Real gross domestic product and deflated net national income

Stanimira Kosekova
European Central Bank
DG-Statistics

12. Berliner VGR-Kolloquium
Investitionsbank Berlin (IBB); 13 - 14 June 2019

Disclaimer:
This presentation should not be reported as representing the views of the European Central Bank (ECB). The views expressed are those of the authors of the presentation and do not necessarily reflect those of the ECB.
## Agenda

<table>
<thead>
<tr>
<th></th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Estimation and data examples</td>
</tr>
<tr>
<td>3</td>
<td>Conclusion</td>
</tr>
</tbody>
</table>
Increased focus on globalisation events since 2016 and their impact on the national accounts

- In July 2016 the Irish GDP for 2015 was revised significantly (press release).

Other EU countries also reported large revisions in their GDP components (GFCF and Imports, as well as certain VA activities) resulting from globalisation effects.

- In May 2018 the Netherlands mentioned globalisation effects as 1 out of 5 key factors for 2015 GDP upwards revision of 1.0% (press release).
(New) initiatives at national, EU and international level

• The Irish Statistical Office (CSO) set up Economic Statistics Review Group (ESRG) in 2016:
  
  “provide direction on how best to meet user needs for greater insight into Irish economic activity”

• Eurostat’s activities
  – Early Warning System:
  – GNI MNE pilot exercise
  – TF Integrated Global Accounts, Joint BSDG/DMES TF on globalisation, etc.
  – Eurostat-OECD TF on Intellectual Property Products

• CMFB Workshop on Globalisation

• ECB Statistics Committee Globalisation agenda

• OECD and UNECE
New (supplementary?) indicators appeared

• National level
  – Ireland:
    • Adjusted Gross National Income (GNI*)
    • Modified domestic demand
    • Net National product/Net National Income (NNI) by end-2018 [not yet published]
  – Germany: globalisation indicators (key)
  – Denmark: globalisation statistics (enterprises)

• Eurostat
  – Globalisation in business statistics (+data)
  – Macroeconomic statistics/ national accounts (-data)
Background

**ECB users perform**

- Macro analysis
- Projections
- …

**But need to**

- Understand better the impact of globalisation
- Have comparable data across countries (and) across statistical domains
- Provide meaningful analysis for taking economic and monetary policy decisions

- DG–S preliminary work on **experimental set of real NNI**
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Background</td>
</tr>
<tr>
<td>2</td>
<td><strong>Estimation and data examples</strong></td>
</tr>
<tr>
<td>3</td>
<td>Conclusion</td>
</tr>
</tbody>
</table>
From GDP to NNI

GDP is the final result of the production activity of resident producer units.

Gross Domestic Product

- Balance of primary income*

Gross National Income

- Consumption of fixed capital

Net Domestic Product

Net National Income

* primary income payable by resident institutional units to non-resident institutional units plus primary income receivable by resident institutional units from the rest of the world.

National Income is not a production concept but an income concept.
The sequence of accounts:

**Accounts:**
- goods and services
- production account
- generation of income
- primary distribution of income
- secondary distribution of income
- use of income

**Balancing items:**
- gross domestic product
- operating surplus
- national income
- disposable income
- saving

<table>
<thead>
<tr>
<th>U</th>
<th>Property income</th>
<th>Operating surplus or mixed income</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>222,9</td>
<td>106,3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Compensation of employees</th>
<th>238,6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Taxes on production and imports</td>
<td>56,4</td>
</tr>
<tr>
<td></td>
<td>Less: subsidies</td>
<td>-6,9</td>
</tr>
<tr>
<td></td>
<td>B5n = Net national income</td>
<td>400,3</td>
</tr>
<tr>
<td></td>
<td>Property income</td>
<td>228,8</td>
</tr>
<tr>
<td></td>
<td>B5n = Net national income</td>
<td>623,2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>623,2</th>
</tr>
</thead>
</table>
Estimation and data examples

Why deflated (“real”) NNI?

• Common and well defined methodological framework: ESA2010
• Profit transfers from MNE’s subsidiaries to their foreign headquarters are excluded
• Macro indicator obtained from GNI after removing the depreciation or the consumption of fixed capital (CFC)
  (sometimes MNEs are the main contributor)
• More robust to globalisation one-off effects, thus improves cross-country comparisons
• Easy to use in economic analysis, integral part of ESA
  (in addition to the widely used production GDP measure)

However,

• goes beyond adjusting from globalisation effects linked to the property of capital goods and
• may be less accurate than GDP or GNI in levels because of CFC estimation
Approach to estimating deflated NNI

- Simplistic approach; based on quarterly frequency data
- Several approaches possible
  - Derive NNI from the quarterly non-financial sector accounts from GNI and CFC
    \[ \text{NNI} = \text{GNI} - \text{CFC} \]

  - Deflate using the implicit GDP deflator (\( I_{\text{GDP}} \)) or private consumption deflator (\( I_{\text{PCD}} \))
    \[ \text{NNI}^R = \frac{\text{NNI}}{I_{\text{GDP}}} \quad \text{or} \quad \text{NNI}^R = \frac{\text{NNI}}{I_{\text{PCD}}} \]

  - Or deflate components, i.e. GNI and CFC, separately - for example with implicit GDP deflator (\( I_{\text{GDP}} \)) and implicit investment deflator (\( I_{\text{INV}} \)), respectively (\( ? \))

- Derive NNI from the quarterly non-financial sector accounts from GDP, balance of primary income and CFC and apply suitable deflators

⚠️ preference to be done at national level – integrated approach, more detailed information available, more suitable deflators, etc…
Estimation and data examples

Data:

- All euro area countries, except LU (only annual data)
- Quarterly: seasonally and non-seasonally adjusted
- CFC particularities for several countries
  (seasonality for SK, FI, SI, EE, LV and MT and step pattern for IE, CY and NL)

Compilation:

- *(could be)* Integrated in the ECB/Eurostat Euro Area Accounts production
- Not so different from any other user estimations
- Top-down approach, possibly introducing some noise in the estimated deflated NNI
Estimation and data examples

- Larger volatility in year-on-year growth rates of the real NNI in recent years
- Different deflators lead to similar but significantly different developments in 2015
Estimation and data examples

- Larger volatility in year-on-year growth rates of the real NNI in recent years
- Different deflators lead to similar but significantly different developments in 2015
Estimation and data examples

- Larger volatility in year-on-year growth rates of the real NNI in recent years
- Different deflators lead to similar but significantly different developments in 2015
• Euro area (EA) results seem overall plausible
• Euro area (EA) results seem overall plausible
Estimation and data examples

• Euro area (EA) results seem overall plausible
• Close growth rates to GDP with some exceptions; large volatility
• Choice of deflator matter
• More explanatory information necessary (in general for all countries)
• Close growth rates to GDP with some exceptions; large volatility
• Choice of deflator matter
• More explanatory information necessary (in general for all countries)
Estimation and data examples

- Close growth rates to GDP with some exceptions; large volatility
- Choice of deflator matter
- More explanatory information necessary (in general for all countries)
Agenda

1. Background
2. Estimation and data examples
3. Conclusion
Deflated NNI seems to be relevant topic

- Useful for economic analysis
- Seen as a complementary measure to the real (volume) GDP
- Benefits to analyze the economies and welfare more precisely
- Helps to have non-distorted comparison across countries in real terms
- Easy to compile
- Choice of deflator is important
  - Preference to start at the lowest possible level of aggregation
- More volatile compared to real GDP
- Further tests to be done
Some further questions:

• Is NNI the right concept to address the effect of globalisation on GDP?
• Shall we explore other approaches, for example NDP?
• What improvements shall be done?
• What are the reasons for the increased volatility in NNI?
• …
THANK YOU
Reserve slides
Estimation and data examples

- Similarly to Germany, the growth rates with some exceptions when compared to the GDP are relatively close;

- GDP deflator works better.

- Bigger volatility in the back data for Italy;

- (Same as for Germany and France)
• Similarly to Germany, the growth rates with some exceptions when compared to the GDP are relatively close;

• GDP deflator works better.

• Bigger volatility in the back data for Italy;

• (Same as for Germany and France)
• Similarly to Germany, the growth rates with some exceptions when compared to the GDP are relatively close;

• GDP deflator works better.

• Bigger volatility in the back data for Italy;

• (Same as for Germany and France)
Estimation and data examples

- There is a lag between the growth rates for Spain.
- Use of GDP deflator for NNI brings its real developments closer to real GDP.
Estimation and data examples

- There is a lag between the growth rates for Spain
- Use of GDP deflator for NNI brings its real developments closer to real GDP.
Estimation and data examples

- There is a lag between the growth rates for Spain.
- Use of GDP deflator for NNI brings its real developments closer to real GDP.