Supply and Use Tables

UNECE Special Session for Eastern Europe, Caucasus and Central Asia and South East Europe countries

Online event on 5 – 7 April 2022

Contents

1. Current state of play

➢ 2004 - following the needs for harmonization with the European statistical system, the State Statistical Office started with an experimental compilation of the Supply and Use Tables.

➢ 2008 - the compilation of the Supply and Use Tables at current prices, became a standard procedure.

➢ 2013 - the State Statistical Office started to use the Czech MS Excel based system for the Supply and Use Tables compilation at current and previous years' prices.

➢ 2014 - the Supply and Use Tables became a tool for balancing preliminary and final annual GDP data calculated by production and expenditure approach.

1. Current state of play

Publishing and transmission of the annual final estimates of the Supply and Use Tables at current prices

➢ Publishing in May (T+29 months) on the State Statistical Office online database (MAKStat): https://www.stat.gov.mk/IOTabeli_eng.aspx

➢ Transmission to EUROSTAT by SDMX in June (T+30 months), in accordance with the EUROSTAT Transmission Program, at the level of 64 products and industries, available on the EUROSTAT website: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=naio_10_cp15&lang=en

1. Current state of play

➢ Tables transmitted to EUROSTAT

- ➢ Table 15 A - Supply table at basic prices, including a transformation into purchasers' prices, in current prices and
- ➢ Table 16 A - Use table at purchasers' prices, in current prices
  - ➢ T+30 months
  - ➢ 2005-2011 - according to ESA95
  - ➢ 2010-2018 - according to ESA2010
- ➢ Tables 16BP - Use Tables at basic prices, at current prices
  - ➢ T+30 months
  - ➢ 2015 - according to ESA2010
- ➢ Tables 17, 18 and 19 (Symmetric Input Output Tables at basic prices, p x p)
  - ➢ T+35 months
  - ➢ 2005, 2010 - according to ESA95
  - ➢ 2015 - according to ESA2010

1. Current state of play

Main recent developments of the Supply and Use Tables supported by IPA (Instrument for Pre-Accession Assistance) Projects

➢ IPA 2012 - SUT included in the Pilot Project on National Accounts Methodology.

  ➢ Assessment of the compilation of SUT at previous years' prices for 2012.

  ➢ Prepared Description of sources and methods for the compilation of the SUT at current and previous years' prices for 2012.

➢ IPA 2015 - Pilot Project on SUT / IOT.

  ➢ Updated Description of sources and methods for the compilation of the SUT at current and previous years' prices for 2015. The document provides extensive text on the sources used, the compilation method and tables with data, comparisons and balancing adjustments. Special attention was devoted on the description of SUT compilation at previous years' prices with focus on the formulas used and rates applied for the trade margins on products.

1. Current state of play

➢ IPA 2017 - SUT included in the Statistical Project on National Accounts Methodology.

  ➢ Assessment of the currently used method for the estimation of theoretical VAT and VAT gap for 2018, preparation of a description of the applied method and estimation of VAT WC and VAT WoC.

➢ IPA 2019 - Statistical Project on SUT/IOT, ongoing (September 2021 - August 2023).

  ➢ Improvement of HFCE COICOP4 x CPA3 bridge table, solution for the elimination of unwanted negative values on the specified sheets of the SUP and USE files for 2020, potential improvement of the compilation procedure of SIOT for 2020, searching for the solutions to improve problematic parts of the quality report and update of the Description of the methodology for the compilation of SUT and SIOT, if necessary.

➢ IPA 2019 - SUT included in the ongoing Statistical Project on National Accounts Methodology.

  ➢ New estimates for VATF WC and WoC for the year 2019 and proposal on how to include VATF WoC in the NA estimates for the revised year 2019.

2. Compilation approach of the SUT

➢ The MS Excel System in the form of two mutually linked files, SUP and USE, including many sheets is used for the compilation of the SUT at 2 digit level of NACE x CPA, deflation and balancing commodity flows at current and previous year's prices.

➢ Most sheets of the SUP and USE files contain three types of tables:
  ➢ input data is in the last table (on the bottom of the sheet),
  ➢ table for different adjustments is located in the middle and
  ➢ resulting (final) data (computed data + adjustments) is located on the top (the first table on a sheet).

➢ Input data (output matrix, intermediate consumption matrix, FHCE matrix, …) are prepared outside of the SUP and USE system.

3. Supply Table

➢ The output at basic prices data by industry and the composition of products and services which make up that output are estimated separately (2-digit level of NACE x CPA).

➢ The output data by industry are estimated within the sector accounts.

➢ The product and service structure of output of each industry (output matrix) is based in main lines on the available data from the business statistical surveys (PRODCOM, EAA, Annual statistical survey for construction, Quarterly statistical survey for the distributive trade, Quarterly statistical survey for the catering trade, Annual statistical surveys for transport etc.).

3. Supply Table

➤ The estimates are transferred to the domestic output part of the SUP file and grossed up to the sector accounts estimates on output data by industry.

➤ The statistical surveys cover the sector accounts estimates by industry for around 50%. It is important to increase the percentage of obtained statistical surveys data on output by products and services (especially for service industries) in order to make more reliable the distribution of output of each industry into output of products and services.

➤ Foreign trade statistics are the main data source used in SUT and serve to determine the total value of imports of goods and their commodity specification. Foreign trade statistics provide data on imports of goods valued at the cost-insurance-freight (c.i.f.) price, at the 2-digit level of CPA.

➤ The main data source for imported services is the Balance of Payments of the National Bank (NBRNM).

3. Supply Table

➢ Two independent calculations are used for estimation of the trade margins : by industry and by product.

➢ The calculation by industry is part of the sector accounts calculation of GVA by industry.

➢ The allocation of trade margins by product is done within the SUT compilation. As a result, the vectors of wholesale and retail trade margins by product are acquired (2-digit level of CPA).

3. Supply Table

➢ The compilation of wholesale trade margins vector by product starts from the supply side. The total supply of goods (gross value of domestic output at basic prices and imports of goods at the c.i.f. prices) for each of the 30 CPA product groups is multiplied by an appropriate percentage of wholesale trade margin. The percentages vary between 6% and 15%, by individual product groups.

➢ The compilation of retail trade margins vector by product starts from the use side. The value of the domestic household consumption at purchasers' prices is reduced by the self-supply of goods consumed by households. Then the VAT and the transport margins are subtracted. This value is multiplied by an appropriate percentage of retail trade margin for each of the 30 CPA product groups. The percentages vary between 12% and 50%, by individual product groups.

3. Supply Table

> The compilation of a trade margins matrix (industry x product) is based on the use table structure. For intermediate consumption and gross fixed capital formation, predominantly wholesale trade margins are relevant. For household final consumption expenditure retail trade margins are predominantly relevant.

> The margins are sometimes adjusted in the process of balancing. When output and imports and the use of goods is considered of good quality and there is a difference between supply and use, this may justify an adjustment of the wholesale or retail trade margin rates.

> The compilation of theoretical VAT vector by product starts from the use side by multiplication of the prescribed value added tax rates (the general tax rate of 18% or the preferential tax rate of 5%) by taxable expenditures.

3. Supply Table

➢ The taxable expenditures consist of:
  ➢ final consumption of households (with some exceptions, e.g. own-produced goods, illegal activities, imputed rent),
  ➢ government's expenditures of products bought by health insurance companies from market producers and provided as social benefits in kind to households,
  ➢ NPISH expenditures for purchases from market producers,
  ➢ intermediate consumption and gross fixed capital formation of the exempted industries and sectors (VAT non-payers) and
  ➢ non-residents purchases on the domestic territory.

➢ The calculated (theoretical) VAT is adjusted afterwards to the VAT data provided by the Ministry of Finance based on cash flow data.

4. Use Table

➢ The intermediate consumption data by industry are estimated within the sector accounts.

➢ The distribution of intermediate consumption of each industry by products and services (intermediate consumption matrix) is based in main lines on the available data from the business statistical surveys (PRODCOM, EAA, Annual statistical survey for construction – expenditures of building materials and energy, Annual statistical survey on catering trade – expenditures of materials for food preparing, Special questionnaire for the needs of Government as annex to the Annual Financial Accounts etc.).

4. Use Table

➢ Final consumption expenditures data of households are estimated within the GDP estimations by the expenditure approach. The estimation is first of all based on data collected within the Household Budget Survey (HBS) by COICOP classification. A bridge table transforms individual items from 4-digit COICOP into 2-digit CPA classification.

➢ Data on heating energy, electricity, games of chance, postal, communications and insurance services are directly taken from the bookkeeping documentation of companies that provide certain services to households.

➢ Data from the Public Revenue Office concerning VAT statistics, data from the Insurance Supervision Agency, data from the National Bank regarding other financial services are used.

4. Use Table

➢ Final household consumption expenditures are at the end adjusted within the SUT balancing process. This implies that the final estimates for several final consumption expenditures of households are in fact based on the commodity flow method.

➢ The main data sources for the Final consumption expenditure of NPISH are annual financial reports, calculations are based on the cost approach.

➢ The main data sources for the Final consumption expenditure of general government are the annual financial reports of all institutional units, which are non-market producers, including those that, even though the income covers more than 50% of costs of production, are controlled by the general or local government. This category is entirely estimated within GDP estimates by the production approach.

4. Use Table

➢ The gross fixed capital formation (GFCF) is estimated within the GDP estimation by expenditure approach. Data on gross fixed capital formation are available by types of assets and commodity groups at 2-digit level of CPA.

➢ Several data sources are used for the estimation of gross fixed capital formation:

  ➢ Annual report on gross fixed capital formation (INV.01) that includes data on GFCF by type of asset, type of ownership and institutional sectors.

  ➢ In the calculation of GFCF data by entities, which do not have the status of a legal person (households), the data from construction statistics are used.

  ➢ The commodity flow method is applied for calculation of GFCF for machinery and equipment - data from foreign trade are used, i.e. exports-imports of machinery and equipment as well as data from domestic production of machinery and equipment.

  ➢ Data from the Financial statements from the Central Register, from the Ministry of Finance and surveys carried out in the National Accounts sector are used.

4. Use Table

➢ The changes in inventories are estimated within the GDP estimates by production and by expenditure approaches.

➢ The commodity breakdown of the changes in inventories at 2-digit level of CPA is based on data from the statistical surveys.

➢ Most of the adjustments in the changes in inventories, however, are done within the SUT balancing process.

➢ Foreign trade statistics are the main data source used in SUT and serve to determine the total value of exports of goods and their commodity specification. Foreign trade statistics provide data on exports of goods valued at the f.o.b price, at the 2-digit level of CPA.

➢ The main data source for imported services is the Balance of Payments of the National Bank (NBRNM).

5. Balancing Supply and Use Tables

Manual balancing

➢ First step - vertical balancing: adjusting the SUT output and intermediate consumption data by industry to the sector accounts calculated data on output and intermediate consumption by industry.

➢ Second step - horizontal balancing of supply and use data within the commodity group (aiming total supply of each commodity group to be equal to the total use of the same group ("commodity flows" method):

  ➢ checking time series, looking for large inconsistencies of data and making adjustments,
  ➢ bigger differences between sources and uses within one commodity group are allocated to one or more aggregates, mainly to HFCE or changes in inventories.

5. Balancing Supply and Use Tables

Automatic balancing

➢ Use of automatic RAS procedure (Residual Allocation System) for elimination of the small differences between supply and use by commodity groups.

➢ RAS procedure enables to change intermediate consumption matrix and distribute the small differences in the intermediate consumption.

➢ Required data for RAS are: an initial structure of the intermediate consumption matrix and new frame (row sums and column sums).

5. Balancing Supply and Use Tables

The SUT as an integral part of GDP balancing process

➢ The SUT are fully integrated into National Accounts. From 2014 onwards, the SUT became a tool for balancing preliminary and final annual GDP data calculated by production and expenditure approach.

➢ The importance and usefulness of the SUT as tool for reconciliation the GDP data are recognized and proven in practice.

➢ The balancing adjustments made in the SUT are provided to the sector accounts to be incorporated in production and use of income accounts of the different sector and sub-sector figures.

6. SUT at previous years' prices

➢ Flows of goods and services at 2 digit level of CPA (output, imports, intermediate consumption, final consumption expenditure of households, of NPISH and of government, GFCF, inventories and exports) are deflated at basic prices to which price indices refer.

➢ The supply table at basic prices is split into domestic output and imports.

➢ The domestic output is split into market output, non-market output and specific output (trade and transport margins, imputed rents and FISIM).

➢ The use table is calculated at basic prices (use at purchasers' prices less trade and transport margins, taxes less subsidies on products).

➢ Intermediate consumption at basic prices and final uses at basic prices are split into use of imports and use of domestic output.

6. SUT at previous years' prices

➢ For the method of deflation, price indices from statistical surveys are used: producer price index (PPI), consumer price index (CPI), exports unit value index (ExUVI) and imports unit value index (ImUVI).

➢ When UVI or average prices are used, the fact is that quality change is not part of the price change.

➢ The method of deflation could be improved when real price indices for imports and exports of goods would become available. The same is true for service prices.

➢ Margins and taxes are deflated separately on the use side and then transferred also to the supply side. The rates of the previous year are applied on the use of goods and services in the use table at previous years' prices (valued at basic prices).

7. Summary

➢ The Supply and Use Tables are fully integrated into the National Accounts compilation process and provide an adequate accounting framework for compiling consistent and reliable national accounts data.

➢ The Supply and Use Tables became an important tool for reconciliation of GDP data in an integrated approach.

➢ As a result of everything mentioned above, the Supply and Use Tables are and will be continuously developed and improved.

Thank you for your attention