g. the proportions of fuel oil or petroleum produced by refineries), some are due to differences in the incidence of taxes and subsidy. But they may also be affected by differences in classification of taxes whose real economic incidence may be similar. Thus in the U.S.A. which has no value added tax, there are sales taxes which enter into the "purchaser prices" (formerly and sometimes still <sup>called</sup> "market prices") of national accounts, but which are not included in "producer prices". They are imputed to the value added in trade and transport, because they are collected by retailers. In European community countries where sales taxes are rare, the taxes on manufacturing value added are higher because of the universal practice of imposing value added taxes.

In the case of a country which only has import duties and value added taxes, the rules for imputation are quite simple. Import duties included in the cost of inputs are excluded, as is the deductible value added tax on inputs. However, for some indirect taxes and subsidies, it is not so obvious where their incidence lies in the production process, and in these "grey areas", statistical treatment of an essentially similar situation may vary between countries because of legal rules and bureaucratic practice, even where UNSO reporting requirements are strictly fulfilled.

A copy of the UNSO guidelines is appended as Annex 2; it is clear from this that these are difficult to apply in practice, particularly in identifying the "non-commodity taxes and subsidies". It would be useful for UNIDO to make a study for a small sample of countries (e.g. France, Germany, Netherlands, U.S.A. and India) of the incidence of different categories of taxes and subsidies, particularly the distinction between "commodity" and "non commodity" items, and to illustrate the impact of the distinction between "purchaser prices", "producer prices", "factor cost valuation", and the "basic price" concept (i.e. producer prices net of commodity taxes and commodity subsidies) <sup>- the latter being</sup> favoured in the ECE input-output tables. Such a study would exemplify more clearly what treatment of the inevitable grey areas is preferred by UNIDO. It would be a useful paper to have on the agenda of the ad hoc statistical working party I have proposed.

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Results of Search for 14 OECD Countries which Report on a Factor Cost Basis

Table 3 shows the nature of the 14 country search. For thirteen countries I found information of some kind which a priori offered clues on the desired ratio.

For Iceland no information was found.

For Canada, the four sources available yielded nothing useful. The ECE input/output table contained no tax information, and the national input/output table was obscure. Neither the country national accounts, nor OECD national accounts files threw up any evidence.

For Finland, the ECE input/output table yielded implausible results, and there was nothing pertinent in OECD files.

For the 11 other countries, I found plausible evidence on the desired ratios but only for Luxembourg, the Netherlands, Sweden and the U.S.A. was any of the available information annual. There was also a considerable variation between countries in the degree of disaggregation available by sector.

For Australia, the national input/output table provided a breakdown for 66 items which permitted ratios to be calculated.

For Belgium, Greece and Spain the only source I found was the ECE standardised input/output tables. This also yielded ratios for the Netherlands, Sweden and U.K. For the Netherlands and the U.K. it was not the preferred source, but for Sweden it was preferred to the more detailed national accounts figures which yield such low ratios, that they raise the suspicion that the definition of indirect taxes and subsidies is incomplete. Table 4 shows the coefficients derived from the ECE tables as well as the Swedish national accounts coefficients for 1975.

For Denmark a 20 item national input-output table was used from the UNIDO file (it was one provided by the European Community).

For Ireland, the Census reports appear to provide a regular source with a 47 item breakdown. For Luxembourg, the annual census reports also give a regular breakdown, in this case for 22 items. It should be noted that Ireland and Luxembourg were the only two of the six OECD countries searched for which census material yielded information on indirect taxes and subsidies.

Table 5

14 OECD Countries Which Report only Factor Cost Version of Manufacturing Value Added

|             | Economic Commission<br>for Europe Input/Output<br>Tables |                                 | National Input/<br>Output Tables |                                 | Census Reports    |                                 | Country National<br>Accounts |                                 | OECD National<br>Accounts Files |                                 |
|-------------|--|---------------------------------|----------------------------------|---------------------------------|-------------------|---------------------------------|------------------------------|---------------------------------|---------------------------------|---------------------------------|
|             | Reference<br>Year  | No. of<br>Items in<br>Breakdown | Reference<br>Year                | No. of<br>Items in<br>Breakdown | Reference<br>Year | No. of<br>Items in<br>Breakdown | Reference<br>Year            | No. of<br>Items in<br>Breakdown | Reference<br>Year               | No. of<br>Items in<br>Breakdown |
| Australia   |  | n.a.                            | 1974/5                           | 66                              |                   | x                               |                              | ox                              |                                 |                                 |
| Belgium     | 1970   | 10                              |                                  | n.c.                            |                   | x                               |                              | ox                              |                                 |                                 |
| Canada      | 1971, 1975<br>(taxes not shown)                          | xx                              | 1975<br>(obscure)                | xx                              |                   | n.c.                            |                              | x                               |                                 |                                 |
| Denmark     | 1970<br>(implausible)                                    | xx                              | 1970                             | 20                              |                   | n.c.                            |                              | ox                              |                                 |                                 |
| Finland     | 1970<br>(implausible)                                    | xx                              |                                  | n.c.                            |                   | n.c.                            |                              | ox                              |                                 |                                 |
| Greece      | 1970   | 10                              |                                  | n.c.                            |                   | n.c.                            |                              | ox                              |                                 |                                 |
| Iceland     |  | n.a.                            |                                  | n.c.                            |                   | n.c.                            |                              | ox                              |                                 |                                 |
| Ireland     |  | n.a.                            |                                  | n.c.                            | 1979              | 47                              |                              | ox                              |                                 |                                 |
| Luxembourg  |  | n.a.                            |                                  | n.c.                            | Annual            | 29                              |                              | ox                              |                                 |                                 |
| Netherlands | 1970, 1975   | 10                              | Annual                           | 17                              |                   | n.c.                            | Annual                       | 17                              | 1977-80                         |                                 |
| Spain       | 1975   | 10                              |                                  | n.c.                            |                   | n.c.                            |                              | ox                              |                                 |                                 |
| Sweden      | 1975   | 10                              |                                  | n.c.                            |                   | n.c.                            | Annual                       | 39                              | Annual                          |                                 |
| U.K.        | 1970, 1975   | 10                              | 1975                             | 21                              |                   | x                               |                              | x                               |                                 |                                 |
| U.S.A.      |  | n.a.                            | 1972                             | 51                              |                   | x                               |                              | x                               | Annual                          |                                 |

n.a. = nothing available; n.c. = not checked; x = looked and found nothing; xx = looked, found something and rejected it; ox = OECD National Accounts Division looked and found nothing.

For the Netherlands, the annual national accounts publication gives manufacturing value added at both factor cost and market prices, and also provides, in an annex, annual input/output tables which permit calculation of the desired ratio broken down by 17 industries.

For the U.K., the national input/output table for 1975 (as reported by Inrostat) provided a finer breakdown than the ECE input/output table for the same year and is to be preferred for UNIDO purposes. In this case (in contrast with Sweden) the national and ECE sources are more or less consistent with overall ratios of 21.84 per cent and 22.63 per cent respectively.

For the U.S.A., the census reports and national accounts did not yield the required coefficients, and the OECD file has indirect taxes and subsidies for only 9 industry groups within manufacturing. The 1972 national input/output table gives gross value added and "indirect business taxes" for 51 groups and was the preferred source.

#### OECD Countries where UNIDO Describes Valuation as "Unknown"

There were three OECD countries in this category, Italy, Japan and Norway.

In the case of Italy, the UNSO figures are described in the Yearbook of Industrial Statistics as "net of indirect taxes; subsidies, however, are not taken into account". This is not too clear but it presumably means that subsidies are not included. As indirect taxes are usually bigger than subsidies, one should perhaps classify the Italian return closer to a factor cost than a producer price valuation.

The Italian national accounts publications contain annual figures on both a factor cost and market price basis (see table 3). This provided a basis for calculating our desired ratios for 15 industrial groups.

For Japan, the UNSO Op.cit. manufacturing figures are described as including indirect taxes, and excluding subsidies, so they would appear to be at producer prices.

For Norway, the figures are described in UNSO, Op.cit., as including "indirect taxes, other than the value-added tax", and excluding subsidies, so they are an incomplete producer price valuation to which value added taxes should be added. In 1980, value added taxes paid by producers in all branches of the economy were 38.7 per cent of all indirect taxes, so the omission of value added taxes is a serious one.

The Norwegian national accounts give a 24 item breakdown of value added at factor cost and market prices (which presumably includes value added tax). The ratios derived from these are shown in the table. The national accounts also contain an unusual degree of information about the nature of indirect taxes and subsidies.

Other OECD Countries

There are six OECD countries which provide information in producer prices, and which therefore pose no problem. However, as for some purposes it may be desirable to have the factor cost valuation as well, a brief search was made for this possibility. Portugal has, in fact, submitted information on a factor cost as well as a producer price basis. The German national accounts provide annual information for 31 industry groups which permit a factor cost value added calculation. For the other countries there appears to be nothing suitable in the national accounts, but Austria, France, Germany, Portugal and Turkey all figure in the ECE standardized input-output tables and this would permit a two digit ISIC breakdown for nine sectors plus oil refining.

Switzerland provides no information to UNSO on value added, so it did not seem worthwhile to search for valuations.



Table 4  
Ratio of Indirect Taxes Minus Subsidies to Value Added at Factor Cost  
As Shown by ECE 170 Tables

| ISIC Code    | Belgium 1970 | Greece 1970 | Spain 1975 | Sweden 1975 | Sweden 1975 (Nat.Accts.) | Netherlands 1970 | Netherlands 1975 | U.K. 1970 | U.K. 1975 |
|--------------|--------------|-------------|------------|-------------|--------------------------|------------------|------------------|-----------|-----------|
| 31           | 31.73        | 71.67       | 20.68      | 164.26      | 2.73                     | 17.80            | 21.02            | 167.57    | 79.32     |
| 32           | 5.53         | 8.74        | 1.37       | 69.72       | 3.03                     | 14.38            | 15.92            | 23.37     | 18.17     |
| 33           | 7.52         | 7.58        | 1.90       | 9.57        | n.a.                     | 8.70             | 13.80            | 13.67     | 12.57     |
| 34           | 5.50         | 12.67       | 6.54       | 7.26        | 1.70                     | 3.92             | 5.79             | 9.97      | 4.38      |
| 35 excl. 353 | - 7.02       | 14.39       | 3.55       | 16.29       | 2.64                     | 1.81             | 3.36             | 6.77      | 2.57      |
| 353          | 845.11       | 464.86      | 440.65     | 5,115.12    | 1.30                     | 77.90            | 27.50            | 1,970.49  | 311.23    |
| 36           | 7.60         | 10.08       | 2.97       | 7.56        | 2.62                     | 2.74             | 3.54             | 5.40      | 3.67      |
| 37           | 1.28         | 15.43       | - 0.63     | 2.83        | 3.30                     | 0.19             | 1.66             | 1.59      | 2.74      |
| 38           | 3.79         | 14.62       | 1.58       | 13.43       | 2.47                     | 5.90             | 4.30             | 9.03      | 7.67      |
| 39           | 4.05         | 12.99       | 7.43       | 69.00       | - 34.67                  | 6.56             | 8.94             | 53.59     | 22.40     |
| Total        | 13.17        | 36.07       | 10.69      | 34.65       | 1.80                     | 11.83            | 11.59            | 36.49     | 22.63     |

Source: Standardised Input-Output Tables of ECE Countries for Years Around 1970, and around 1975, UN, New York, 1980, two vols.

Table 5  
Australia 1974-5 Fiscal Year

| Variable Code | Commodity & Indirect Taxes Minus Subsidies | Gross Value Added at Factor Cost | Ratio of Col. 1 to Col. 2 |      |
|---------------|--|----------------------------------|---------------------------|------|
| 15            | Meat Products                              | 216                              | 4,452                     | 4.87 |
| 16            | Milk Products                              | 148                              | 2,246                     | 6.59 |
| 17            | Fruit & Vegetable Products                 | 43                               | 1,326                     | 3.24 |
| 18            | Margarine Oils & Fats                      | 27                               | 393                       | 6.87 |
| 19            | Flour & Cereal Products                    | 17                               | 869                       | 1.96 |
| 20            | Bread, Cakes, Cereals                      | 156                              | 2,456                     | 6.40 |
| 21            | Confectionary                              | 1                                | 922                       | 0.11 |
| 22            | Food Products n.e.c.                       | 123                              | 3,708                     | 3.32 |
| 23            | Soft Drinks                                | 40                               | 808                       | 4.95 |
| 24            | Beer & Malt                                | 97                               | 1,824                     | 5.32 |
| 25            | Alcoholic Beverages n.e.c.                 | 39                               | 649                       | 6.01 |
| 26            | Tobacco Products                           | 41                               | 796                       | 5.15 |
| 27            | Prepared Fibres                            | 19                               | 256                       | 7.42 |
| 28            | Man Made Fibres                            | 28                               | 625                       | 4.48 |
| 29            | Cotton, Silk, Flax Yarns                   | 31                               | 765                       | 4.05 |
| 30            | Wool & Worsted Yarns                       | 24                               | 425                       | 5.65 |
| 31            | Textile Finishing                          | 11                               | 263                       | 4.18 |
| 32            | Textile Floor Coverings                    | 18                               | 460                       | 3.91 |
| 33            | Textile Products n.e.c.                    | 22                               | 496                       | 4.44 |
| 34            | Knitting Mills                             | 38                               | 990                       | 3.84 |
| 35            | Clothing                                   | 97                               | 3,542                     | 2.74 |
| 36            | Footwear                                   | 39                               | 936                       | 4.17 |
| 37            | Sawmill Products                           | 97                               | 2,361                     | 4.11 |
| 38            | Plywood & Veneers                          | 30                               | 595                       | 5.04 |
| 39            | Joinery & Wood                             | 42                               | 1,656                     | 2.57 |
| 40            | Furniture, Mattresses & Brooms             | 76                               | 2,144                     | 3.55 |
| 41            | Paperboard, Pulp, Paper                    | 51                               | 1,273                     | 4.01 |
| 42            | Fibreboard & Paper Containers              | 94                               | 1,402                     | 6.70 |
| 43            | Paper Products n.e.c.                      | 34                               | 481                       | 7.07 |
| 44            | Newspapers & Books                         | 120                              | 3,129                     | 3.84 |
| 45            | Commercial & Job Printing                  | 103                              | 3,459                     | 2.98 |
| 46            | Chemical Fertilisers                       | 35                               | 573                       | 6.11 |
| 47            | Industrial Chemicals n.e.c.                | 167                              | 1,733                     | 9.63 |
| 48            | Paints, Varnish & Lacquers                 | 54                               | 674                       | 8.01 |
| 49            | Pharmaceutical Chemicals                   | 51                               | 1,200                     | 4.25 |
| 50            | Soap & Other Detergents                    | 33                               | 671                       | 4.92 |
| 51            | Cosmetic Toilet Preparations               | 15                               | 592                       | 2.53 |
| 52            | Chemical Products n.e.c.                   | 31                               | 893                       | 3.47 |

Table 5 (cont.)  
Australia 1975-76 Fiscal Year (contd.)

| National Code |                               | Commodity 3<br>Indirect Taxes<br>Minus Subsidies | Gross Value<br>Added at<br>Factor Cost | Ratio of<br>Col. 1 to<br>Col. 2 |
|---------------|-------------------------------|--|--|---------------------------------|
| 53            | Petroleum & Coal Products     | 491  | 1,309                                  | 37.51                           |
| 54            | Glass & Glass Products        | 60   | 953                                    | 6.30                            |
| 55            | Clay Products                 | 100  | 1,540                                  | 6.49                            |
| 56            | Cement                        | 43   | 633                                    | 6.33                            |
| 57            | Ready Mixed Concrete          | 22   | 556                                    | 3.96                            |
| 58            | Concrete Products             | 54   | 1,630                                  | 3.31                            |
| 59            | Non-Metallic Mineral Products | 31   | 548                                    | 5.48                            |
| 60            | Basic Iron & Steel            | 464  | 8,877                                  | 5.23                            |
| 61            | Other Basic Metal Products    | 188  | 4,207                                  | 4.47                            |
| 62            | Structured Metal Products     | 103  | 2,822                                  | 3.65                            |
| 63            | Sheet Metal Products          | 94   | 2,513                                  | 3.74                            |
| 64            | Metal Products n.e.c.         | 154  | 3,840                                  | 4.01                            |
| 65            | Motor Vehicles & Parts        | 368  | 8,899                                  | 4.14                            |
| 66            | Ship & Boat Building          | 44   | 1,570                                  | 2.80                            |
| 67            | Locomotives & Rolling Stock   | 17   | 2,123                                  | 0.80                            |
| 68            | Aircraft Building             | 1  | 1,289                                  | 0.08                            |
| 69            | Scientific Equipment          | 22   | 846                                    | 2.60                            |
| 70            | Electronic Equipment          | 74   | 2,618                                  | 2.83                            |
| 71            | Household Appliances          | 87   | 2,250                                  | 3.90                            |
| 72            | Electrical Machinery          | 147  | 3,379                                  | 4.35                            |
| 73            | Agricultural Machinery        | 54   | 1,125                                  | 4.80                            |
| 74            | Construction Equipment        | 19   | 908                                    | 2.09                            |
| 75            | Other Machinery & Equipment   | 146  | 4,451                                  | 3.28                            |
| 76            | Leather Products              | 22   | 412                                    | 5.34                            |
| 77            | Rubber Products               | 76   | 1,484                                  | 5.12                            |
| 78            | Plastic & Related Products    | 103  | 2,768                                  | 3.72                            |
| 79            | Sign Writing Equipment        | 18   | 362                                    | 4.97                            |
| 80            | Other Manufactures            | 15   | 747                                    | 2.01                            |
|               | Total Above                   | 5,325  | 116,624                                | 4.57                            |

Source: Input-Output Table (Australian Bureau of Statistics) in UNIDO file.

Table 6

Dominican Republic

| Industry | Industry Description                                     | Value Added at Factor Cost | Value Added at Market Prices | Ratio of Indirect Taxes Minus Subsidies to Gross Value Added at Factor Cost |
|----------|--|----------------------------|------------------------------|---|
| 7        | Iron and Nonferrous Ores and Metals                      | 30.7                       | 30.0                         | - 2.28  |
| 8        | Non-Metallic Mineral Products                            | 241.3                      | 266.5                        | 10.41   |
| 9        | Chemical Products  | 172.7                      | 182.1                        | 5.44  |
| 10       | Metal Products Excluding Machinery & Transport Equipment | 254.2                      | 275.0                        | 8.18  |
| 11       | Agricultural and Industrial Machinery                    | 296.0                      | 281.3                        | - 4.97  |
| 12       | Office & Data Processing Equip. Precision Instruments    | 33.3                       | 31.8                         | - 4.50  |
| 13       | Electrical Goods   | 203.6                      | 215.6                        | 3.36  |
| 14       | Motor Vehicles   | 22.6                       | 22.9                         | 1.33  |
| 15       | Other Transport Equipment                                | 112.3                      | 95.7                         | - 14.78   |
| 16       | Meat Preparation & Slaughtering                          | 116.1                      | 45.0                         | - 61.24   |
| 17       | Milk and Dairy Products                                  | 73.9                       | 26.6                         | - 64.00   |
| 18       | Other Food Products                                      | 285.9                      | 335.6                        | 15.63   |
| 19       | Beverages  | 92.8                       | 309.5                        | 223.51  |
| 20       | Tobacco Products   | 34.9                       | 291.1                        | 734.10  |
| 21       | Textiles and Clothing                                    | 230.4                      | 233.5                        | 1.35  |
| 22       | Leather, Skins and Footwear                              | 29.8                       | 30.6                         | 2.63  |
| 23       | Lumber, Wood Products and Furniture                      | 174.6                      | 182.8                        | 4.70  |
| 24       | Paper and Printing                                       | 334.1                      | 377.3                        | 12.93   |
| 25       | Rubber and Plastic Products                              | 80.8                       | 87.1                         | 7.80  |
| 26       | Other Manufacturing Products                             | 46.2                       | 46.7                         | 1.08  |
|          | Total  | 2,871.2                    | 3,361.7                      | 17.08   |

Source: FEC Input-Output Table.

Table 7

Ireland 1979

| Industry Description   | Gross Value Added Excluding VAT | VAT on Value Added (Excluding Deductible VAT on Inputs) | Ratio of VAT to Value Added (Per Cent) |
|--|---------------------------------|---|--|
| 8 Non Metallic Minerals  | 146,357                         | 14,786  | 10.10                                  |
| 14,29-6 Chemicals (Excluding Oil Refineries & Man Made Fibres) | 303,534                         | 4,455   | 1.47                                   |
| 22,31-7 Metals and Engineering                                 | 486,709                         | 56,230  | 11.55                                  |
| 411-23 Food (detail available)                                 | 341,358                         | - 6,815   | - 2.00                                 |
| 424-9 Drink and Tobacco  | 421,424                         | 312,140   | 74.07                                  |
| 43 Textiles (detail available)                                 | 96,379                          | - 446   | - 0.46                                 |
| 44 Leather & Leather Goods                                     | 10,712                          | - 864   | - 8.07                                 |
| 451 Footwear   | 17,320                          | - 103   | - 0.59                                 |
| 453-6 Clothing (Including furs and household textiles)         | 52,557                          | 1,813   | 3.45                                   |
| 46 Timber and Wooden Furniture                                 | 31,384                          | 8,284   | 26.40                                  |
| 471-2 Paper and Paper Products                                 | 44,928                          | 17,212  | 38.31                                  |
| 473-4 Printing and Publishing                                  | 79,664                          | 11,049  | 13.87                                  |
| 481-2 Rubber Products  | 23,886                          | 2,477   | 10.37                                  |
| 483 Plastics Processing  | 36,979                          | 5,555   | 15.02                                  |
| 49 Other Manufacturing   | 20,304                          | 485   | 2.39                                   |
| TOTAL ABOVE  | 2,113,475                       | 426,257   | 20.17                                  |

Source: Census of Industrial Production, 1979, CSO, Dublin, 1984.

1975  
July 1972

|   | Gross Value<br>Added at<br>Factor Cost<br>Billion lire | Gross Value<br>Added at<br>Market<br>Prices<br>Billion Lire | Ratio of<br>Indirect Taxes<br>Minus Subsidies<br>to Value Added at<br>Factor Cost<br>Per Cent |
|---|--|---|---|
| Energy Products   | 10,908   | 21,667  | 95.15   |
| Ferrous & Non-Ferrous Metals &<br>Minerals                  | 6,723  | 6,808   | 1.26  |
| Non-Metallic Minerals & Products                            | 9,638  | 10,159  | 5.41  |
| Chemicals & Pharmaceuticals                                 | 8,664  | 8,523   | - 1.63  |
| Metal Products Excluding Machinery<br>& Transport Equipment | 9,730  | 9,956   | 2.32  |
| Agricultural & Industrial Machinery                         | 10,714   | 10,441  | - 2.55  |
| Business Machinery, Precision &<br>Optical Instruments      | 2,454  | 2,190   | - 10.76   |
| Electric Equipment  | 8,771  | 8,915   | 1.64  |
| Transport Equipment   | 8,407  | 8,128   | - 3.32  |
| Food, Drink & Tobacco                                       | 14,336   | 18,020  | 25.70   |
| Textiles, Clothing, Leather Goods<br>& Shoes                | 24,503   | 25,020  | 2.11  |
| Wood and Furniture Products                                 | 9,129  | 9,998   | 9.52  |
| Paper, Printing & Publishing                                | 7,036  | 7,572   | 7.62  |
| Rubber & Plastics   | 5,535  | 5,644   | 1.97  |
| Other Manufacturing   | 1,759  | 1,799   | 2.27  |
| TOTAL ABGL  | 138,307  | 154,240   | 11.52   |

Source: Italian national accounts.

Table 2  
Luxembourg 1976 and 1977

Indirect Taxes and Subsidies as Percentage  
of Gross Value Added at Factor Cost

|  | 1976                 | 1977    | 1976      | 1977  |
|--|----------------------|---------|-----------|-------|
|  | Indirect Taxes       |         | Subsidies |       |
| Building Materials                       | 10.28                | 6.89    |           |       |
| Ceramics                                 | - 1.65               | - 1.79  |           |       |
| Basic Chemicals, Paints & Varnish        | 9.33                 | 9.23    |           |       |
| Chemical Products for Agriculture        | - 5.53               | 1.13    |           |       |
| Foundries, Ferrous & Non-ferrous Metals  | 3.15                 | 3.58    |           |       |
| Secondary Transformation of Metals       | 12.53                | 14.06   |           |       |
| Metal Construction Machinery             | 10.35                | 10.91   | 0.06      |       |
| Metal Equipment                          | - 3.73               | - 3.04  |           |       |
| Equipment for Mines, Steel and Foundries | - 4.88               | - 1.78  |           |       |
| Machinery and Mechanical Equipment       | - 7.12               | - 8.87  |           |       |
| Electrical Equipment                     | 2.91                 | - 0.34  | 0.02      |       |
| Agricultural Machinery                   | - 10.79              | - 8.51  | 0.01      | 0.01  |
| Slaughtering and Meat Transport          | - 6.07               | - 3.94  |           |       |
| GDP                                      | - 18.42              | - 17.43 | 24.36     | 23.39 |
| Biscuits, Baking, etc.                   | 5.27                 | 6.29    | 0.11      | 0.11  |
| Wine-making                              | 1.38                 | 14.62   | 7.51      | 6.23  |
| Breweries                                | 33.39                | 36.83   |           |       |
| Soft Drinks and Tobacco                  | negative value added |         |           |       |
| Clothing and Textiles                    | - 7.85               | - 6.35  | 0.15      |       |
| Wood and Furniture                       | 6.04                 | 6.04    | 0.09      |       |
| Paper and Printing                       | 4.79                 | 2.85    | 0.51      | 0.74  |
| Rubber and Plastics                      | - 11.35              | - 12.46 | 0.01      |       |
| Total Above                              | - 0.89               | 0.09    | 0.74      | 0.68  |

Source: Annuaire Statistique du Luxembourg, 1980, Service Central de la Statistique et des Etudes Economiques, Luxembourg, December 1980.

Table 11  
National Input-Output Table

|   | Domestic<br>Inputs            | Imported<br>Inputs | Gross<br>Value<br>Added<br>At Factor<br>Cost | Subsidies | Indirect<br>Taxes | Ratio of<br>Indirect<br>Taxes Minus<br>Subsidies to<br>Value Added<br>at Factor Cost |
|---|-------------------------------|--------------------|--|-----------|-------------------|--|
|   | m i l l i o n g u i l d e r s |                    |  |           |                   | Per Cent   |
| Meat & Dairy Products                   | 16,943                        | 869                | 3,007  | - 2,304   | 99                | - 73.33  |
| Other Food Products                     | 9,742                         | 10,791             | 5,387  | - 186     | 120               | - 1.23   |
| Drink & Tobacco                         | 1,377                         | 1,179              | 1,613  | - 23      | 2,274             | 139.55   |
| Textiles                                | 1,427                         | 2,204              | 1,641  | - 17      | 25                | 0.49   |
| Clothing                                | 660                           | 1,178              | 768  | - 14      | 2                 | - 1.56   |
| Leather & Shoes                         | 236                           | 250                | 341  | - 1       | 3                 | 0.59   |
| Wood & Furniture                        | 1,419                         | 1,283              | 1,940  | - 6       | 10                | 0.21   |
| Paper                                   | 1,374                         | 1,190              | 1,496  | 0         | 28                | 1.87   |
| Printing & Publishing                   | 4,288                         | 1,113              | 4,593  | - 3       | 14                | 0.24   |
| Petroleum Products<br>Industry          | 1,883                         | 14,285             | 14,100                                       | 0         | 2,895             | 29.53  |
| Chemical, Rubber &<br>Plastics          | 9,295                         | 7,344              | 7,147  | - 35      | 92                | 0.80   |
| Building Materials,<br>Ceramics & Glass | 2,007                         | 685                | 2,341  | - 1       | 13                | 0.51   |
| Basic Metals                            | 1,859                         | 2,853              | 2,562  | - 1       | 21                | 0.78   |
| Metal & Machine<br>Products             | 6,105                         | 5,203              | 9,027  | - 10      | 37                | 0.30   |
| Electrotechnical<br>Industry            | 2,623                         | 5,572              | 6,976  | - 14      | 14                | 0.00   |
| Transport Equipment                     | 3,147                         | 3,400              | 3,205  | - 168     | 53                | - 3.09   |
| Optical & Other                         | 1,000                         | 634                | 1,062  | - 3       | 3                 | 0.00   |
| Total                                   |                               |                    | 67,206                                       | - 2,786   | 5,703             | 4.34   |

Source: National input-output table, Annex 11, Nationale Rekeningen 1980, pp. 206-7.



Table 11

Norway, 1960

|  | Gross Value<br>Added at<br>Factor Cost<br>(million Kr.) | Gross Value<br>Added at<br>Market<br>Prices<br>(million Kr.) | Ratio of<br>Indirect Taxes &<br>Subsidies to Gross<br>Value Added at<br>Factor Cost<br>Per Cent |
|--|---|--|---|
| Food Products                                      | 5,373   | 2,426  | - 54.96   |
| Beverages  | 466   | 1,713  | 267.60  |
| Tobacco  | 70  | 994  | 1,320.00  |
| Textiles & Wearing Apparel                         | 1,002   | 1,143  | 14.07   |
| Leather Products & Footwear                        | 761   | 879  | 15.51   |
| Wood Products                                      | 2,782   | 3,438  | 23.58   |
| Furniture & Fixtures                               | 982   | 1,205  | 22.71   |
| Paper & Products                                   | 1,739   | 1,948  | 12.02   |
| Printing & Publishing                              | 3,170   | 3,272  | 22.15   |
| Industrial Chemicals                               | 1,533   | 1,847  | 20.48   |
| Other Chemicals                                    | 914   | 1,188  | 29.93   |
| Petroleum Refining                                 | 537   | 468  | - 12.85   |
| Petroleum & Coal Products                          | 195   | 296  | 51.79   |
| Plastic Products                                   | 966   | 1,181  | 22.26   |
| Other Mineral Products                             | 1,521   | 2,128  | 39.91   |
| Iron & Steel & Alloys                              | 1,814   | 1,484  | - 18.19   |
| Non-ferrous Metals                                 | 3,238   | 2,740  | - 15.38   |
| Metal Products, except Machinery<br>Platforms etc. | 2,966   | 3,426  | 15.51   |
| Machinery  | 1,713   | 910  | - 46.88   |
| Electrical Apparatus                               | 3,067   | 3,350  | 9.23  |
| Ships & Boats                                      | 2,508   | 2,932  | 16.91   |
| Other Transport Equipment                          | 4,076   | 3,246  | - 20.36   |
| Other Manufacturing                                | 1,105   | 1,185  | 7.24  |
| Other Manufacturing                                | 481   | 513  | 6.65  |
| Total Above  | 42,979  | 44,506   | 3.55  |

Source: Norwegian national accounts.

Table 17

U.K. 1975

| National Code | Industry Description                     | Gross Value Added at Factor Cost<br>£million | Gross Value Added at Market Prices<br>£million | Ratio of Indirect Taxes & Subsidies to Gross Value Added at Factor Cost<br>Per Cent |
|---------------|--|--|--|---|
| 4             | Crude Natural Gas and Petroleum Products | 506.1  | 2,285.5  | 351.59  |
| 7             | Ferrous and Non-Ferrous Ores and Metals  | 1,478.9                                      | 1,508.4  | 1.99  |
| 8             | Non-Metallic Mineral Products            | 1,242.1                                      | 1,313.6  | 5.76  |
| 9             | Chemical Products                        | 2,177.8                                      | 2,248.7  | 3.26  |
| 10            | Metal Products and Machinery             | 2,127.3                                      | 2,330.1  | 9.33  |
| 11            | Agricultural and Industrial Machinery    | 3,220.7                                      | 3,180.1  | - 1.26  |
| 12            | Office and Data Processing Machinery     | 680.9  | 708.9  | 4.11  |
| 13            | Electrical Goods                         | 2,267.7                                      | 2,563.1  | 13.03   |
| 14            | Motor Vehicles                           | 1,279.5                                      | 1,636.1  | 27.87   |
| 15            | Other Transport Equipment                | 1,217.0                                      | 1,189.3  | - 2.28  |
| 16            | Meat Products                            | 263.7  | 245.8  | - 7.84  |
| 17            | Milk Products                            | 220.4  | - 124.1  | - 156.31  |
| 18            | Other Food Products                      | 1,368.1                                      | 1,192.4  | - 12.85   |
| 19            | Beverages                                | 614.2  | 1,575.1  | 156.45  |
| 20            | Tobacco Products                         | 239.9  | 1,732.6  | 622.22  |
| 21            | Textiles and Clothing                    | 2,030.6                                      | 2,345.0  | 15.48   |
| 22            | Leather Footwear                         | 306.7  | 359.3  | 17.15   |
| 23            | Wood Products and Furniture              | 803.5  | 969.0  | 14.88   |
| 24            | Paper and Printing                       | 2,081.3                                      | 2,218.7  | 6.60  |
| 25            | Rubber and Plastic Products              | 839.9  | 935.3  | 11.36   |
| 26            | Other Manufacturing Products             | 245.6  | 309.8  | 26.14   |
|               | TOTAL ABOVE                              | 25,214.9                                     | 30,722.7                                       | 21.84   |

Source: National Input-Output table (Eurostat)

Table 13  
U.S.A. 1972

| National Code |   | Gross Value Added at Factor Cost | Indirect Business Taxes | Ratio of Indirect Business Taxes to Gross Value Added at Factor Cost |
|---------------|---|----------------------------------|-------------------------|--|
| 14            | Food & Kindred Products                 | 26,850                           | 5,760                   | 21.45  |
| 15            | Tobacco Manufactures                    | 2,141                            | 2,292                   | 106.56   |
| 16            | Yarn and Thread                         | 5,267                            | 152                     | 2.89   |
| 17            | Miscellaneous Textiles                  | 1,507                            | 33                      | 2.19   |
| 18            | Apparel                                 | 10,093                           | 102                     | 1.01   |
| 19            | Miscellaneous Fabrics, Textile Goods    | 1,575                            | 22                      | 1.40   |
| 20            | Lumber and Wood Products                | 4,832                            | 158                     | 3.27   |
| 21            | Wooden Containers                       | 159                              | 5                       | 3.14   |
| 22            | Household Furniture                     | 2,913                            | 29                      | 1.00   |
| 23            | Other Furniture & Fixtures              | 1,645                            | 17                      | 1.03   |
| 24            | Paper and Allied Products               | 7,397                            | 270                     | 3.65   |
| 25            | Paperboard Containers                   | 2,924                            | 72                      | 2.46   |
| 26            | Printing & Publishing                   | 14,195                           | 160                     | 1.13   |
| 27            | Chemicals & Selected Products           | 10,246                           | 264                     | 2.58   |
| 28            | Plastic & Synthetic Materials           | 3,621                            | 117                     | 3.23   |
| 29            | Drugs and Toiletry                      | 6,798                            | 106                     | 1.56   |
| 30            | Paints & Allied Products                | 1,234                            | 26                      | 2.11   |
| 31            | Petroleum Refining                      | 3,452                            | 4,025                   | 118.63   |
| 32            | Rubber & Miscellaneous Plastic Products | 9,013                            | 862                     | 9.56   |
| 33            | Leather and Tanning                     | 280                              | 2                       | 0.71   |
| 34            | Footwear & Other Leather Products       | 1,926                            | 6                       | 0.31   |
| 35            | Glass and Glass Products                | 2,927                            | 55                      | 1.88   |
| 36            | Stone and Clay Products                 | 7,128                            | 179                     | 2.51   |
| 37            | Primary Iron and Steel                  | 14,320                           | 604                     | 4.22   |
| 38            | Primary Non-ferrous Metals              | 5,790                            | 163                     | 2.74   |
| 39            | Metal Containers                        | 1,402                            | 99                      | 7.06   |
| 40            | Structural Metal                        | 6,009                            | 19                      | 0.32   |
| 41            | Stamping Bolts                          | 5,157                            | 63                      | 1.22   |
| 42            | Other Fabricated Metal                  | 7,033                            | 57                      | 0.81   |
| 43            | Engines and Turbines                    | 2,437                            | 14                      | 0.57   |
| 44            | Farm Machinery & Equipment              | 2,404                            | 16                      | 0.67   |

Table 13 (contd.)  
 U.S.A., 1977 (contd.)

| Industrial Code |  | Gross Value Added at Factor Cost | Indirect Business Taxes | Ratio of Indirect Business Taxes to Gross Value Added at Factor Cost |
|-----------------|--|----------------------------------|-------------------------|--|
| 45              | Construction and Mining Machinery              | 3,640                            | 27                      | 0.74   |
| 46              | Materials Handling Machinery                   | 1,296                            | 9                       | 0.69   |
| 47              | Metalworking Machinery and Equipment           | 4,267                            | 34                      | 0.80   |
| 48              | Specialised Industrial Machinery and Equipment | 2,950                            | 22                      | 0.75   |
| 49              | General Industrial Machinery and Equipment     | 4,121                            | 32                      | 0.78   |
| 50              | Machine Shop Products                          | 2,476                            | 13                      | 0.53   |
| 51              | Office, Computer, & Accounting Machinery       | 3,476                            | 19                      | 0.55   |
| 52              | Service Industry Machinery                     | 3,626                            | 16                      | 0.44   |
| 53              | Electrical Industry Equipment and Appliances   | 5,142                            | 27                      | 0.53   |
| 54              | Household Appliances                           | 2,783                            | 14                      | 0.50   |
| 55              | Electric Light & Wire Equipment                | 2,767                            | 9                       | 0.33   |
| 56              | Radio, TV & Communications                     | 8,285                            | 38                      | 0.46   |
| 57              | Electronic Components                          | 4,125                            | 23                      | 0.56   |
| 58              | Miscellaneous Electric Equipment and Machinery | 2,039                            | 10                      | 0.49   |
| 59              | Motor Vehicles                                 | 20,759                           | 678                     | 3.27   |
| 60              | Aircraft and Parts                             | 7,815                            | 35                      | 0.45   |
| 61              | Other Transport Equipment                      | 4,682                            | 18                      | 3.84   |
| 62              | Scientific & Control Equipment                 | 3,642                            | 25                      | 0.69   |
| 63              | Optical & Photo Equipment                      | 3,991                            | 27                      | 0.68   |
| 64              | Miscellaneous Manufacturing                    | 4,669                            | 39                      | 0.84   |
| TOTAL           |  | 269,241                          | 20,099                  | 7.47   |

Source: Input-Output Absorption Matrix, from UNIDO file. In the source, the value units are described, I think wrongly, as "tens of Dollar". I think they are in "million dollars".

### Producing Countries

There are thirteen countries in this group which report to UN50 on a factor cost basis, and nine which UNIDO treats as submitting an "unknown" valuation. For these countries the search for alternative sources was more perfunctory, partly for lack of time and partly because many were small economies.

There are 15 developing countries which make returns on more than one valuation basis, but 11 of these furnish the desired producer price valuation. Iraq and Papua New Guinea submit on a factor cost basis and also provide another valuation basis which is not clearly described. In Iraq the 1970 alternative valuation for manufacturing as a whole was 2.08 per cent lower than the factor cost valuation, which would be a producer price valuation if subsidies outweigh indirect taxes (quite a plausible assumption in Iraq). However, all the cases where this presumed producer price series was lower than factor cost were machinery items (ISIC 3820, 3830, 3840, 3850, 3900).

For Papua New Guinea, the alternative valuations to the factor cost submission for manufacturing as a whole were 0.41 per cent lower than factor cost in 1972, and 16.56 per cent higher in 1973.

The Indian returns to UN50 are at factor values only, they are for financial years 31 March of the year indicated to 1 April of the following year, but the individual returns relate to 12-month periods ending anywhere between these dates. The census does not include information on indirect taxes. The 1979-80 national input-output table in UNIDO files shows gross value added at factor cost, and indirect taxes for 59 manufacturing groups. It does not show subsidies, and it is not altogether clear whether the figures for indirect taxes include taxes on inputs.

For Indonesia, the national input-output table for 1975 has a 24 item breakdown for manufacturing which shows "net indirect taxes", and the quinquennial industrial census includes 28 items for which it shows both factor cost and market price valuations. However, like the input-output table there is no explicit mention of subsidies if there are any. The industrial census does not cover petroleum refining.

For Sudan, the annual industrial census, which is also reproduced in the national accounts shows GDP at factor cost and producers' values for the nine two digit ISIC groups.

For Kenya, the annual industrial census gives alternative valuations for 25 items, broken down by size of firms.

Table 15

India 1979-80

| National Code |                                    | Gross Value Added at Factor Cost<br>00,000 rupees | Indirect Taxes<br>00,000 rupees | Ratio of Indirect Taxes to Gross Value Added at Factor Cost<br>Percent |
|---------------|------------------------------------|---|---------------------------------|--|
| 20-78         | TOTAL                              | 1,755,332   | 367,517                         | 20.94  |
| 20            | Miscellaneous Food                 | 29,485  | 6,294                           | 21.35  |
| 21            | Sugar                              | 23,164  | 4,373                           | 18.88  |
| 22            | Ghur Khandsari                     | 25,968  | 3,489                           | 13.44  |
| 23            | Vanaspatti                         | 16,431  | 1,734                           | 10.55  |
| 24            | Edible Oils                        | 14,584  | 5,732                           | 39.30  |
| 25            | Tea, Coffee                        | 14,157  | 8,367                           | 59.10  |
| 26            | Other Beverages                    | 13,000  | 1,156                           | 8.89   |
| 27            | Tobacco                            | 34,910  | 9,432                           | 27.02  |
| 28            | Cotton Textiles                    | 112,120   | 16,472                          | 14.69  |
| 29            | Handloom Khadi                     | 47,680  | 9,979                           | 20.93  |
| 30            | Woolen & Silk Textiles             | 5,487   | 6,576                           | 119.85   |
| 31            | Art Silk Fabrics                   | 23,922  | 11,443                          | 47.83  |
| 32            | Jute Textiles                      | 23,277  | 4,626                           | 19.87  |
| 33            | Readymade Garments                 | 71,766  | 7,557                           | 10.53  |
| 34            | Miscellaneous Textile Products     | 7,638   | 4,000                           | 52.37  |
| 35            | Carpet Weaving                     | 10,100  | 89                              | 0.88   |
| 36            | Wood Products                      | 77,663  | 7,447                           | 9.59   |
| 37            | Paper and Products                 | 21,494  | 4,936                           | 22.93  |
| 38            | Printing & Publishing              | 28,348  | 3,660                           | 12.91  |
| 39            | Leather                            | 10,315  | 1,429                           | 13.85  |
| 40            | Leather Footwear                   | 13,337  | 1,878                           | 14.08  |
| 41            | Rubber Products                    | 24,508  | 13,105                          | 53.47  |
| 42            | Plastics                           | 25,504  | 12,062                          | 47.30  |
| 43            | Petroleum Products                 | 36,566  | 1,940                           | 5.31   |
| 44            | Miscellaneous Coal & <i>Petrol</i> | 6,787   | 2,773                           | 40.86  |
| 45            | Inorganic Heavy Chemicals          | 26,429  | 2,712                           | 10.26  |
| 46            | Organic Heavy "Schemes"            | 4,368   | 1,122                           | 25.69  |

Table 14 (contd.)

India 1979-80 (contd.)

| Classification Code |                                     | Gross Value Added at Factor Cost<br>00,000 rupees | Indirect Taxes<br>00,000 rupees | Ratio of Indirect Taxes to Gross Value Added at Factor Cost<br>Percent |
|---------------------|-------------------------------------|---|---------------------------------|--|
| 47                  | Chemical Fertilizers                | 81,940  | 14,856                          | 18.13  |
| 48                  | Insecticides                        | 4,532   | 1,773                           | 39.12  |
| 49                  | Drugs                               | 52,608  | 15,844                          | 30.12  |
| 50                  | Soaps                               | 7,687   | 3,344                           | 43.50  |
| 51                  | Cosmetics                           | 3,864   | 1,522                           | 39.39  |
| 52                  | Synthetic Rubber                    | 18,108  | 3,218                           | 17.77  |
| 53                  | Other Chemicals                     | 24,000  | 10,440                          | 43.50  |
| 54                  | Refractories                        | 25,277  | 2,504                           | 9.91   |
| 55                  | Cement                              | 12,040  | 3,011                           | 25.01  |
| 56                  | Other Non-Metallic Mineral Products | 64,816  | 11,798                          | 18.20  |
| 57                  | Iron and Steel                      | 62,190  | 24,435                          | 39.29  |
| 58                  | Castings and Forging                | 5,198   | 1,236                           | 23.78  |
| 59                  | Iron and Steel Struc.               | 8,204   | 4,760                           | 58.02  |
| 60                  | Non-Ferrous Metals                  | 47,016  | 10,766                          | 22.90  |
| 61                  | Metal Products                      | 95,242  | 22,283                          | 23.90  |
| 62                  | Tractors                            | 25,657  | 1,827                           | 7.12   |
| 63                  | Machine Tools                       | 7,575   | 2,200                           | 29.05  |
| 64                  | Office Equipment                    | 7,821   | 569                             | 7.28   |
| 65                  | Other Non-Electric Machinery        | 92,839  | 29,182                          | 31.43  |
| 66                  | Electric Motors                     | 7,421   | 1,562                           | 21.05  |
| 67                  | Electric Cables                     | 8,559   | 4,344                           | 50.75  |
| 68                  | Batteries                           | 5,339   | 633                             | 11.86  |
| 69                  | Electric Household Goods            | 4,987   | 944                             | 18.93  |
| 70                  | Communications Equipment            | 12,066  | 3,304                           | 27.38  |
| 71                  | Other Electric Machinery            | 20,144  | 4,814                           | 23.90  |
| 72                  | Ships & Boats                       | 6,588   | 490                             | 7.44   |
| 73                  | Rail Equipment                      | 19,712  | 2,061                           | 10.45  |
| 74                  | Motor Vehicles                      | 52,989  | 11,481                          | 21.67  |
| 75                  | Motor Cycles                        | 26,311  | 4,462                           | 16.96  |
| 76                  | Other Transport Equipment           | 2,755   | 365                             | 13.25  |
| 77                  | Watches, Clocks                     | 6,269   | 747                             | 11.92  |
| 78                  | Miscellaneous Manufactures          | 17,570  | 12,359                          | 70.33  |

Table 13  
Indonesia 1975 and 1980

Ratio of Indirect Taxes to Gross Value Added at Factor Cost

| ISIC<br>Code | 1975  | 1980  |
|--------------|-------|-------|
| 311          | 5.05  | 6.12  |
| 312          | 4.76  | 3.95  |
| 313          | 57.66 | 57.74 |
| 314          | 92.09 | 56.90 |
| 321          | 3.61  | 2.62  |
| 322          | 4.59  | 2.43  |
| 323          | 4.64  | 5.25  |
| 324          | 0.73  | 3.22  |
| 331          | 3.68  | 3.59  |
| 332          | 3.33  | 3.50  |
| 341          | 7.14  | 5.40  |
| 342          | 2.71  | 2.59  |
| 351          | 1.42  | 2.70  |
| 352          | 9.49  | 3.96  |
| 355          | 39.81 | 7.87  |
| 356          | 5.22  | 10.84 |
| 361          | 0.33  | 4.88  |
| 362          | 13.73 | 3.22  |
| 363          | 2.05  | 3.52  |
| 364          | 2.33  | 1.92  |
| 369          | 10.60 | 8.52  |
| 371          | 7.07  | 2.87  |
| 381          | 12.60 | 5.70  |
| 382          | 6.91  | 4.57  |
| 383          | 19.57 | 15.46 |
| 384          | 1.87  | 4.75  |
| 385          | 4.45  | 2.89  |
| 390          | 4.57  | 5.06  |
| Total        | 19.04 | 15.73 |

Source: Industrial Statistics 1975 and 1980 editions, Survey of Manufacturing Industries, BPS, Jakarta, 1977 and 1982.



Table 16  
 50 Jan 1975:8

Ratio of Indirect Taxes (minus Subsidies)  
to Gross Value Added at Factor Cost in manufacturing and handicrafts

| ISIC<br>Code | 1975/6 | 1976/7 | 1977/8 |
|--------------|--------|--------|--------|
| 31           | 90.29  | 51.71  | 52.42  |
| 32           | 9.48   | 15.12  | 12.73  |
| 33           | 0.78   | 2.81   | 1.22   |
| 34           | 5.79   | 15.36  | 17.68  |
| 35           | 50.24  | 97.79  | 112.50 |
| 36           | 2.71   | 21.92  | 16.24  |
| 37           | 29.28  | 43.03  | 70.90  |
| 38           | 28.16  | 44.22  | 57.53  |
| 39           | 3.33   | 10.65  | 8.15   |
|              | 43.28  | 45.01  | 45.84  |

Source: Statistical Abstract 1981, pp. 148-59.

UNIDO Classification of Country Regions, June 1984

| COUNTRY        | VALUE ADDED        |                    |                    | GROSS OUTPUT       |                    |                    | EMPLOYMENT         |                    |   | COUNTRY        |
|----------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---|----------------|
|                | FACT. PRD.         | UN-                | FACT. PRD.         | UN-                | FACT. PRD.         | UN-                | FACT. PRD.         | UN-                |   |                |
|                | VAL.   PR.   KNOWN | VAL.   PR.   KNOWN | VAL.   PR.   KNOWN | VAL.   PR.   KNOWN | VAL.   PR.   KNOWN | VAL.   PR.   KNOWN | VAL.   PR.   KNOWN | VAL.   PR.   KNOWN |   |                |
| AFGHANISTAN    |                    |                    |                    |                    |                    |                    |                    |                    | X | AFGHANISTAN    |
| ARGENTINA      |                    |                    |                    |                    |                    |                    |                    |                    | X | ARGENTINA      |
| AUSTRALIA      | X                  |                    |                    | X                  |                    |                    |                    |                    | X | AUSTRALIA      |
| AUSTRIA        |                    | X                  |                    |                    | X                  |                    |                    |                    | X | AUSTRIA        |
| BANGLADESH     |                    | X                  |                    |                    | X                  |                    |                    |                    | X | BANGLADESH     |
| BARBADOS       |                    | X                  |                    |                    | X                  |                    |                    | X                  |   | BARBADOS       |
| BELGIUM        | X                  |                    |                    | X                  |                    |                    |                    |                    | X | BELGIUM        |
| BOLIVIA        |                    | X                  |                    |                    | X                  |                    |                    |                    | X | BOLIVIA        |
| BRAZIL         |                    | X                  |                    |                    | X                  |                    |                    |                    | X | BRAZIL         |
| BULGARIA       |                    |                    |                    |                    |                    |                    |                    |                    | X | BULGARIA       |
| CANADA         | X                  |                    |                    | X                  |                    |                    |                    |                    | X | CANADA         |
| CHILE          |                    | X                  |                    |                    | X                  |                    |                    |                    | X | CHILE          |
| COLOMBIA       |                    | X                  |                    |                    | X                  |                    |                    |                    | X | COLOMBIA       |
| COSTA RICA     |                    | X                  |                    |                    | X                  |                    |                    |                    | X | COSTA RICA     |
| CYPRUS         |                    | X                  |                    |                    | X                  |                    |                    |                    | X | CYPRUS         |
| CZECHOSLOVAK   |                    |                    | X                  |                    |                    | X                  |                    |                    | X | CZECHOSLOVAK   |
| DENMARK        | X                  |                    |                    | X                  |                    |                    |                    |                    | X | DENMARK        |
| DOMINICAN RP   |                    | X                  |                    |                    | X                  |                    |                    |                    | X | DOMINICAN RP   |
| ECUADOR        |                    | X                  |                    |                    | X                  |                    |                    |                    | X | ECUADOR        |
| ETHIOPIA       |                    | X                  |                    |                    | X                  |                    |                    |                    | X | ETHIOPIA       |
| FIJI           |                    | X                  |                    |                    | X                  |                    |                    |                    | X | FIJI           |
| FINLAND        | X                  |                    |                    | X                  |                    |                    |                    |                    | X | FINLAND        |
| FRANCE         |                    | X                  |                    |                    | X                  |                    |                    |                    | X | FRANCE         |
| GAMBIA         |                    | X                  |                    |                    | X                  |                    |                    |                    | X | GAMBIA         |
| GERMANY, DM RP |                    |                    |                    |                    |                    | X                  |                    |                    | X | GERMANY, DM RP |
| GERMANY, FR    |                    | X                  |                    |                    | X                  |                    |                    | X                  |   | GERMANY, FR    |
| HAITI          |                    | X                  |                    |                    | X                  |                    |                    | X                  |   | HAITI          |
| HONG KONG      |                    | X                  |                    |                    | X                  |                    |                    | X                  |   | HONG KONG      |
| HUNGARY        |                    |                    | X                  |                    |                    | X                  |                    |                    | X | HUNGARY        |
| INDONESIA      | X                  |                    |                    |                    | X                  |                    |                    |                    | X | INDONESIA      |
| INDONESIA, REP |                    | X                  |                    |                    | X                  |                    |                    |                    | X | INDONESIA, REP |
| ISRAEL         |                    | X                  |                    |                    | X                  |                    |                    |                    | X | ISRAEL         |
| ITALY          |                    |                    | X                  |                    |                    | X                  |                    |                    | X | ITALY          |
| IVORY COAST    |                    | X                  |                    |                    | X                  |                    |                    |                    | X | IVORY COAST    |
| JAMAICA        | X                  |                    |                    |                    | X                  |                    |                    |                    | X | JAMAICA        |
| JAPAN          |                    |                    | X                  |                    |                    | X                  |                    |                    | X | JAPAN          |
| JORDAN         |                    | X                  |                    |                    | X                  |                    |                    |                    | X | JORDAN         |
| KENYA          | X                  |                    |                    | X                  |                    |                    |                    | X                  |   | KENYA          |
| LUXEMBOURG     | X                  |                    |                    | X                  |                    |                    |                    |                    | X | LUXEMBOURG     |
| MALAYSIA, W.   | X                  |                    |                    | X                  |                    |                    |                    |                    | X | MALAYSIA, W.   |
| MALTA          |                    | X                  |                    |                    | X                  |                    |                    | X                  |   | MALTA          |
| MAURITIUS      |                    | X                  |                    |                    | X                  |                    |                    | X                  |   | MAURITIUS      |
| MEXICO         |                    | X                  |                    |                    | X                  |                    |                    |                    | X | MEXICO         |
| NETHERLANDS    | X                  |                    |                    | X                  |                    |                    |                    |                    | X | NETHERLANDS    |
| NICARAGUA      |                    | X                  |                    |                    | X                  |                    |                    |                    | X | NICARAGUA      |
| NORWAY         |                    |                    | X                  |                    |                    | X                  |                    |                    | X | NORWAY         |
| PANAMA         |                    | X                  |                    |                    | X                  |                    |                    |                    | X | PANAMA         |
| PAPUA N. GUIN  | X                  |                    |                    | X                  |                    |                    |                    |                    | X | PAPUA N. GUIN  |
| PERU           |                    | X                  |                    |                    | X                  |                    |                    |                    | X | PERU           |
| PHILIPPINES    |                    | X                  |                    |                    | X                  |                    |                    |                    | X | PHILIPPINES    |
| POLAND         |                    |                    |                    |                    |                    | X                  |                    |                    | X | POLAND         |
| PORTUGAL       |                    | X                  |                    |                    | X                  |                    |                    |                    | X | PORTUGAL       |
| REP. OF KOREA  |                    | X                  |                    |                    | X                  |                    |                    |                    | X | REP. OF KOREA  |
| RUANDA         |                    | X                  |                    |                    | X                  |                    |                    |                    | X | RUANDA         |



Annex II

Excerpt From Definition of Indirect Taxes and Subsidies

iii

International Recommendations for Industrial Statistics,  
Series H No. 38, Rev. 1, UN, New York, 1983

Item 8. Indirect taxes and subsidies

190. Indirect taxes and subsidies should be reported separately; indirect taxes should be reported according to the categories described below. Customs and import duties included in the cost of intermediate consumption are not dealt with under item 8.

191. Indirect taxes are defined to include all taxes incidental to the production or sale of goods and services by the reporting unit and chargeable as expenses of production. These taxes are distinguishable in two broad categories - those invoiced by the reporting unit to its customers (commodity taxes) and those paid or to be paid by the reporting unit (non-commodity taxes). For countries using the value-added tax system, special provisions are included to accommodate that item.

Indirect commodity taxes (item 8.1)

192. The net value-added tax (item 8.11) is calculated as the difference between the value-added tax invoiced by the reporting unit to its clients and the deductible value-added tax on purchases of raw and ancillary materials, intermediate products and the like. The deductible value-added tax on purchases of fixed capital goods is not included here. Value-added tax may be difficult to collect for each of the different establishments of a multi-establishment enterprise.

193. Indirect commodity taxes cover turnover, export and sales taxes (item 8.12 (i)) and consumption, excise and luxury taxes (item 8.12 (ii)).

Indirect non-commodity taxes (item 8.2)

194. This item covers all other indirect taxes related to production and paid, or to be paid, by the reporting unit, such as:

(a) Motor road vehicle taxes and similar taxes on other transport vehicles considered as fixed capital goods;

(b) Stamp duties and registration fees, and business licences;

(c) Taxes on land and buildings, except when the taxes constitute merely an administrative device for assessing and collecting the total income tax, in which case, taxes on land and buildings are treated as current taxes on income or wealth;

(d) Taxes on total wages and salaries paid;

(e) Operating duties;

(f) Local taxes;

(g) Taxes on insurance;

(h) Official fees and charges - that is, duties payable for specific public services, such as the testing of standards of weights and measures, provision of extracts from official registers of crime and the like; also fees in respect of driving tests and licences, passports and airport duties;

(i) Entertainment duties;

(j) Levies on the use of fixed assets.

195. It may not be possible to collect information on non-commodity taxes at the establishment level. In such cases, the published results should indicate the kind of indirect taxes that have been reported.

Subsidies (item 8.3)

196. This item covers subsidies that are related to current production and that are paid on a continuing basis by State authorities or, in the case of members of the European Communities (EC), by EC institutions to resident units producing goods and market services, the purpose of the subsidies being to influence the selling prices of such goods and services and/or to allow adequate remuneration of the factors of production.

197. This item also covers export and import subsidies and assistance in the form of interest subsidies, even when the purpose of the latter is to facilitate investment transactions.

U.S. DEPARTMENT OF COMMERCE  
BUREAU OF ECONOMIC ANALYSIS  
Special Report MC 72(1)

# CENSUS OF MANUFACTURES

SUBJECT SERIES

## General Summary

MC72(1) 1



Printed November 1975

## INTRODUCTION (Continued)

percent of establishments with less than 10 employees was obtained from administrative records. This was due to several factors, the most important of which were—

(a) Many of the establishments with less than 10 employees were owned by multiunit companies and were covered in the mail canvass.

(b) Questionnaires were mailed to about 4,000 of the companies identified as having less than 10 employees. These were the small companies included in the ASM sample; the rest were included in the mail canvass to improve the estimates of general statistics, products, and materials.

(c) Some companies identified originally as having 10 employees or more turned out to have less than 10 employees in 1972.

Another factor tended to reduce the value of products not specified by kind attributed to small companies, thus affecting table 1 particularly. This was the fact that some 4-digit industries were represented by only one product category (an example is industry 3273, Ready-Mixed Concrete). Administrative-record estimates for products such as this were treated as specific information and not tabulated under the "not specified by kind" heading.

These factors taken together explain why the value of products "not specified by kind" attributed to small companies in table 1 is only 1.5 percent of the total, while the 159,000 establishments with less than 10 employees account for 2.5 percent of the total value added by manufacture in table E.

The value of product shipments accounted for by the small companies increased from 1.0 percent in the 1967 census to 1.5 percent in 1972. This is because considerably more establishments, initially identified as having less than 10 employees, actually had more than 10 employees in 1972.

The data for many of the specific 7-digit products shown in table 6A are understated by a proportion of the "not specified by kind" codes in each industry.

### 16. DUPLICATION IN COST OF MATERIALS AND VALUE OF PRODUCTS

The aggregates of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries include large amounts of duplication since the products of some industries are used as materials by others. With some important exceptions, such as SIC 3312, Blast Furnaces and Steel Mills, this duplication is not significant within individual 4 digit industries. However, it is significant at the 2 digit and 3 digit industry level because these group totals often include industries which represent successive stages in

the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the total value of shipments of SIC Major Group 20 and the addition of pulp-mills to papermills in Group 26. Economists have estimated that the value of manufactured products exclusive of such duplication—the value of finished manufactures—tends to approximate two-thirds of the total value of shipments reported in the census of manufactures.

Because the amounts of duplication contained in the cost of materials and value of products figures cannot be measured with any degree of precision, caution is urged with their use when they are provided at the 2- and 3-digit industry group level.

Even where no significant amount of duplication is involved, value of shipments figures are of limited use as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs to value of shipments, both among industries and within the same industry. To a large extent, value added by manufacture does not have these limitations and is therefore a better measure for comparison.

### 17. VALUE ADDED BY MANUFACTURE

**General.**—Value added by manufacture is derived by subtracting the total cost of materials (including materials, supplies, fuel, electric energy, cost of resales, and miscellaneous receipts) from the value of shipments (including resales) and other receipts and adjusting the resulting amount by the net change in finished products and work-in-process inventories between the beginning and end of the year.<sup>21</sup>

Value added avoids the duplication in the value of shipments figure which results from the inclusion of the shipments of establishments producing materials and components along with the shipments of establishments producing finished products. It does not exclude purchased business services, as does the national income concept described below.<sup>22</sup> Nevertheless, it is considered to be the best value measure now available for comparing the relative economic importance of manufacturing among industries and geographic areas.

<sup>21</sup> For a few industries (for example, ship building) where value of work done is substituted for value of shipments, no adjustment is made for change in inventories. In a few other industries where value of production is collected, the inventory adjustment is made only on the basis of change in work-in-process inventories.

<sup>22</sup> Collection of data on the cost of purchased business services at the plant level presents many problems. Advertising by multiunit companies, for example, is frequently charged at the company level and the cost either not allocated to plants or if allocated are only included as part of a broader company overhead category. National income data, on the other hand, are compiled in part from company rather than plant data, such as the IRS Statistics of Income in which advertising is presented as a separate cost item based on company reports.

INTRODUCTION—Continued

National income originating in the manufacturing sector, as developed in the national accounts maintained by the Bureau of Economic Analysis (BEA), is somewhat similar to value added in concept, but there are important differences. National income is the aggregate earnings of labor and capital which arise in the current production of goods and services in the manufacturing sector. Thus it measures the total factor costs incurred and is a more "net" conception of value added than that which it has been found feasible to compile in the economic censuses on an establishment basis. National income

excludes, in addition to cost of materials, such other costs as depreciation charges, State and local taxes (other than corporate income taxes), allowance for bad debts, and purchases of services from nonmanufacturing enterprises, such as contract costs involved in maintenance and repair, services of development and research firms, services of engineering and management consultants, advertising, telephone and telegraph expense, insurance, royalties, patent fees, etc.

In part, the national income estimates are prepared from company rather than establishment data. This method results

TABLE J. Comparison of National Income Originating and Value Added by Major Industry Group: 1972 and 1967

| SIC code        | Industry group description   | National income originating <sup>1</sup><br>(bil. dol.) |       | Value added by manufacturing<br>(bil. dol.) |       | Column 1 divided by column 2 |      |
|-----------------|--|---|-------|---|-------|------------------------------|------|
|                 |  | (1)   |       | (2)   |       |                              |      |
|                 |  | 1972  | 1967  | 1972  | 1967  | 1972                         | 1967 |
|                 | Manufacturing .....  | 252.6   | 195.2 | 354.0                                       | 262.0 | 0.71                         | 0.75 |
|                 | Nondurable goods .....   | 99.9  | 75.5  | 149.5                                       | 109.5 | .67                          | .63  |
| 20              | Food and kindred products .....                                    | 20.8  | 16.3  | 35.6  | 26.6  | .58                          | .61  |
| 21              | Tobacco manufactures .....   | 1.8   | 1.3   | 2.6   | 2.0   | .69                          | .65  |
| 22              | Textile mill products .....  | 8.2   | 6.2   | 11.7  | 8.2   | .70                          | .76  |
| 23              | Apparel and other fabricated textile products .....                | 9.6   | 7.5   | 13.5  | 10.1  | .71                          | .74  |
| 26              | Paper and allied products .....                                    | 9.3   | 6.7   | 13.1  | 9.8   | .71                          | .63  |
| 27              | Printing, publishing, and allied industries .....                  | 13.6  | 9.9   | 20.2  | 14.4  | .67                          | .69  |
| 28              | Chemicals and allied products .....                                | 18.2  | 14.1  | 32.4  | 23.6  | .56                          | .60  |
| 29              | Petroleum refining and related industries .....                    | 8.6   | 6.5   | 5.8   | 5.4   | 1.48                         | 1.20 |
| 30              | Rubber and miscellaneous plastics products .....                   | 7.5   | 4.7   | 11.7  | 6.8   | .64                          | .69  |
| 31              | Leather and leather products .....                                 | 2.7   | 2.2   | 2.9   | 2.6   | .76                          | .85  |
|                 | Durable goods .....  | 152.7   | 119.7 | 204.6                                       | 152.7 | .75                          | .78  |
| 24              | Lumber and wood products, except furniture .....                   | 7.1   | 4.2   | 10.3  | 5.0   | .69                          | .84  |
| 25              | Furniture and fixtures .....                                       | 4.5   | 3.2   | 6.1   | 4.2   | .74                          | .76  |
| 32              | Stone, clay, and glass products .....                              | 8.5   | 5.8   | 12.6  | 8.4   | .67                          | .69  |
| 33              | Primary metal industries .....                                     | 17.4  | 15.3  | 23.3  | 20.9  | .75                          | .77  |
| 34              | Fabricated metal products .....                                    | 17.5  | 13.4  | 26.9  | 18.0  | .65                          | .74  |
| 35              | Machinery, except electrical .....                                 | 26.6  | 21.8  | 37.6  | 27.8  | .71                          | .78  |
| 36              | Electrical machinery .....   | 22.5  | 18.6  | 30.6  | 24.5  | .74                          | .76  |
| 19 <sup>2</sup> | Transportation equipment and ordnance, except motor vehicles ..... | 15.1  | 15.3  | 39.8  | 33.8  | .95                          | .86  |
| 37              | Motor vehicles and motor vehicle equipment .....                   | 22.6  | 13.6  |   |       |                              |      |
| 38              | Instruments .....  | 6.5   | 5.2   | 10.6  | 6.4   | .61                          | .81  |
| 39              | Miscellaneous manufacturing industries .....                       | 4.4   | 3.3   | 6.8   | 4.6   | .65                          | .72  |

<sup>1</sup>Source: Survey of Current Business, July 1970, and 1973, p. 22.

<sup>2</sup>This Major Group was reclassified to Major Groups 36, 37 and 38 in the 1972 SIC revision.



INTRODUCTION—Continued

in the inclusion of some part of the net value added by non-manufacturing establishments of companies classified as being primarily manufacturing and, conversely, in the exclusion of some part of the net value added by manufacturing establishments of companies classified as primarily nonmanufacturing. It is believed that for manufacturing as a whole the net effect increases national income. In the Petroleum and Coal Products major industry group, nonmanufacturing activities of manufacturing companies are so significant that this is the one group in which national income exceeds value added, as shown in table J.

**Historical Comparison.**—Whatever changes have taken place in the relative importance of the costs included in value added but excluded from national income have been gradual. As shown in table K, the ratio between the two figures has been fairly constant over the past decade.

TABLE K. National Income Originating in Manufacturing and Value Added by Manufacture: 1972 and Earlier Years

| Year | National income originating in manufacturing<br>(bil. dol.)<br>(1) | Value added by manufacture<br>(bil. dol.)<br>(2) | Column 1 divided by column 2 |
|------|--|--|------------------------------|
| 1972 | 252.6  | 354.0  | .71                          |
| 1971 | 220.4  | 314.1  | .72                          |
| 1970 | 217.5  | 300.2  | .72                          |
| 1969 | 222.3  | 304.4  | .73                          |
| 1968 | 212.7  | 285.1  | .75                          |
| 1967 | 195.7  | 262.0  | .75                          |
| 1966 | 191.5  | 250.9  | .76                          |
| 1965 | 172.6  | 226.9  | .76                          |
| 1964 | 155.6  | 206.2  | .75                          |
| 1963 | 143.8  | 192.1  | .75                          |
| 1962 | 137.0  | 179.3  | .76                          |
| 1961 | 125.1  | 164.2  | .76                          |
| 1960 | 125.8  | 164.0  | .77                          |
| 1959 | 124.0  | 161.3  | .77                          |
| 1958 | 107.7  | 141.5  | .76                          |
| 1957 | 116.3  | 147.8  | .79                          |
| 1956 | 113.1  | 144.9  | .78                          |
| 1954 | 94.6   | 117.0  | .81                          |
| 1947 | 59.5   | 74.3   | .80                          |
| 1939 | 18.1   | 24.5   | .74                          |

<sup>1</sup> Unadjusted.

Sources: National income, survey of current business, value added, census of manufactures and annual survey of manufactures.

**Reconciliation with National Income Components.**—Figures are not available to permit a reconciliation of the estimates of value added in manufacturing and the national income originating in manufacturing for the current period. However, in 1957, the Census Bureau conducted a special survey, MC-D11 "Selected Costs and Assets of Manufacturing Establishments," which collected information on some of the costs included in value added for services purchased from other sectors or excluded from the national income estimates. These specific costs which accounted for about \$15 billion of the \$148 billion of value added in 1957 were maintenance and repairs, \$4.5 billion; insurance, \$.7 billion; property taxes, \$1.5 billion; rental payments, \$1.4 billion; and depreciation, \$7.3 billion. The residual value added, \$132 billion, was approximately \$16 billion in excess of national income of \$116 billion.

Table L presents an approximate reconciliation of national income and value added figures for manufacturing in 1963. The national income estimates for payrolls and other factor income in that year are based on the unrevised national income figures which are somewhat lower than the revised estimate appearing in table K. It should be noted that the labor costs included in national income and value added are reasonably close despite the fact that they are computed on slightly different basis. If the proprietary and profit incomes of the company-based national income estimates are allocated to the establishments included in the census of manufacturing value added exceeds national income by \$35 billion of value added. \$15 billion is attributable to costs reported on survey MC-D11. Somewhat more than half of the \$35 billion excess represents the inclusion in value added by manufacture of purchased business services arising in other economic sectors; the remainder reflects conceptual differences arising from the inclusion, in value added, of indirect business taxes and depreciation which are excluded by definition from national income.

18. CAPITAL EXPENDITURES

Under this heading, manufacturers were instructed to report expenditures of the type chargeable to fixed asset accounts, for which depreciation reserves are normally maintained. Actual capital outlays during the year were requested, not the final value of equipment put in place or structures completed during the year.

The Census Bureau estimates of capital expenditures tend to be lower than those published in the joint Bureau of Economic Analysis-Securities and Exchange Commission survey. In addition to normal sampling variation, a major source of difference is to be found in the scope of the two surveys. Census data relate only to manufacturing establishments.

TABLE L. 1947 Comparative Statistics on Value Added and National Income in Manufacturing

(Billions of dollars)

| Item  | Value added | National income <sup>1</sup> |
|---|-------------|------------------------------|
| Total .....   | 147.9       | 112.5                        |
| Payrolls .....  | 63.4        | 87.9                         |
| Payrolls of operating manufacturing establishments .....  | 76.4        | 80.0                         |
| Supplements to wages in operating manufacturing establishments .....  |             |                              |
| Payrolls of central administrative offices and auxiliaries, sales branches and offices of manufacturing companies .....   | 47.0        | 37.2                         |
| Other factor incomes (Corporate profits, proprietary income) .....  | 24.6        | 24.6                         |
| Costs of manufacturing establishments reported on MC-911 .....  | 15.4        | (X)                          |
| Not part of national income:  |             |                              |
| Depreciation .....  | 7.3         | (X)                          |
| Property taxes .....  | 1.5         | (X)                          |
| Probably included in other sectors:   |             |                              |
| Maintenance and repairs .....   | 4.5         | (X)                          |
| Rental payments .....   | 1.4         | (X)                          |
| Insurance .....   | .7          | (X)                          |
| Other costs (company overhead other than payrolls included above; e.g., company-level depreciation, business taxes, and services purchased, and services purchased directly by plants, advertising, legal, accounting, and other professional services; communications, patent fees, royalties, travel costs, etc. ...) | 18.4        | (X)                          |

(X) Not applicable.

<sup>1</sup> Prior to 1950 revisions of national income. The revised total was \$110.3 billion.

<sup>2</sup> Payrolls.

<sup>3</sup> Supplements to wages.

<sup>4</sup> Estimate based on figures reported in the 1956 economic censuses.

whereas the BEA-SEC series covers all establishments of manufacturing companies—nonmanufacturing as well as manufacturing. This factor is particularly important in the petroleum industry where company expenditures for developing new wells and new distribution facilities are ordinarily much larger than their capital expenditures at refineries. On the other hand, manufacturing establishments of companies engaged primarily in nonmanufacturing activities are excluded from

the BEA-SEC series but included in census figures. The BEA-SEC and census data for recent years are shown in tables M and N.

19. PLANT SPECIALIZATION

As discussed in section 4 above, the primary products of a plant are those which determine its industry classification; all other products are referred to as secondary products. The value of a plant's primary products in comparison to its total production is referred to as its degree of specialization. For each plant, two measures of specialization were computed: (1) A 4-digit primary product-specialization ratio, which is the sum of the values of all the plant's primary products divided by the sum of all its primary and secondary products; and (2) a 5-digit primary product-class specialization ratio, which is the sum of the largest 5-digit product-class value divided by the sum of its primary and secondary products (the miscellaneous receipts of the establishment were not included in these

TABLE M. Expenditures for New Plant and Equipment—BEA-SEC Series and Census: 1972 and Earlier Years

| Year       | BEA-SEC series <sup>1</sup><br>(bil. dol.)<br>(1) | Census (census of manufactures and ASAC)<br>(bil. dol.)<br>(2) | Column 2 divided by column 1 |
|------------|---|--|------------------------------|
| 1972 ..... | 31.4  | 24.1   | .77                          |
| 1971 ..... | 30.0  | 20.9   | .70                          |
| 1970 ..... | 32.0  | 22.2   | .69                          |
| 1969 ..... | 31.7  | 22.3   | .70                          |
| 1968 ..... | 28.4  | 20.6   | .72                          |
| 1967 ..... | 26.7  | 21.5   | .81                          |
| 1966 ..... | 27.0  | 20.2   | .75                          |
| 1965 ..... | 22.5  | 16.6   | .74                          |
| 1964 ..... | 18.6  | 13.3   | .72                          |
| 1963 ..... | 15.7  | 11.4   | .73                          |
| 1962 ..... | 14.7  | 10.0   | .68                          |
| 1961 ..... | 13.7  | 9.8  | .72                          |
| 1960 ..... | 14.5  | 10.0   | .69                          |
| 1959 ..... | 12.1  | 9.3  | .77                          |
| 1958 ..... | 11.4  | 9.6  | .84                          |
| 1954 ..... | 11.0  | 8.2  | .74                          |
| 1947 ..... | 8.7   | 16.0   | .69                          |

<sup>1</sup> Source: 1974 Business Statistics, U.S. Department of Commerce, Bureau of Economic Analysis.

<sup>2</sup> Excludes data for establishments under construction but not yet in operation.

