

**Comments on draft SNA chapter:  
Chapter 28: Input-output and other matrix-based analyses**

**Deadline for comments: 1 November 2008  
Send comments to: [sna@un.org](mailto:sna@un.org)**

|                               |   |
|-------------------------------|---|
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| Submission date:              | November 3, 2008  |

This template allows you to record your comments on draft SNA chapter 28 “Input-output and other matrix-based analyses” and, at the same time, makes it easy for us to use your comments in considering revisions to the draft chapter. You may complete any or all parts of the template.

There is no file comparing existing text with draft text for this chapter because the draft is largely new text.

Save this template and send it as an attachment to the following e-mail address:  
[sna@un.org](mailto:sna@un.org)

**Note**

The chapter does not attempt to describe IO tables at any length. There are many other documents that do this including the newly released Eurostat manual. The chapter concentrates only on the process of converting the supply and use tables to a symmetric format.

The material in section B was suggested at a stage too late for incorporation in chapter 14 but was felt to be useful to include in this chapter.

There are two large tables needed for the chapter that are still under preparation; these are the table showing the supply and use table with the cross-classification of intermediate inputs by industry and institutional sector and the symmetric IO table. They will be posted as soon as they are available but should not be a cause for delaying the comment on the chapter.

**Part I: General comments**

In the space below, please provide any general comments. This may cover e.g. the structure of the chapter, issues missing and (lack of) consistency with other chapters of the 2008 SNA.

*General comments:*

|                 |   |
|-----------------|---|
| General comment | <p>We see major problems with this draft. These concern both the over-all structure and the contents, and the details of the text in individual paragraphs. In general it is disappointing that a draft circulated world-wide for comments contains so many direct errors, wrong or doubtful statements and inaccurate use of terminology, and does not represent the state-of-the-art in this field as it has developed since the 1993 SNA.</p> <p>It is therefore not easy to comments on this text, and as a point of departure we would like to <b>agree</b> with those comments that suggest far-reaching reorganisations and rewritings of the chapter. We would in particular refer to the elaborate comments made by the <b>UK, OECD and Eurostat</b>, and shall therefore not in our comments below repeat what they have already so well pointed out, but only add some further specific points.</p> <p><i>Reorganisation of the chapter:</i></p> <p>The chapter should start with <b>section C</b> which should be given an appropriate introduction. Thus the present text under the heading <i>1. What is an input-output table?</i> does mainly deal with the input-output <b>model</b>, and thus would contribute to the confusion usually arising when the distinction between table and model is not made clear.</p> <p>For <b>section B</b> there may be two alternatives. Either these elaborations should be included in chapter 14 (where they may correctly belong is they deal with the valuation of products at the detailed level), or (in particular if the statement in 28.2 “it may be useful to adopt a different approach” is to be taken to mean that the requirements of the input-output table may justify a <b>deviation</b> from the standard recommendations) this may be put at the end the revised section C, underlining this aspect. But even in this case it may ideally be best placed in chapter 14, as there should in principle be consistency throughout the system.</p> <p>For these reasons, and also for getting the cif/fob adjustment right, the best solution would definitely be to reopen chapter 14 for changes, as also suggested in other comments. If, however, this is now out of question, the special circumstances related to the cif/fob adjustment carried out there, which is not just a (tacit) assumption all the cif/fob difference being imported, should be clearly explained.</p> <p>It may also more generally be decided to include in Volume 2 a “List of corrections” to Volume 1.</p> |
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## **Part II: Comments on specific draft paragraphs and sections**

All comments on specific draft paragraphs are welcome. They can be about e.g. scope, content and clarity. Proposing a concrete alternative text or table is also possible. For the paragraphs in separate sections, separate forms are used for providing and collecting comments (see below).

### **A. Introduction (paragraphs 28.1-28.4)**

|                 |   |
|-----------------|---|
| General comment | Click here and start typing.  |
| 28.2            | What does “adopt a different approach” mean? To deviate from the standard SNA recommendations? Must be made explicit.   |
| 28.3            | As in practise there is no supply table associated with a symmetric IO table, it is not very pedagogical to describe the process as “reducing the supply table to a purely diagonal matrix” |

\* Insert rows in this Word table for each paragraph on which you wish to comment.

## B. Further discussion of the supply and use tables (paragraphs 28.5-28.20)

|                 |   |
|-----------------|---|
| General comment | Related to goods sent abroad for processing it may be noted that there will be no changes to the source data from the foreign trade statistics. Thus the draft of IMTS, Rev. 2 (International Merchandise Trade Statistics) planned for adoption by the Statistical Commission in 2010 still includes registration and valuation of goods sent abroad for processing.   |
| 28.6            | The cif values used by product are not a “traditional way”, but the only possible - in the past as well as in the future, as this is how the source data become available.  |
| 28.7-10         | <p>Even though Statistics Denmark acknowledges the attempt to explain the cif/fob adjustment by using the numerical example we supplied with our comment on <i>chapter 14</i>, the main problem with the 1993 SNA cif/fob correction survives, as the present cif/fob correction has both the role of balancing an inconsistent table <b>and</b> make (macro) adjustments for the change of the from cif to fob (macro) valuation. Thus for example the cif/fob row in the <i>table 14.15</i> with negative entries for some domestic uses does not make much sense, and is a product of the earlier inconsistencies and confusion.</p> <p>It is therefore suggested that the necessary corrections be made to <i>chapter 14</i> and related tables, and subsequently the elaborations be made on this basis.</p> <p>It should also be noted that in chapter 14 there is no explicit statement that difference between cif and fob value is all imported (as said in 28.7), and depending on the bookkeeping practise used, it may not necessary be the case. An anyway there is no reason to have such a very unrealistic assumption build into the main numerical example.</p> <p>Furthermore the numerical example should all the way keep the distinction between goods and services. Otherwise the very point will be hidden, and only the level adjustment for the total foreign trade (as in table 28.10) will appear. And if there were no such “formal” exports, there would in this aggregated level be no adjustment at all.</p> |
| 28.17-18        | There are not only these two alternatives. Probably the most common one will be to completely ignore this question, and mix up what data actually becomes available. It should be remembered that there are many other reasons why widely different input structures (by product) are contained within a single industry (or “product”) in symmetric IO tables.   |

\* Insert rows in this Word table for each paragraph on which you wish to comment.

### C. Deriving an input-output table (paragraphs 28.21-28.41)

| General comment     | <p>As pointed out by several authors the terminology introduced in the 1968 SNA (which also survived into the 1993 SNA) related to the construction of symmetric IO-tables was misleading and the reason for much confusion and controversy. This has recently been officially recognised in the Eurostat IO Manual (Chapter 11.3), but the confused terminology is still widespread amongst users.</p> <p>It would therefore be very useful to explain and officially introduce in the 2008 SNA this change in terminology – and the reasons why, for example by using as an appropriate introduction to this section the two tables below (Taken from Bent Thage: <i>Symmetric Input-Output Tables: Compilation Issues</i>. Paper prepared for the Fifteenth International Input-Output Conference 2005, Beijing, China, but Chart 2 is also reproduced as table 11.3 in the Eurostat IO-Manual.</p> <p><b><i>From Paper</i></b><br/> <b>Chart 1. The four alternative symmetric input-output tables in the 1968 SNA</b></p> <table border="1"> <thead> <tr> <th></th> <th>Product-by product table</th> <th>Industry-by industry table</th> </tr> </thead> <tbody> <tr> <td>Product Technology</td> <td>(a) Negative elements</td> <td>(b) Negative elements</td> </tr> <tr> <td>Industry Technology</td> <td>(c) No negative elements</td> <td>(d) No negative elements</td> </tr> </tbody> </table> <p>These standard methods are also discussed in summary form in the 1993 SNA and the 1995 ESA, and in more detail in the UN <i>Handbook on Input-Output Tables</i> (1999).</p> <p>It has been pointed out that the terminology first introduced in the 1968 SNA is misleading, when the term “technology” is used also in connection with the construction of a SIOT of the industry-by-industry type from supply and use tables (SUT)<sup>1</sup>. An overview of the revised terminology used in this paper is shown in <i>chart 2</i>. The main distinction is not between two technology assumptions, but between technology assumptions on the one hand, and sales structure assumptions on the other. With this distinction the boxes that contain product-by-product tables based on sales structure assumptions, and industry-by-industry tables based on technology assumptions become empty. The two types of standard tables (b and c) are not considered further in this paper, as it is difficult to find any rationale for them, except that they can</p> |                            |  | Product-by product table | Industry-by industry table | Product Technology | (a) Negative elements | (b) Negative elements | Industry Technology | (c) No negative elements | (d) No negative elements |
|---------------------|--|----------------------------|--|--------------------------|----------------------------|--------------------|-----------------------|-----------------------|---------------------|--------------------------|--------------------------|
|                     | Product-by product table   | Industry-by industry table |  |                          |                            |                    |                       |                       |                     |                          |                          |
| Product Technology  | (a) Negative elements  | (b) Negative elements      |  |                          |                            |                    |                       |                       |                     |                          |                          |
| Industry Technology | (c) No negative elements   | (d) No negative elements   |  |                          |                            |                    |                       |                       |                     |                          |                          |

<sup>1</sup>Konijn P.A. and A.E.Steenge: *Compilation of input-output data from the national accounts*, Economic System Research, no 1, 1995.

|                                 | <p>be mathematically derived by the same procedure that leads to tables (a) and (d).</p> <p><b>Chart 2. An alternative terminology for symmetric input-output tables.</b></p> <table border="1"> <thead> <tr> <th></th> <th>Product-by product table</th> <th>Industry-by-industry table</th> </tr> </thead> <tbody> <tr> <td>Technology</td> <td></td> <td>Empty</td> </tr> <tr> <td>  Product technology</td> <td>(a) Negative elements</td> <td></td> </tr> <tr> <td>  Industry technology</td> <td>(b) No negative elements</td> <td></td> </tr> <tr> <td>Sales structures</td> <td>Empty</td> <td></td> </tr> <tr> <td>  Fixed product sales structures</td> <td></td> <td>(d) No negative elements</td> </tr> <tr> <td>  Fixed industry sales structures</td> <td></td> <td>(c) Negative elements</td> </tr> </tbody> </table>  |                            | Product-by product table | Industry-by-industry table | Technology |  | Empty | Product technology | (a) Negative elements |  | Industry technology | (b) No negative elements |  | Sales structures | Empty |  | Fixed product sales structures |  | (d) No negative elements | Fixed industry sales structures |  | (c) Negative elements |
|---------------------------------|---|----------------------------|--------------------------|----------------------------|------------|--|-------|--------------------|-----------------------|--|---------------------|--------------------------|--|------------------|-------|--|--------------------------------|--|--------------------------|---------------------------------|--|-----------------------|
|                                 | Product-by product table  | Industry-by-industry table |                          |                            |            |  |       |                    |                       |  |                     |                          |  |                  |       |  |                                |  |                          |                                 |  |                       |
| Technology                      |   | Empty                      |                          |                            |            |  |       |                    |                       |  |                     |                          |  |                  |       |  |                                |  |                          |                                 |  |                       |
| Product technology              | (a) Negative elements   |                            |                          |                            |            |  |       |                    |                       |  |                     |                          |  |                  |       |  |                                |  |                          |                                 |  |                       |
| Industry technology             | (b) No negative elements  |                            |                          |                            |            |  |       |                    |                       |  |                     |                          |  |                  |       |  |                                |  |                          |                                 |  |                       |
| Sales structures                | Empty   |                            |                          |                            |            |  |       |                    |                       |  |                     |                          |  |                  |       |  |                                |  |                          |                                 |  |                       |
| Fixed product sales structures  |   | (d) No negative elements   |                          |                            |            |  |       |                    |                       |  |                     |                          |  |                  |       |  |                                |  |                          |                                 |  |                       |
| Fixed industry sales structures |   | (c) Negative elements      |                          |                            |            |  |       |                    |                       |  |                     |                          |  |                  |       |  |                                |  |                          |                                 |  |                       |
|                                 | <p>The introduction suggested above would also contribute to eliminate the <b>very biased</b> description of the two types of tables (2 full pages for product by product tables, and only 15 lines for industry by industry tables). This does in no way reflect the actual practices.</p> <p>It is essential to underline that to compile a product by product table (manipulations of columns) you need <b>technology assumptions</b>, whereas to compile a industry by industry table (manipulations of rows), you only need <b>market share assumptions</b>, which are weak assumptions compared to technology assumptions. And these assumptions used in the compilation of the symmetric <b>IO-table</b> should not be mixed up with the assumptions needed to use the resulting table as a <b>model</b>, where anyway an industry technology is assumed, as there are many more products and production technologies than corresponding to the dimension of the IO-model.</p> |                            |                          |                            |            |  |       |                    |                       |  |                     |                          |  |                  |       |  |                                |  |                          |                                 |  |                       |
| 28.27                           | It should be mentioned that the extent to which secondary products exist depends on the level of aggregation. This term is therefore not a statistical category. Furthermore, when compiling industry by industry tables by the fixed product sales structure assumption, the distinction between primary and secondary products does not play any role.  |                            |                          |                            |            |  |       |                    |                       |  |                     |                          |  |                  |       |  |                                |  |                          |                                 |  |                       |
| 28.32                           | Hardly any basis for these statements. Especially as in practise no IO tables are compiled by using such “clean” theoretical assumptions. Se below  |                            |                          |                            |            |  |       |                    |                       |  |                     |                          |  |                  |       |  |                                |  |                          |                                 |  |                       |
| 28.39                           | The hybrid technology assumption is not a “further alternative”, but in practise (also under the name “the redefinition method”) the <b>only</b> method used. Here as elsewhere it is important to distinguish between general SNA statements and compilation manual stuff. It is no possibility to include the latter, but on the other hand the SNA should not give the message that IO-tables are in practise compiled by using these simple mathematical methods. (Refer to the Eurostat  |                            |                          |                            |            |  |       |                    |                       |  |                     |                          |  |                  |       |  |                                |  |                          |                                 |  |                       |

|  |   |
|--|---|
|  | IO-manual – but <b>not</b> to the UN IO Handbook in its present form) |
|--|---|

\* Insert rows in this Word table for each paragraph on which you wish to comment.

**D. Expressing the sequence of accounts in matrix form (paragraphs 28.42-28.52)**

|                 |                              |
|-----------------|------------------------------|
| General comment | Click here and start typing. |
| 28.42           | Click here and start typing. |
| *               | Click here and start typing. |

\* Insert rows in this Word table for each paragraph on which you wish to comment.

**E. Social accounting matrices (paragraphs 28.53-28.56)**

|                 |                              |
|-----------------|------------------------------|
| General comment | Click here and start typing. |
| 28.53           | Click here and start typing. |
| *               | Click here and start typing. |

\* Insert rows in this Word table for each paragraph on which you wish to comment.

**Part III. Other specific comments**

You are welcome to make other specific comments. To assist you in doing so, the following points are provided as a guide to the types of points on which you might wish to comment. Note, though, that you are not restricted to commenting on only these points.

1. Is the alternative treatment of the CIF to FOB adjustment clear?
2. Is the impact of the revised treatment of goods for processing on the SUT clear?
3. Is the discussion on how to convert the SUT to IOT clear?
4. Is the matrix presentation of the sequence of accounts clear?
5. Are there references that should be added (especially for SAMs)?

*Specific comments:*

|                   |                              |
|-------------------|------------------------------|
| Specific comments | Click here and start typing. |
|-------------------|------------------------------|

You are also welcome to comment directly on the PDF file of the draft chapter. Please do so by using Adobe Acrobat Version 6 or 7.

If you don't have Adobe Acrobat Version 6 or 7 and would like to make detailed comments, please send a message to [sna@un.org](mailto:sna@un.org) requesting a version of the draft chapter that permits you to comment. To optimize your commenting tools, please download Adobe Reader 7.0 for free from <http://www.adobe.com/products/acrobat/readstep2.html>