

EU KLEMS



**Supply and Use Tables for Belgium: 1995-2002
Methodology of Compilation**

Working paper nr. 14

Luc Avonds, Caroline Hambÿe and Bernhard Michel

**EU KLEMS WORKING
PAPER SERIES**

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**EU KLEMS Project
Productivity in the European Union: A Comparative
Industry Approach**

March 2007

***This project is funded by the European Commission,
Research Directorate General as part of the 6th Framework
Programme, Priority 8, "Policy Support and Anticipating
Scientific and Technological Needs".***

Supply and Use Tables for Belgium 1995-2002: Methodology of Compilation

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March 2007

Abstract

This paper presents the methodology for the compilation of a time series of supply and use tables for Belgium in current and constant prices for the period 1995-2002. These data have been produced at the Belgian Federal Planning Bureau within the framework of the EUKLEMS project and constitute an input for the project's productivity database. The compilation of the time series was based on national accounts data and existing supply and use tables. The methodology consisted in splitting several industries and products, adapting existing data to the latest national accounts revisions, estimating missing tables as well as deflating current price supply and use tables.

Jel Classification – C81

Keywords – National Accounts – Supply and Use Tables – Current and constant prices – EUKLEMS project

¹ Acknowledgements: The authors are grateful to Geert Bryon, to Koen Hendrickx and to the members of the Input-Output team for their constant cooperation and constructive comments. The data analysed come from the Belgian part of the EUKLEMS project funded by the European Commission, Research Directorate General as part of the 6th Framework Programme, Priority 8, "Policy Support and Anticipating Scientific and Technological Needs"..

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1. Introduction

This paper presents the methodology for the compilation of a time series of current and constant price supply and use tables for Belgium over the period 1995-2002. Those industry by product tables that provide detailed information on the production processes of an economy have been put together at the Federal Planning Bureau based on several existing tables and data received from the National Bank of Belgium (NBB). Such a complete time series of supply and use tables for this period did not exist so far for Belgium. The aim of this paper is thus to make the methodology transparent by briefly describing the stages of the compilation without producing an overload of methodological detail.

The work on this time series of supply and use tables at the Federal Planning Bureau was initiated by the participation in the EUKLEMS project, which is a research project funded by the 6th Framework Programme of the European Commission's DG Research.² The aim of this project is to create a database for all EU member states that allows to analyse productivity trends at the industry level over the period 1970-2004. The acronym EUKLEMS stands for the various input measures used in determining productivity: capital (K), labour (L), energy (E), materials (M) and services (S). The last three are intermediate inputs for which data by industry can only be found in supply and use tables. Therefore, it became necessary to supply the productivity database of the project with a time series of supply and use tables.³

As the Belgian partner in the EUKLEMS consortium, it was the task of the Federal Planning Bureau to provide the Belgian data for the productivity database. The demands in terms of supply and use tables for the database were as follows: ideally, those tables should cover the period 1970-2004 in current and constant prices, they should respect national accounts totals and their latest revisions, and their industry and product breakdown should at least correspond to the EUK72 classification defined by the consortium⁴. Fulfilling those maximum requirements proved impossible for Belgium, mainly in terms of the period covered.

The data situation in Belgium at the outset of the project can be briefly summed up as follows. On the one hand, for the period 1970-1994, there were no supply and use tables and even national accounts data were scarce. On the other hand, for the period 1995-2004, all the required national accounts totals were available and current price supply and use tables did exist for the years 1995, 1997 and 1999-2002. The latter had been constructed by the NBB. Moreover, constant price supply and use tables had never been produced for Belgium. This brought us to the conclusion that, for Belgium, only a series of tables covering the period 1995-2002 was feasible⁵.

In addition, the existing tables were mostly not up-to-date anymore. In the wake of the major national accounts revision of 2005, the NBB did produce revised current price supply and use

2 For more detailed information on the euklems project, see www.euklems.net.

3 This was part of Work Package 1 of the project: 'Inter-industry Accounts'.

4 The euk72 classification is slightly more detailed than the 2-digit level of the nace Rev.1.1. See appendix.

5 The years 2003 and 2004 were also excluded since the nbb has not yet completed the compilation of the current price supply and use tables for those years.

tables for 2001 and 2002⁶, but did not revise the older tables of 1995, 1997, 1999 and 2000. In order to respect the underlying principles of the 2005 revision and the revised national accounts data, it was necessary to adapt those older tables. In the autumn of 2006, the NBB introduced another major revision of the Belgian national accounts. At that moment, our work on the tables for 1995-2002 according to the 2005 revision was already finished. The tables of this time series then had to be adapted mechanically to the 2006 revision.

Furthermore, the working format of the supply and use tables constructed by the NBB comprises a breakdown into 120 industries and 320 products⁷. The industry totals in the national accounts are available for the same 120 industries. However, this is not detailed enough to obtain, through simple aggregation, supply and use tables in an industry and product breakdown corresponding to the EUK72 classification as required for the database of the EUKLEMS project. Indeed, several of the 120 industries and one of the 320 products of the working format still had to be split.

To sum it all up, our tasks for the compilation of the current price tables for 1995-2002 consisted in splitting some industries and one product, adapting the existing tables to the latest national accounts and estimating the tables for the missing years. Further work was required to obtain constant price tables for 1995-2002. The sequential approach proposed in the UN input-output manual⁸ allows to deflate existing current price tables. But beforehand, the use tables must be converted from purchasers' prices to basic prices so as to eliminate the distorting impact of margins, taxes and subsidies on prices and to deflate both supply and use tables valued at a common price concept. Moreover, given the availability of separate price indices for domestic output and imports, it is necessary to compute use tables for domestic output and for imports. The last stage is then the deflation in order to obtain the constant price tables. In terms of the methods and results, it is noteworthy that all work was carried out in close cooperation with the NBB and that the tables produced comply with the national accounts and to a large extent also the methods used by the NBB for compiling supply and use tables, but they are not official data.

The outline of this paper closely follows this work programme. Chapter 2 contains a definition and general explanation of supply and use tables. In Chapter 3, the methodology for the breakdown of industries and products is explained. Chapter 4 describes the most recent national accounts revisions, the way the existing current price supply and use tables are adapted to those revisions, and the methodology used for the estimation of the missing current price tables. Details on the use tables at basic prices are given in Chapter 5, while Chapter 6 deals with the calculation of domestic and imported use tables. Chapter 7 covers the deflation. Finally, Chapter 8 illustrates the data that have been generated, and Chapter 9 concludes.

⁶ See NAI (2006b).

⁷ The Belgian supply and use tables are produced in the so-called SUT classification. This classification will be referred to again and explained in chapter 2.

⁸ See United Nations (1999).

2. Supply and Use Tables: a General Description

The concept of supply and use tables has been introduced in the European System of Accounts⁹ in 1995 (ESA 1995). Supply and use tables are two industry (columns) x product (rows) matrices describing in detail the domestic production processes and the transactions in products of an economy. They show how the output of industries is broken down by types of products and how the domestic and imported supply of goods and services is allocated among various intermediate and final uses. The use table also shows the industry structure of production costs and income generated.

The working format of the Belgian supply and use tables distinguishes about 120 industries specified in terms of the NACE Rev.1.1 and 320 products specified in terms of the CPA. This classification used for the working format has been defined by the NBB and is referred to as SUT classification.

In the supply table, the supply of goods and services is broken down by product and by origin, making a distinction between domestic output by industries and imports.

Table 1 - A supply table at basic prices

	Industries (NACE)	Σ	Imports	Total supply at basic prices	Trade and transport margins	Taxes less subsidies on products	Total supply at purchasers' prices
Products (CPA)	Output by product and by industry at basic prices						
Σ	Total output by industry						

Source: ESA 1995.

The use table details the use of goods and services by product and by type of use, namely intermediate and final consumption, gross capital formation and exports. In addition, the use table reports the industry breakdown of gross value added: compensation of employees, other net taxes on production, net operating surplus (plus net mixed income) and consumption of fixed capital¹⁰.

⁹ See Eurostat (1996).

¹⁰ Value added components are also referred to as primary inputs.

Table 2 - A use table at purchasers' prices

	Industries (NACE)	Σ	Final uses at purchasers' prices	Σ	Total use at purchasers' prices
Products (CPA)	Intermediate consumption by product and by industry at purchasers' prices		Final consumption expenditure: by households by government by non-profit institutions serving households Gross fixed capital formation Changes in inventories Exports		
Σ	Total intermediate consumption by industry		Total final uses by type		Total use
Compensation of employees Other net taxes on production Consumption of fixed capital Operating surplus, net	Components of value added by industry				
Σ	Value added by industry				
Σ	Output at basic prices by industry				

Source: ESA 1995.

The supply table is valued at basic prices while the use table is valued at purchasers' prices¹¹. The purchasers' price is the price actually paid by the purchaser for the product. It includes the basic price plus any distribution margins and any net taxes on products. In order to make total supply comparable to total use by product, the supply table contains two additional columns - trade and transport margins by product and taxes less subsidies by product - showing the transition of supply at basic prices to supply at purchasers' prices.

The balancing process between supply and use requires both tables to be valued at the same prices. In practice, the use table at purchasers' prices is converted into a use table in which the flows are valued at basic prices. This transition requires the estimation of a series of tables on trade and transport margins and on taxes less subsidies on products. These tables are referred to as valuation matrices.

For analytical purposes, it is often necessary to know whether the goods and services used are produced domestically or imported. This is why two additional use tables are estimated: the use table for imported products and the use table for domestically produced goods and services.

¹¹ Imports are valued at the cost-insurance-freight (c.i.f.) price at the border of the importing country and exports are valued free on board at the border of the exporting country (f.o.b.). Henceforth, we will refer to basic prices to mean basic/c.i.f. prices and purchasers' prices to mean purchasers'/f.o.b. prices.

3. The Breakdown of Industries and Products

The working format of the existing Belgian supply and use tables with its 120 industries is not detailed enough to obtain all industries of the EUK72 classification directly or through simple aggregation. Several industries of the so-called SUT classification of those supply and use tables have to be split in order to obtain the industries of the EUK72 classification listed below¹²:

- 313: Insulated wire (31.3)
- 31x: Other Electrical machinery and apparatus nec (31.1, 31.2, 31.4, 31.5 and 31.6)
- 321: Electronic valves and tubes (32.1)
- 322: Telecommunication equipment (32.2)
- 323: Radio and television receivers (32.3)
- 331t3: Scientific instruments (33.1, 33.2 and 33.3)
- 334t5: Other instruments (33.4 and 33.5)
- 351: Building and repairing of ships and boats (35.1)
- 353: Aircraft and spacecraft (35.3)
- 35x: Railroad equipment and transport equipment nec (35.2, 35.4 and 35.5)
- 40x: Electricity supply and steam and hot water supply (40.1 and 40.3)
- 402: Gas supply (40.2)
- 70imp: Imputation of owner occupied rents (part of 70.2)
- 70x: Other real estate activities (70.1, part of 70.2, and 70.3).

It is the purpose of this chapter to roughly describe how those industries of the SUT classification have been split in the supply and use tables for the period 1995-2002.

First of all, it is useful to describe the methodology of the NBB for compiling national accounts aggregates, i.e. the output, intermediate input and primary input totals, for industries of the SUT classification. All industries in the list above, except for the last two, are compiled according to standard methods. They are made up of non-financial corporations and unincorporated enterprises belonging to the household sector. The methodology for compiling national accounts aggregates for those industries makes intensive use of administrative data, supplemented if necessary by specific surveys, e.g. the Structural Business Survey (SBS). The administrative data for the non-financial corporations come from the NBB's "Central Balance Sheet Office". They are completed with estimates for the unincorporated firms based on other administrative data sources, mainly value added tax data on sales and purchases and social security data on wages and contributions. The industry totals obtained from those administrative data do not yet correspond to national accounts aggregates. A long list of corrections has to be applied to the industry totals based on administrative data in order to respect ESA 1995 guidelines. Only then can those totals be considered as national accounts aggregates.

When disaggregating those industries of the SUT classification, we have tried to stick as closely as possible to this standard methodology used for compiling the national accounts. In fact, we have recalculated the output, intermediate input and primary input totals for the industries in the

¹²The corresponding NACE Rev.1.1 3-digit codes are mentioned in brackets.

list above. The administrative data for those EUK72 industries have been provided by the NBB. We have then proceeded by applying the required corrections to the industry totals based on those administrative data in order to obtain national accounts aggregates for those EUK72 industries. Note that these national accounts aggregates are column totals for those industries in the supply and use tables.

Moreover, these column totals of output and intermediate inputs computed according to the methodology described above must be broken down by product, i.e. the column vectors that contain the product detail of the industry output and intermediate inputs in the supply and use tables must also be split. In the original supply and use tables, these column vectors are compiled by the NBB for all industries of the SUT classification by using PRODCOM¹³ data and data collected in the SBS. We have again tried to stick as closely as possible to those data sources and to the methods of the NBB in the disaggregation process. The very simple method of a proportional distribution over the lower-level EUK72 industries was only applied when no information about output or input by product was available.¹⁴

Things are different for the last two EUK72 industries in the list above. Own-account production of housing services for owner occupiers, i.e. industry 70imp, is not an industry in the traditional sense but an activity that is added to the production of real estate services by convention in the ESA 1995. Owner occupiers of dwellings are assumed to produce housing services for their own final use. The valuation of these services cannot be based on statistical observations. They are valued at the estimated value of rental that a tenant would pay for the same accommodation. This is why they are referred to as “Imputation of owner occupied rents”. Input and output data for this activity are in fact calculated by the NBB when compiling the sector accounts of households.

Furthermore, the 320 products specified in the working format of the Belgian supply and use tables proved almost sufficient to obtain data in the EUK72 classification through simple aggregation. Only one product category had to be split into the following two EUK72 products¹⁵:

- 31x: Other Electrical machinery and apparatus nec (31.1, 31.2, 31.4, 31.5 and 31.6)
- 313: Insulated wire (31.3).

This is related to the breakdown of the first two industries listed above. This product disaggregation was also carried out using the same data sources and applying, as far as possible, the methodology of the original tables.

The disaggregation methods described above were all based on non-revised national accounts. In other words, we computed non-revised weights for splitting the industries in the list as well as the product mentioned above. Due to a lack of further information, we had to consider that the revision did not change those weights. Therefore, we did also use the non-revised weights to

¹³ PRODCOM: Community survey of industrial production.

¹⁴ For greater detail on the methods used for splitting output and intermediate consumption by product see Avonds and Gilot (2002) and Avonds (2005).

¹⁵ The corresponding CPA 3-digit codes are mentioned in brackets.

break down those industries and that product in the revised tables, i.e. in the tables respecting the 2005 revision and, later on, the 2006 revision of the national accounts. Moreover, we had to use the same non-revised current price weights again to split those industries in the constant price national accounts data that served as totals for the constant price supply and use tables.

Although this is not explicitly mentioned in the following chapters, we have always worked with the most detailed industry and product breakdown in all the further stages of the compilation of the current and constant price supply and use tables for 1995-2002. This most detailed breakdown includes the disaggregated industries and product as described in this chapter. Both the current and the constant price tables were aggregated to the EUK72 x EUK72 format only at the very end of the compilation procedure.

4. Current Price Supply and Use Tables for 1995-2002

Two further tasks had to be accomplished in order to compile a complete time series of current price supply and use tables: the existing non-revised current price tables had to be adapted to the latest national accounts revisions and the tables for the missing years had to be estimated.

4.1 Recent National Accounts Revisions

In 2005, the Institute for National Accounts introduced a major revision of the Belgian national accounts and published revised national accounts series for the period 1995-2004. The 2005 revision comprised nearly 30 items and was undertaken in order for Belgium to meet the deadlines for implementing several binding European legal provisions - such as the allocation of the so-called financial intermediation services indirectly measured (FISIM) to the users - and also to integrate new basic data and new compilation methods.¹⁶ The publication of the revised national accounts series was complemented by the estimation of revised supply and use tables for the years 2001 and 2002¹⁷. The existing supply and use tables for previous years (1995, 1997, 1999 and 2000) were not revised i.e. they did no longer fit in with the revised national accounts.

In 2006, another major revision of the national accounts series (1995-2005) was introduced, which mainly affected the method of estimating national accounts aggregates in constant prices. The main items of the 2006 revision were the introduction of adjusted deflators, chain linking¹⁸ and a new method for compiling the output volume of education.¹⁹

Given those revisions, the supply and use tables had to be adapted to the revised national accounts series. This was done in two steps:

- The major part of the work consisted in estimating supply and use tables in accordance with the 2005 revision of the national accounts. The national accounts published in NAI (2005a) were indeed the current version of the national accounts when we started to compile supply and use tables.
- The revised supply and use tables respecting the 2005 revision of the national accounts then had to be adapted in a more mechanical way in the wake of the publication in NAI (2006a) of the national accounts in accordance with the 2006 revision.

4.2 The Product Detail of the 2005 Revision

The NBB provided us with the following information regarding the 2005 revision: work documents describing each item of the revision and its impact on various aggregates, revised and non-revised supply and use tables for the year 2001, and revised series (1995-2004) for output, intermediate consumption, gross value added, compensation of employees, other taxes on production, other subsidies on production and consumption of fixed capital by industry. This

¹⁶ For greater detail on the items of the 2005 revision, see NAI (2005a).

¹⁷ See NAI (2006b).

¹⁸ This means that the fixed price base is replaced by the previous year's price base. Nevertheless, for the EUKLEMS project, we continued to work with constant price data in base year 2000.

¹⁹ For greater detail on the items of the 2006 revision, see NAI (2006a).

information allowed us to identify which aggregates and which industries were affected by each item of the revision. Our major task consisted in identifying the changes in the product detail.

Determining the impact of the 2005 revision on the product detail demanded a thorough study of each item of the revision combined with a cell-by-cell analysis of the differences between the two supply and use tables for the year 2001. As a result, the changes in terms of the product detail implied by the different items of the revision can be classified in four categories according to the way they were introduced into the supply and use framework:

- The first category of changes comprised those exactly transposed into the supply and use framework, i.e. where the exact product detail was known. For services such as FISIM or life insurance, the revised levels for the entire row could be introduced into the tables.
- For the second category of changes, part of the product detail was known. Therefore, some of the revised levels could be exactly identified for the product category of non-life insurance services.
- The third category contained changes that were introduced in terms of differences for individual cells, allowing the cells to further change during the balancing process.
- Finally, the last set of changes could not be identified in terms of products and they were thus not introduced manually. We considered that they were integrated through the adaptation to the revised national accounts totals.

4.3 Revising the Existing Supply and Use Tables

As mentioned above, four existing supply and use tables had to be adapted in order to respect the 2005 national accounts revision: those for 1995, 1997, 1999 and 2000. The NBB had indeed provided us with revised tables for 2001 and 2002. Except for the breakdown of industries and products, these tables did not need any further adaptation at this stage.

Regarding the supply and use tables for 1995, 1997, 1999 and 2000, we first introduced the changes in terms of products that could be identified according to the methods described in the previous section. Then, these tables had to be adjusted in order to respect the revised industry totals and national accounts aggregates. The introduction of the revised national accounts data into the existing supply and use tables thus implied spreading out the changes in the industry totals and national accounts aggregates over all products.

This was first done for the supply tables so that total use by product could later be adapted to meet total supply by product. Industry output by product as well as imports and margins by product were adapted proportionally to the revised national accounts totals keeping certain cells fixed for which the correct revised levels had already been identified²⁰. By contrast, the product detail of taxes and subsidies on products was revised partly manually in order to respect data published in the government accounts.

Regarding final uses, the NBB provided us with revised data by product for final consumption expenditure by households, for final consumption expenditure by non-profit institutions serving

households and for gross fixed capital formation. In addition, we used the detailed government accounts to estimate the product breakdown of collective consumption expenditure by government, as well as the individual consumption expenditure by government for a few products. Note that those data also allowed us to recalculate government sector output in the supply tables. For the remaining final uses, i.e. changes in inventories and exports, the shares of the products in the existing tables were applied to the revised national accounts totals.

Finally, intermediate consumption had to be adapted to the revised national accounts totals by industry, i.e. to the new column totals. However, there were also new row totals to be respected. Those were implicitly given by the fact that total supply must equal total use for each product. In other words, the revised total intermediate use of each product could be calculated by subtracting the revised total final use of that product from the revised total supply at purchasers' prices of that product. For some products, this led to negative row totals. However, a negative total intermediate use of a product is not possible and this had to be corrected. Moreover, we did also obtain positive row totals for some products, of which there is no intermediate use by definition. This made extra manual corrections necessary.

Once the revised row and column totals were known, the individual elements of the revised intermediate use matrix were estimated by means of the RAS method based on the structure of the non-revised matrix. We did, however, keep those cells fixed for which we had already identified the correct revised levels.

As a result, we had a set of current price supply and use tables for the years 1995, 1997, 1999 and 2000-2002, which all respected the 2005 national accounts revision. In order to have a complete series for 1995-2002, it was necessary to estimate the tables for 1996 and 1998.

4.4 Estimating the Missing Supply and Use Tables

At the start of our work, supply and use tables for the years 1996 and 1998 did not exist. We decided to estimate those tables based on proportional methods and information found in the national accounts as well as data provided by the NBB. The methodology developed for adapting the existing supply and use tables to the 2005 national accounts revision proved quite useful for those estimations, too.

On the supply side, total output by industry and total imports, margins, taxes and subsidies were known from the national accounts for both years. Moreover, the NBB provided us with the product detail of imports in the SUT classification. The supply tables for both years were then estimated by simply applying the product structure of the revised 1997 supply table to those totals for output by industry and margins, taxes and subsidies.

Regarding final uses, we received for 1996 and 1998 the same information as for the years 1995, 1997, 1999 and 2000 from the NBB plus the product detail of exports, which basically meant that for both years we only had to estimate changes in inventories by distributing the national accounts totals over products using the 1997 proportions. Indeed, the product breakdown

²⁰ Those fixed cells correspond to the first two categories mentioned in section 4.2.

of final consumption expenditure by households and by non-profit institutions serving households, of gross fixed capital formation and of exports was given for both years, and we were able to draw on the government accounts for the product detail of collective and individual consumption expenditure by government.

For intermediate consumption, we proceeded in the same way as for the revision of the existing tables. Total intermediate consumption by industry was found in the national accounts and total intermediate consumption for each product was computed as total supply minus total final use of that product. This gave us the column and row totals required for applying the RAS method to estimate the intermediate use matrix. The initial structure used for the RAS method for both years came from the revised intermediate use matrix of 1997.

The estimation of the tables for 1996 and 1998 completed the time series of current price supply and use tables for the period 1995-2002. At a later stage, these tables were mechanically adapted to the 2006 revision of the national accounts. Note that all supply tables are at basic prices and all use tables are at purchasers' prices. Moreover, all tables respect the 2005 and 2006 national accounts revisions and can be aggregated to fit the EUK72 classification.

5. Use Tables at Basic Prices

The series of supply and use tables in current prices for the period 1995-2002 is made up of supply tables at basic prices and use tables at purchasers' prices. The latter do thus include distribution margins and taxes and subsidies on products, which distort the analysis of intermediate and final consumption. In order to obtain use tables at basic prices, all margins, taxes and subsidies must be eliminated from the uses at purchasers' prices, i.e. it is necessary to compute valuation tables for all margins, taxes and subsidies, which can then be subtracted from the use tables at purchasers' prices.

The totals by product of distribution margins and taxes and subsidies on products are calculated by the NBB as part of the supply tables. As explained above, these column vectors are indeed needed for balancing supply and use at purchasers' prices for each product. The distribution margins are split into five kinds of trade margins and four kinds of transport margins for all years between 1995 and 2002. Moreover, four kinds of taxes and one subsidy on products are distinguished. The aim is to construct separate valuation tables for each type of margin, tax and subsidy.

Computing a valuation table implies that the column vector of a margin, tax or subsidy, i.e. the totals per product, is spread out over all uses, both intermediate and final. This had previously been done at the FPB for 1995 and 2000 as part of the construction of input-output tables for those years²¹. Those valuation tables were first adapted proportionally to respect the national accounts revision of 2005. Provisional valuation tables for 1996 were then calculated based on the revised margin, tax and subsidy shares for 1995. A proportional adjustment over all uses is necessary in order to respect the totals in the margin, tax and subsidy vectors of the 1996 supply table. The valuation tables for 1997-1999 and 2001-2002 were computed according to the same proportional method, always using the revised margin, tax and subsidy shares of the previous year.

The use tables at basic prices are then obtained for all years between 1995 and 2002 by subtracting the respective valuation tables from the use tables at purchasers' prices. This may give rise to negatives if the sum of margins, taxes and subsidies for an individual cell exceeds the corresponding use valued at purchasers' prices. These negatives are eliminated through manual corrections in the valuation tables.²² As a result, we now have a full set of supply and use tables at basic prices for the period 1995-2002.

²¹ See Avonds et al. (2003).

²² We have tried to avoid as much as possible making corrections in the use tables at purchasers' prices.

6. Domestic and Imported Use Tables

For the deflation of the current price supply and use tables, we did rely on a set of price indices provided by the NBB, which contained both domestic and imported price indices for most goods. It therefore became necessary to separate the use of imported goods and services from the use of goods and services from domestic production for all years from 1995 to 2002 in order to be able to deflate them separately.

The methodological note on the 1995 Belgian input-output table provides the following explanation regarding imported use tables: “Most countries simply distribute imports proportionally over each row of the use table. Hence, the ratio of imports to total supply is applied to every element in a row. This assumption is acceptable if the use table is relatively detailed in terms of the product breakdown”²³, i.e. if the product categories can be considered as homogeneous.

Despite a lack of information regarding the shares of imports in intermediate and final demand and a rather small product detail, imported use tables for 1995 and 2000 have been computed by the FPB based on methods, which improve on a purely proportional distribution.²⁴ These methods are also described in the methodological note for the 1995 Belgian input-output table: “For goods, an integrated approach drawing on detailed import and export data is used. Under certain assumptions these data allow to directly identify the use of a large share of imports. The remainder is then distributed proportionally. Regarding services, the product breakdown (50 services) of balance of payments data is not sufficient for using a similar approach for imported services. Several final uses of service imports were excluded through assumptions based on the characteristics of service imports and on the ESA95 before distributing service import totals proportionally.”²⁵

Thus, non-revised use tables for imports were available for 1995 and 2000. Just as for the valuation tables, they were first made compatible with the latest national accounts revision. They were then used to estimate imported use tables for the other years, i.e. 1996-1999 and 2001-2002. Those estimates were always based on previous years’ import shares. They still had to be adapted proportionally to the import totals found in the supply table.

Finally, we subtracted the imported use tables from the total use tables, which gave us the domestic use tables. The latter may contain negatives, which must be eliminated through manual corrections. Thus, we have obtained a series of domestic and imported use tables for the period 1995-2002.

²³ See Avonds et al. (2003), p.8.

²⁴ For greater detail on these methods, see also Hambÿe (2000), Hambÿe (2001) and Van den Cruyce (2003).

²⁵ See Avonds et al. (2003), p.8-9.

7. Constant Price Supply and Use Tables for 1995-2002

Trying to produce constant price supply and use tables meant venturing onto new ground since, to the best of our knowledge, neither supply and use tables nor input-output tables in constant prices had ever been calculated for Belgium. Those tables did only exist in current prices. Based on existing constant price data in the national accounts, we developed a simple procedure to obtain constant price supply and use tables for the years 1995 to 2002. The procedure largely draws on the sequential approach presented in the UN input-output manual²⁶.

Ideally, constant price supply and use tables are compiled together with the current price tables. However, this is not feasible when starting off with existing current price tables. Therefore, the sequential approach was more appropriate in our case: it consists in the deflation of supply and use tables in current prices without any feedback to the current price tables.

A very easy way of deflating current price supply and use tables is to make the assumption of an identical price in all uses and to apply the same price index to all the elements of a row in the supply and use tables. Two conditions must be fulfilled for this way of deflating to be acceptable:

- Product homogeneity: the tables should contain the greatest possible number of product categories. We did consider this condition to be fulfilled, although the maximum number of product categories in our current price tables was less than 400. This also implies that the deflation should be carried out at the working format of the tables.
- Basic prices: both supply and use tables should be valued at basic prices. Otherwise, the shares of distribution margins, product taxes and subsidies in the price of a product may differ depending on the type of use. This is why we calculated use tables valued at basic prices. Only then we may assume that every product has the same price regardless of its use.

The basic sequential approach can be further improved on. Since prices of domestic goods and imports may differ, the UN input-output manual suggests a separate deflation of use tables of imports and of use tables of domestic output if separate price indices for domestic output and imports are available. As mentioned in the previous chapter, this was true in our case as the NBB provided price indices in base year 2000 for both domestic production and imports, and this was why we calculated use tables for domestic output and imports separately.

Furthermore, the results of our deflation of the current price supply and use tables for 1995-2002 had to comply with the following national accounts aggregates in constant prices: total output and total intermediate consumption by industry, total final uses by category, total imports, and total taxes and subsidies on products.

We then proceeded by applying the price indices of domestic output to the rows²⁷ of the make table, i.e. the part of the supply table that covers domestic output, and to the rows of the domes-

²⁶ See United Nations (1999), chapter XI.

²⁷ Note that in order to deflate the rows of distribution margins, we used the price indices of the corresponding services.

tic use table at basic prices. The import price indices were used to deflate row by row the import column of the supply table and the imported use tables. As the current basic price supply and use tables were balanced, the constant price tables were so, too, given that the same price index was applied to supply and use for each product. In other words, no corrections to balance supply and use were needed. Thus, we had computed provisional supply and use tables in constant prices, where the use table was obtained as the sum of the provisional domestic and imported use tables.

The deflation of taxes and subsidies on products deserves a short explanation. Use tables at basic prices contain separate rows for the different categories of taxes and subsidies on products²⁸. The UN input-output manual suggests that taxes and subsidies on products should be deflated by multiplying the tax and subsidy rates of the base year with uses in current prices. However, there is a potential contradiction in the recommendations of the manual as it also states that the volume index of the tax or subsidy should be equal to the volume index of the product taxed or subsidised times the tax or subsidy rate. This is not the case when one applies tax or subsidy rates of the base year to use tables in current prices. We have decided to estimate the rows of taxes and subsidies at constant prices by calculating base year ratios of total taxes or total subsidies to total intermediate uses by industry and total final uses by type, and then applying those ratios to total uses by industry or by type in constant prices as given in the national accounts.

The provisional supply and use tables in constant prices still had to be adapted to respect the national accounts aggregates in constant prices. The supply tables were adjusted proportionally by column to the output totals by industry and total imports in constant prices. As a result, the constant price supply and use tables were not balanced anymore. Since we took the constant price supply totals by product as given, balancing supply and use at constant prices provided us with target row totals for the constant price use tables. Moreover, the target column totals were given by the national accounts totals for intermediate consumption by industry and final uses by category. The provisional constant price use table – obtained as the sum of the provisional domestic and imported use tables – then had to be adjusted biproportionally by means of the RAS method to those target row and column totals. Note that the RAS method was applied not only to the intermediate use matrix but to the entire use table, i.e. including final uses.

Thus, the ‘improved sequential approach’ has allowed us to compute a full set of constant price supply and use tables for the years 1995 to 2002 based on detailed price indices by product and the current price tables compiled earlier on. These constant price tables do respect national accounts totals and can be aggregated to fit the EUK72 classification.

²⁸ Total intermediate consumption by industry and final uses by type should still be valued at purchasers’ prices, i.e. including taxes and subsidies on products. This is why taxes and subsidies on products are reported in separate rows along with products.

8. An Overview of the Results

As an illustration of the compiled data, this chapter presents the series of tables for the year 2002, aggregated to a level of six products and six industries. These tables include the current price supply and use tables valued respectively at basic and at purchasers' prices, the valuation tables, the current price use table at basic prices, the current price domestic and imported use tables and the constant price supply and use tables. The presentation of the tables closely follows the order of the work programme described in the previous chapters.

8.1 Supply and Use Tables in Current Prices

The supply table at basic prices and the use table at purchasers' prices that are presented in this section largely correspond to the tables compiled by the NBB in the wake of the 2005 revision of the national accounts.²⁹ Any differences with the original tables produced by the NBB are due to the adaptation to the 2006 revision. Our work on the disaggregation of several industries and one product cannot be seen given the very limited level of industry and product breakdown in the tables presented here.

Table 3 Supply table at basic prices including transformation into purchasers' prices for 2002 (P6xA6) (million euros)

	1	2	3	4	5	6	P.1	P.7			D.21- D.31	
	Agriculture	Industry	Construction	Trade and transport activities	Business activities	Other service activities	Output	Imports c.i.f.	Total supply at basic prices	Distribution margins	Taxes less subsidies on products	Total supply at purchasers' prices
1 Agriculture	7277	58	0	141	17	62	7556	4957	12513	2702	34	15249
2 Industry	28	174738	1286	8695	1641	93	186481	164406	350886	57919	17250	426055
3 Construction work	0	511	34578	807	1506	2	37404	464	37868	0	4696	42564
4 Trade and transport	10	565	55	62887	847	530	64895	12838	77733	0	2499	80232
5 Business services	0	988	136	6018	116817	1412	125372	15227	140599	0	3405	144004
6 Other services	0	176	109	148	556	79593	80583	1040	81623	0	752	82375
Distribution margins	0	5544	229	53083	945	44	59845	776	60622	-60622		0
Total (basic prices)	7315	182581	36394	131778	122331	81736	562135	199709	761844	0	28636	790480

Source: own calculations based on data from the NBB

²⁹ See NAI (2006b).

Table 4 Use table at purchasers' prices for 2002 (P6xA6) (million euros)

	1	2	3	4	5	6		P.3	P.51	P.52	P.6		
	Agriculture	Industry	Construction	Trade and transport activities	Business activities	Other service activities	Total	Final consumption expenditure	Gross fixed capital formation	Changes in inventories	Export	Total uses at purchasers' prices	
1	Agriculture	482	7822	0	521	1	224	9050	3451	102	-155	2800	15249
2	Industry	3290	99901	13234	25537	6303	9585	157850	66641	24220	216	177129	426056
3	Construction work	0	1923	7900	4862	3272	957	18913	286	22479	0	886	42564
4	Trade and transport	117	7377	808	22681	7079	1964	40026	25678	0	0	14528	80232
5	Business services	337	14564	2702	24689	36571	7927	86791	33804	4351	0	19058	144004
6	Other services	269	1496	342	1041	1973	5368	10489	70934	237	0	716	82375
	Total	4495	133083	24986	79330	55199	26024	323119	200795	51389	62	215116	790480
D.1	Compensation of employees	461	30971	6807	31027	23984	46869	140120					
D.29- D.39	Other net taxes on production	-30	496	84	569	2472	-670	2923					
B.2	Operating surplus, gross	2389	18030	4516	20852	40675	9512	95974					
B.1	Value added, gross	2820	49497	11408	52448	67132	55712	239016					
P.1	Output (basic prices)	7315	182581	36394	131778	122331	81736	562135					

Source: own calculations based on data from the NBB

The supply and use tables are linked by two identities:

- By product: total supply at purchasers' prices = total uses at purchasers' prices
- By industry: total output at basic prices = total intermediate consumption at purchasers' prices + gross value added at basic prices

8.2 Valuation Tables and Use Table at Basic Prices

Table 5 Taxes less subsidies on products table for 2002 (P6xA6) (million euros)

	1	2	3	4	5	6	P.2	P.3	P.51	P.52	P.6		
	Agriculture	Industry	Construction	Trade and transport activities	Business activities	Other service activities	Total	Final consumption expenditure	Gross fixed capital formation	Changes in inventories	Export	Total taxes less subsidies on products	
1	Agriculture	0	-167	0	-11	0	7	-171	293	-2	-78	-7	34
2	Industry	42	274	183	1970	369	1015	3854	12249	743	8	397	17250
3	Construction work	0	0	0	29	97	50	177	13	4506	0	0	4696
4	Trade and transport	0	-23	2	225	111	102	417	2082	0	0	0	2499
5	Business services	23	151	56	335	930	637	2131	962	204	0	108	3405
6	Other services	1	0	0	1	4	95	100	651	1	0	0	752
	Total	67	234	241	2548	1511	1906	6507	16249	5452	-71	498	28636

Source: own calculations based on data from the NBB

Table 5 has the same format as the intermediate and final panel of the use table. It reflects the extent to which intermediate and final uses, i.e. all cells in the use table, are indirectly taxed and subsidised. The column “Total taxes less subsidies on products” corresponds to the column “Taxes less subsidies on products” of the supply table (Table 3).

Table 6 Trade and transport margins table for 2002 (P6xA6) (million euros)

	1	2	3	4	5	6	P.2	P.3	P.51	P.52	P.6	
	Agriculture	Industry	Construction	Trade and transport activities	Business activities	Other service activities	Total	Final consumption expenditure	Gross fixed capital formation	Changes in inventories	Export	Total trade & transport margins
1 Agriculture	100	1035	0	59	0	18	1212	1103	12	0	375	2702
2 Industry	610	12519	4060	3869	827	1375	23260	16717	4249	257	13436	57919
3 Construction work	0	0	0	0	0	0	0	0	0	0	0	0
4 Trade and transport	0	0	0	0	0	0	0	0	0	0	0	0
5 Business services	0	0	0	0	0	0	0	0	0	0	0	0
6 Other services	0	0	0	0	0	0	0	0	0	0	0	0
Total	710	13554	4060	3929	827	1393	24472	17820	4262	257	13811	60622

Source: own calculations based on data from the NBB

The table of transport and trade margins shows the trade and transport margins that different users (households, enterprises) have paid implicitly as part of the price of the goods they purchased. The column “Total trade & transport margins” corresponds to the column “Distribution margins” in the supply table (Table 3).

Table 7 Use table at basic prices for 2002 (P6xA6) (million euros)

	1	2	3	4	5	6		P.3	P.51	P.52	P.6		
	Agriculture	Industry	Construction	Trade and transport activities	Business activities	Other service activities	Total	Final consumption expenditure	Gross fixed capital formation	Changes in inventories	Export	Total use at basic prices	
1	Agriculture	382	6954	0	473	1	199	8010	2055	92	-77	2433	12513
2	Industry	2638	87108	8991	19697	5107	7194	130736	37675	19228	-48	163296	350886
3	Construction work	0	1923	7900	4833	3174	907	18736	273	17973	0	886	37868
4	Trade and transport	827	20954	4866	26385	7795	3255	64081	41416	4262	257	28338	138354
5	Business services	314	14414	2647	24354	35642	7290	84660	32843	4147	0	18949	140599
6	Other services	268	1496	342	1041	1969	5273	10389	70283	236	0	716	81623
	Total (basic prices)	4429	132849	24745	76782	53688	24118	316611	184546	45937	132	214618	761844
D.21-	Taxes less subsidies	67	234	241	2548	1511	1906	6507	16249	5452	-71	498	28636
D.31	on products												
	Total (purchasers' prices)	4495	133083	24986	79330	55199	26024	323119	200795	51389	62	215116	790480
D.1	Compensation of employees	461	30971	6807	31027	23984	46869	140120					
D.29-	Other net taxes on	-30	496	84	569	2472	-670	2923					
D.39	production												
B.2	Operating surplus, gross	2389	18030	4516	20852	40675	9512	95974					
B.1	Value added, gross	2820	49497	11408	52448	67132	55712	239016					
P.1	Output (basic prices)	7315	182581	36394	131778	122331	81736	562135					

Source: own calculations based on data from the NBB

The use table at basic prices is obtained by subtracting trade and transport margins and taxes less subsidies on products from the use table at purchasers' prices. In order to maintain the balance, the last row of Table 5 is inserted into this table, i.e. the column totals of the taxes less subsidies on products table. The total distribution margins on each use, i.e. the last row of Table 6, are added to product group 4 "Trade and transport". Total intermediate consumption by industry and total final use by type remain valued at purchasers' prices.

The supply and use tables can now also be balanced at basic prices: Total supply (columns "Output" and "Imports c.i.f." in Table 3 after allocating the distribution margins to product group 4 "Trade and transport") must equal total use (column "Total use at basic prices" in Table 7).

8.3 Imported and Domestic Use Tables

Table 8 Use table for imports for 2002 (P6xA6) (million euros)

	1	2	3	4	5	6	P.2	P.3	P.51	P.52	P.6		
	Agriculture	Industry	Construction	Trade and transport activities	Business activities	Other service activities	Total	Final consumption expenditure	Gross fixed capital formation	Changes in inventories	Export	Total imports	
1	Agriculture	201	2248	0	141	0	15	2606	1018	51	0	1283	4957
2	Industry	595	58786	2491	9008	1828	2907	75614	20053	12200	541	55998	164405
3	Construction work	0	43	201	68	85	25	422	0	42	0	0	464
4	Trade and transport	76	2733	303	7162	2123	313	12710	534	22	0	348	13614
5	Business services	27	2500	438	3856	6223	812	13855	781	517	0	75	15227
6	Other services	6	51	13	66	252	455	843	53	0	0	144	1040
	Total	904	66361	3446	20300	10511	4528	106050	22439	12831	541	57847	199709

Source: own calculations based on data from the NBB

This table presents the intermediate and final consumption of imported goods and services. The column “Total imports” corresponds to the column “Imports c.i.f.” in Table 3 after having allocated the distribution margins to product group 4 “Trade and transport”.

Table 9 Use table at basic prices for domestic output for 2002 (P6xA6) (million euros)

	1	2	3	4	5	6	P.2	P.3	P.51	P.52	P.6		
	Agriculture	Industry	Construction	Trade and transport activities	Business activities	Other service activities	Total	Final consumption expenditure	Gross fixed capital formation	Changes in inventories	Export	Total use	
1	Agriculture	181	4706	0	332	0	184	5404	1037	41	-77	1150	7556
2	Industry	2043	28322	6500	10689	3279	4287	55122	17622	7028	-590	107298	186481
3	Construction work	0	1880	7698	4765	3089	882	18314	273	17931	0	886	37404
4	Trade and transport	750	18222	4563	19223	5672	2942	51371	40883	4240	257	27990	124740
5	Business services	288	11914	2209	20498	29419	6477	70805	32062	3630	0	18875	125372
6	Other services	262	1444	329	974	1717	4818	9545	70230	236	0	572	80583
	Use of domestic output	3525	66488	21299	56482	43177	19591	210561	162107	33106	-409	156771	562135
	Use of imports	904	66361	3446	20300	10511	4528	106050	22439	12831	541	57847	199709
D.21- D.31	Taxes less subsidies on products	67	234	241	2548	1511	1906	6507	16249	5452	-71	498	28636
	Total (purchasers' prices)	4495	133083	24986	79330	55199	26024	323119	200795	51389	62	215116	790480
D.1	Compensation of employees	461	30971	6807	31027	23984	46869	140120					
D.29- D.39	Other net taxes on production	-30	496	84	569	2472	-670	2923					
B.2	Operating surplus, gross	2389	18030	4516	20852	40675	9512	95974					
B.1	Value added, gross	2820	49497	11408	52448	67132	55712	239016					
P.1	Output (basic prices)	7315	182581	36394	131778	122331	81736	562135					

Source: own calculations based on data from the NBB

The use table for domestic output is obtained by subtracting the use table for imports (Table 8) from the use table at basic prices (Table 7). It has the same format as Table 7, but one extra row has been added: the separate row of the total imported uses by industry and by type, which is the same as the last row of Table 8. The column "Total use" corresponds to the column "Output" in Table 3 after having allocated the distribution margins to product group 4 "Trade and transport".

8.4 Supply and Use Tables at Constant Prices

Table 10 Supply table at constant basic prices of 2000 for 2002 (P6xA6)
(million euros)

	1	2	3	4	5	6	P.1	P.7		
	Agriculture	Industry	Construction	Trade and transport activities	Business activities	Other service activities	Output	Imports c.i.f.	Total supply at basic prices	
1	Agriculture	7310	62	0	144	18	61	7595	4948	12543
2	Industry	29	176067	1275	9035	1678	93	188175	163648	351824
3	Construction work	0	497	33602	799	1463	2	36363	463	36825
4	Trade and transport	9	5734	266	111356	1702	520	119587	13443	133030
5	Business services	0	966	133	6008	113033	1304	121443	14861	136305
6	Other services	0	160	103	141	527	74681	75613	986	76598
	Total (basic prices)	7348	183485	35379	127482	118421	76660	548776	198350	747125

Source: own calculations based on data from the NBB

In Table 10, distribution margins have been allocated to product group 4 “Trade and transport”.

Table 11 Use table at constant basic prices of 2000 for 2002 (P6xA6) (million euros)

	1	2	3	4	5	6	P.3	P.51	P.52	P.6			
	Agriculture	Industry	Construction	Trade and transport activities	Business activities	Other service activities	Total	Final consumption expenditure	Gross fixed capital formation	Changes in inventories	Export	Total use at basic prices	
1	Agriculture	390	7335	0	475	1	192	8392	2014	92	-324	2368	12543
2	Industry	2581	89315	8979	19722	5005	6678	132279	37499	19849	124	162072	351824
3	Construction work	0	1765	7652	4698	2917	865	17898	270	17786	0	872	36825
4	Trade and transport	742	20112	4561	25416	7549	3114	61494	39515	4068	952	27000	133030
5	Business services	293	13982	2556	23645	34182	6973	81630	31813	4258	0	18603	136305
6	Other services	247	1424	322	967	1871	4931	9762	65955	215	0	666	76598
	Total (basic prices)	4253	133933	24070	74923	51525	22753	311456	177065	46268	753	211583	747125
D.21- D.31	Taxes less subsidies on products	46	563	247	2475	1643	2179	7153	15185	5123	-60	199	27600
	Total (purchasers' prices)	4299	134496	24316	77398	53168	24931	318609	192251	51391	692	211782	774725
B.1	Value added, gross	3050	48989	11063	50084	65253	51729	230167					
P.1	Output (basic prices)	7348	183485	35379	127482	118421	76660	548776					

Source: own calculations based on data from the NBB

This table has almost the same format as the use table at current basic prices. The only difference is that the components of gross value added are not deflated. The identities that link the constant price supply and use tables by product and by industry can be immediately derived.

9. Conclusion

The aim of this paper was to provide a brief overview of the methodology for the compilation of current and constant price supply and use tables for Belgium over the period 1995-2002. In our approach to this compilation, we have tried to respect as much as possible the methods used for the construction of the national accounts and existing current price supply and use tables. This was particularly true for the breakdown of industries and products in order to respect the EUK72 classification. However, for several other tasks, it proved impossible to avoid making use of proportional distributions over products or industries or both.

It seems useful to repeat that the tables that have been compiled are not official data. However, as a member of the statistical follow-up committee for the Belgian part of the EUKLEMS database, the NBB was regularly informed about the results as well as the compilation methodology.

Furthermore, the compilation of constant price supply and use tables was a pioneering work, since, to the best of our knowledge, such tables have never been produced before for Belgium. Given the existing current price tables, we decided that it was most appropriate to apply the sequential approach, which implies deflating those current price tables at basic prices under the assumption of an identical price in all uses. We did, however, take the availability of separate price indices for domestic output and imports into account by deflating use tables from domestic production and imports separately, thereby improving on the standard sequential approach.

As a result of the work based on the methodology described in this paper, we have obtained a series of current and constant price supply and use tables for the years 1995-2002. Even though the time span covered is not as long as we would have wanted it to be, this time series should prove to be a very useful tool, not only as input for the EUKLEMS productivity database, but also for applied economic analysis at the industry level for Belgium. We do indeed hope that these data will be widely used beyond the descriptive analyses that we have provided in the last chapter. Extending the time series to the years 2003 and 2004 will become feasible once the NBB has compiled the official current price supply and use tables for those years.

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Appendix

EUK72 classification with correspondence to NACE Rev.1.1 A60 and to SUT classification

Code	Description_euk72	nace Rév.1.1 A60	code industry sut
1	Agriculture	01	01A1
2	Forestry	02	02A1
B	Fishing	05	05A1
10	Mining of coal and lignite; extraction of peat	10	n.a.
11	Extraction of crude petroleum and natural gas and services	11	n.a.
12	Mining of uranium and thorium ores	12	n.a.
13	Mining of metal ores	13	n.a.
14	Other mining and quarrying	14	14A1
15	Food products and beverages	15	15A1 to 15L1
16	Tobacco products	16	16A1
17	Textiles	17	17A1 and 17B1
18	Wearing apparel, dressing and dyeing of fur	18	18A1
19	Leather, leather products and footwear	19	19A1
20	Wood and products of wood and cork	20	20A1
21	Pulp, paper and paper products	21	21A1
221	Publishing	22 partim	22A1
22x	Printing and reproduction	22 partim	22B1
23	Coke, refined petroleum products and nuclear fuel	23	23A1
244	Pharmaceuticals	24 partim	24D1
24x	Chemicals excluding pharmaceuticals	24 partim	24A1 to 24C1 24E1 to 24G1
25	Rubber and plastics products	25	25A1 to 25B1
26	Other non-metallic mineral products	26	26A1 to 26D1
27	Basic metals	27	27A1 and 27B1
28	Fabricated metal products	28	28A1 to 28C1
29	Machinery, n.e.c.	29	29A1 to 29D1
30	Office, accounting and computing machinery	30	30A1
313	Insulated wire	31 partim	31A1 partim
31x	Other electrical machinery and apparatus n.e.c.	31 partim	31A1 partim + 31B1
321	Electronic valves and tubes	32 partim	32A1 partim
322	Telecommunication equipment	32 partim	32A1 partim
323	Radio and television receivers	32 partim	32A1 partim
331t3	Scientific instruments	33 partim	33A1 partim
334t5	Other instruments	33 partim	33A1 partim
34	Motor vehicles, trailers and semi-trailers	34	34A1 and 34B1
351	Building and repairing of ships and boats	35 partim	35A1 partim
353	Aircraft and spacecraft	35 partim	35A1 partim
35x	Railroad equipment and transport equipment n.e.c.	35 partim	35A1 partim + 35B1
36	Manufacturing n.e.c.	36	36A1 to 36C1
37	Recycling	37	37A1
40x	Electricity supply	40 partim	40A1 partim
402	Gas supply	40 partim	40A1 partim
41	Water supply	41	41A1
F	Construction	45	45A1 to 45E1

50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of fuel	50	50A1 and 50B1
51	Wholesale trade and commission trade, except of motor vehicles and motorcycles	51	51A1
52	Retail trade, except of motor vehicles and motorcycles; repair of household goods	52	52A1
H	Hotels and restaurants	55	55A1 and 55B1
60	Inland transport	60	60A1 to 60C1
61	Water transport	61	61A1 and 61B1
62	Air transport	62	62A1
63	Supporting and auxiliary transport activities; activities of travel agencies	63	63A1 to 63B3
64	Post and telecommunications	64	64A1 and 64B1
65	Financial intermediation, except insurance and pension funding	65	65A2
66	Insurance and pension funding, except compulsory social security	66	66A2
67	Activities related to financial intermediation	67	67A1
70imp	Imputation of owner occupied rents	70 partim	70A1 partim
70x	Other real estate activities	70 partim	70A1 partim
71	Renting of machinery and equipment	71	71A1 and 71B1
72	Computer and related activities	72	72A2
73	Research and development	73	73A1 and 73A5
741t4	Legal, technical and advertising	74 partim	74A1 to 74D1
745t8	Other business activities	74 partim	74E1 and 74F1
L	Public administration and defence services; Compulsory social security services	75	75A3 to 75C3
M	Education	80	80A1 to 80A5
N	Health and social work	85	85A1 to 85C5
90	Sewage and refuse disposal, sanitation and similar activities	90	90A1 and 90A3
91	Activities of membership organizations n.e.c.	91	91A1 and 91A5
921t2	Media activities	92 partim	92A1
923t7	Other recreational activities	92 partim	92B1 to 92D5
93	Other service activities	93	93A1
P	Private households with employed persons	95	n.a.
Q	Extra-territorial organizations and bodies	99	n.a.

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