SUPPLY AND USE TABLES
INPUT-OUTPUT TABLES

Special Session on Supply and Use Tables and Input-Output Tables
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TurkStat
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Content

1. The current state of affairs
2. Special Issues
   ▪ Deriving Input-Output Tables (IOTs) from Suts
   ▪ Using NA_Builder
The current state of affairs

SUTs & IOTs in TurkStat

• Previous tables by TurkStat
  – Published at current prices

• 2012 SUTs for the benchmark year
  – Published at current prices (published at 12/12/2016)

• Extrapolation SUTs for annual
  – Prepared at current prices
  – Not published yet

• Extrapolation SUT’s for quarters (2009Q1-2016Q4-...)
  – (2009Q1-2016Q4-...-2017Q4-..)
  – Prepared at current prices & previous years’ prices
  – Not published yet
The current state of affairs

SUT 2012 (Benchmark year – Data sources)

- 2012 Supply and Use Tables Questionnaire (compiled from 20,274 enterprises)
- Structural Business Statistics (SBS)
- Revenue Administrations Records (RAR) from Ministry of Finance (MoF)
- Social Security Registry (SSR)
- Annual Industrial Products Survey (PRODCOM)
- Household Labor Force Survey (LFS)
- Household Budget Survey (HBS)
- Tourism Statistics
- Financial Intermediary Institution Statistics
- Foreign Trade Statistics
- Government Finance Statistics
- Balance of Payments Statistics
- Agriculture Statistics
- Radio and Television Broadcasting Institutions Statistics
- 2011 Population and Housing Census (PHC),
- Address Based Population Registration System (ABPRS)
SUT 2012

- Compiled at detail level of 262 product groups and 268 industries.

- Published at detail level of 64 product groups and 64 industries.

- Output, recorded at basic prices IC, recorded at purchasers’ prices
Extrapolation SUTs

# Main Data Sources for the Extrapolation Years

<table>
<thead>
<tr>
<th>Institutional sector</th>
<th>Codes</th>
<th>Survey</th>
<th>Administrative Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-financial corporations</td>
<td>S.11</td>
<td>SUT 2012, Structural Business Statistics (SBS), Industrial Production Survey (IPS), R&amp;D Survey, Tourism Statistics</td>
<td>Revenue Administration’s Register (RAR), Foreign Trade Statistics (FTS)</td>
</tr>
<tr>
<td>Financial corporations</td>
<td>S.12</td>
<td>SUT 2012, Structural Business Statistics (SBS), R&amp;D Survey</td>
<td>Revenue Administration’s Records (RAR), Banking Regulation and Supervision Agency (BRSA), Capital Markets Board (CMB), Saving Deposit Insurance Fund (SDIF), Central Bank (CBRT), Undersecretariat of Treasury (UT), General Directorate of Public Accounts (GDPA), General Directorate of Foundations (GDF)</td>
</tr>
<tr>
<td>General government</td>
<td>S.13</td>
<td>SUT 2012, R&amp;D Survey</td>
<td>General Directorate of Public Accounts (GDPA) under Ministry of Finance</td>
</tr>
<tr>
<td>Non-profit institutions serving households</td>
<td>S.15</td>
<td>SUT 2012</td>
<td>The Department of Associations of Ministry of Interior’s register system</td>
</tr>
</tbody>
</table>
The current state of affairs

SUTs are the core of the system

**Current Prices**

Q1 QSUTs + Q2 QSUTs + Q3 QSUTs + Q4 QSUTs = t+3 Sum of Quarters

**Previous Years Prices**

Q1 QSUTs + Q2 QSUTs + Q3 QSUTs + Q4 QSUTs = t+3 Sum of Quarters

**t+9** Independent Annual GDP by current year SUTs

**t+9** Independent Annual GDP by sum of previous years price of quarters
The compilation

• Balancing process is based on product balance.

• Balancing was performed at the detail of 262 product groups of CPA-2008.

• To make the process more simple, the data was added to the system at 5-digit and 3-digit CPA level even compiled at more detailed level.

• Tables were aggregated and balanced at 3-digit level of CPA-2008.
Balancing the extrapolation years

Extrapolation of SUTs

- Extrapolation method is applied
  - by using coefficients of SUT 2012
  - by double deflation
Balancing process for SUT 2012

- Step 1: Manual balancing
- Step 2: Mechanical balancing (RAS)

- **RAS** (iterative balancing method): This method takes the ratios based on row or column totals from a source table to reach the sum of the targeted rows and columns.
Balancing the extrapolation years

**Before RAS:** Check the time series of the differences, then start CPA rows one by one.

<table>
<thead>
<tr>
<th>TOTAL SUPPLY</th>
<th>CPA</th>
<th>TOTAL IC</th>
<th>HH</th>
<th>GOV</th>
<th>NPISH</th>
<th>INVESTMENTS</th>
<th>CHANGE IN INVENTORIES</th>
<th>EXPORTS</th>
<th>TOTAL USE</th>
<th>SUPPLY-USE</th>
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</thead>
<tbody>
<tr>
<td>250</td>
<td>01.1</td>
<td>100</td>
<td>20</td>
<td>50</td>
<td>5</td>
<td>0</td>
<td>50</td>
<td>40</td>
<td>265</td>
<td>-15</td>
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<tr>
<td>225</td>
<td>01.2</td>
<td>120</td>
<td>0</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>35</td>
<td>60</td>
<td>215</td>
<td>10</td>
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<tr>
<td>150</td>
<td>01.3</td>
<td>100</td>
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<td>250</td>
<td>-100</td>
</tr>
<tr>
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<td>60</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>80</td>
<td>90</td>
<td>250</td>
<td>-125</td>
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<td>1.250</td>
<td>..others</td>
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<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>200</td>
<td>1200</td>
<td>50</td>
</tr>
<tr>
<td>2.000</td>
<td>Total</td>
<td>1040</td>
<td>220</td>
<td>50</td>
<td>5</td>
<td>100</td>
<td>295</td>
<td>470</td>
<td>2180</td>
<td>-180</td>
</tr>
</tbody>
</table>

- **Check the time series**
- **Check the deflators**
- **Check the CFM**
- **Check other reports**

Try to make smaller

The total should be Zero before RAS
Transformation from SUT to IOT

- Symmetric IOT 2012
  - Product by product IOT
  - Almon procedure

- **Almon procedure** is a mathematical algorithm designed for compiling product-by-product input-output tables which are based in essence on the product technology assumption but avoids by step-by-step procedure negatives in the derived input-output tables.
Software

- **SAS and Excel** for the estimations
- **NA_Builder (Excel VBA)** for compiling SUTs
  - Developed in the context of USST III Programme “Improving annual supply and use tables and input-output tables” Project and improved in IPA-2012 by project experts
  - Usage areas for NA_Builder:
    - Generation of supply and use tables
    - Automatic balancing process
    - Transformation of SUT to Symmetric IOT
    - Extrapolation SUT
Transformation from SUT to IOT

- Türkiye ‘s 2012 IOTs with using NA_Builder
IOT 2012

- Compiled by product groups at 3 digit level.

- Published at detail level of 64 product groups.
The Summary of SUTs in Turkey

Challenges

- To publish annual SUTs
- We need a new benchmark year
- Benching the PyP prices
- New SUT survey
- Other annual surveys to support extrapolation SUTs.
Thank you for your attention

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