**National Bank of Serbia**

**Balance of Payments Statistics Division**

# A new CIF/FOB adjustment method Serbian case

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# Institutional framework

- Statistical Office of the Republic of Serbia (SORS), the National Bank of Serbia (NBS) and the Ministry of Finance have a **Memorandum of Understanding** in the area of macroeconomics and financial statistics.

- Statistical Office of the Republic of Serbia (**SORS**) is in charge of compilation of **international merchandise trade statistics (IMTS) and system of national accounts (SNA).** The IMTS data are passed on to the BoP division in the NBS.

- **Balance of payments (BoP) statistics** as well as **international trade in services statistics (ITSS)** are compiled by the National Bank of Serbia (**NBS**).

- After **adjustment for coverage and CIF/FOB adjustment** have been made in the BoP statistics, **BoP data** on exports and imports of goods are **used in the national accounts**.

# **Background**

- The old method for CIF/FOB adjustment was founded on the application of **fixed coefficient of 3.1%**, estimated by SORS.

- There were **downward adjustment** made to **imports of goods** and **upward adjustment** made to **imports of services**.

- **Disadvantages:**

  - ➤ The **coefficient was unique** for all **mode of transport**, **commodity groups** and **distance**.

  - ➤ This method **did not reflect the real costs** of transportation and insurance, which depend on other **external factors** such as fuel prices.

  - ➤ **Ratio between resident and non-resident carriers was fixed** with regard to adjustment of the BoP services account for transport and insurance costs.

# **Background**

- The **need for a new method** of estimation of the CIF/FOB adjustments was obvious.

- In order to address the disadvantages of the old method, **External Trade Statistics Division** of SORS has started development of the new CIF/FOB adjustment model on the basis of the approach applied by the **Statistics Norway**.

- **During the IPA 2015 project, task force** composed of the NBS' (BoP division) and SORS' (external trade and NA division) staff, managed to finalize the work on the development of the new method.

- The new method, based on **data from customs declarations**, required substantial efforts that were resolved with **IT support**.

# New method – imports

- New method for estimation costs on **imported goods** was carried out through the following steps:

❖ **SPLIT OF DELIVERY TERMS**

➢ *FOB-type*

- Freight and insurance are almost always filled in with acceptable quality.
- For imports, this information is needed for Customs to check for taxation purposes that freight and insurance, together with the invoiced value, add up to the statistical value for each item.

➢ *CIF-type*

- Freight and insurance are in general not filled in, since for these delivery terms the invoice values already include freight and insurance costs, which equals the statistical value being object of taxation.
- If freight and insurance are filled in, it is done unnecessary and arbitrary, and this information is therefore not useful.

# New method – imports

- Missing CIF type items for freight (and insurance) are substituted by FOB type freights (and insurance) by assuming that the FOB type information is the same as for the CIF type in case of common characteristics of transaction as explained below.

- ❖ **4 LEVELS OF AGGREGATION AND SUBSTITUTION**

- ➢ **Level 1** = transport; commodity group (HS4-digit); country of consignment

- The CIF-type items have to be substituted by assuming that the FOB type freights are the same as for the CIF type, comparing the same transport mode, the same commodity group and the same distance (country of origin/consignment).

- For the combination mentioned based on FOB type, freight and insurance coefficients can be calculated and that can be used to estimate missing absolute amounts of freight/insurance for the CIF type forms.

# New method – imports

➢ **Level 2** = transport; commodity group (HS4-digit)

• If the information is still missing, at this aggregation level of same transport mode and commodity group, FOB type information will be used to fill empty holes in the CIF type data where possible and again absolute amounts for freight/insurance are estimated in order to get a more complete picture.

➢ **Level 3** = commodity group (HS4-digit)

• At this level of aggregation, the substitution process focuses on breakdown by commodity group.

➢ **Level 4** = transport

• Finally, the last substitution exercise of using FOB type data to improve CIF type information will be at the aggregation level of breakdown by transport mode.

# New method – imports

❖ **TESTS ON EXTREMES**

- In order to secure that **outliers** in data materials will not affect the results, **extreme tests** are done.

- **FOB type forms with improbable values for freight** (and in principle insurance) costs are excluded from the substitution process at the aggregation level concerned and are **treated as a CIF type items** to be improved via substitution at a **higher aggregation level**.

- It is **assumed that the extreme tests remove most of the errors and missing data**, so that the imputed values for freight and insurance should be of an acceptable quality.

# New method – imports

- **Final adjustments** have been made to data processing request to the external trade statistics:

  - ➢ Customs declarations with regard to imports from the **neighbouring countries are excluded.**

  - ➢ Special transactions like **import of oil and gas via pipelines and of electricity are excluded** from the estimation procedure of the freight share.

  - ➢ **Only declarations representing single goods imports are used for the estimation procedure.** If more than one good is imported, the reported freight amount will represent all the goods that are imported, making it impossible to recognize the freight amount for a certain good.

# New method – imports

- **After improvement of the CIF type declaration forms** as well as of the FOB type forms with extreme values, in principle **plausible freight and insurance costs in absolute terms** have been estimated.

- This value relating to the total of **improved CIF type** forms is **added to the absolute amount of freight and insurance costs filled in the FOB type** declaration forms, as has been filled in by declarants.

- In this the **total amount of freight/insurance for imports from non-neighbouring countries** is obtained.

- **Total value of imports including neighbouring countries minus the absolute amount for freight/insurance costs results in the FOB value for the total of imports** (relevant for the goods account of the BoP according to BPM6 standard).

# New method – exports

- **The estimation** of freight and insurance cost of merchandise **exports** is done in the **similar way** as in the case of **imports**, but now using the **CIF type forms** in order to **correct FOB type** declarations.

- The **exporter** of the goods from the compiling economy **arranges transport and insurance** and thus has perfect knowledge of the costs concerned.

- The **CIF value of exports** will be estimated and the difference between CIF value and FOB value of exports (the latter being the statistical value) will be object of multiplication with the CIF share for exports invoiced.

- **Monthly data** on transportation and insurance costs by terms of delivery and residence of carrier are provided together with data for transport and insurance of exports and imports of goods.

# New method – data processing

- Data on value of transport and insurance costs are provided **by resident and non-resident providers of services**, separately **for transport and insurance**.

- Data on transport costs by residents and non-residents are further **broken down by transport mode**.

- Data processing is done according to **terms of delivery**, within which by **residence of carrier**.

- Calculated **invoiced terms of delivery** (CIF/FOB) share in total transport and insurance costs, as well as **residents and non-residents in individual term of delivery**, serve for the purpose of **analysing** and detecting any deviations.

# Adjustments in BoP statistics

- For the purpose of adjustments of the following items according to the BPM6 methodology, the SORS regularly provides **monthly series** to the NBS:

❖ **Imports of goods according to FOB parity** (instead of previously used 3.1% to transform CIF to FOB import value).

   SORS provides the **exports of goods in FOB value**, so **no adjustment** is needed.

❖ **Exports and imports of services** - Considering that basic **data source** for transport services is the **ITRS**, adjustments are required for **CIF** invoiced exports and imports, in accordance with transporter's residency.

# Adjustments in BoP statistics

- Adjustment of the **services account of BoP** takes place in case of **CIF type contract**.

❖ **Concerning exports of goods:**

- CIF-contract: transport and insurance provided by residents – to be added to exports of related services. *(not captured via ITRS)*

- CIF-contract: transport and insurance provided by non-residents – to be removed from imports of related services. *(initially recorded via ITRS)*

❖ **Concerning imports of goods:**

- CIF-contract: transport and insurance provided by residents – to be removed from exports of related services. *(initially recorded via ITRS)*

- CIF-contract: transport and insurance provided by non-residents – to be added to imports of related services. *(not captured via ITRS)*

# Adjustments in BoP statistics

- In **simplified example** value of exported (or imported) goods is 100, value of transport and insurance costs between exporting and importing country is 20. In the table are shown entries that should be made in BOP, depending of delivery terms and residency of transporter (and insurer), named residents and non-residents in the example below.

**Transport and insurance services related to CIF invoiced exports and imports of goods in BOP and ITRS**

| Invoiced / service provided by | BOP | | | | | ITRS | | | | Adjustments of transport and insurance services to meet BOP requirements | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | goods | | services | | | goods | | services | | | |
| **Exports of goods** | | | | | | | | | | | |
| | exports | imports | exports | imports | Xgs | exports | imports | exports | imports | Xgs | exports | imports |
| **CIF** | | | | | | | | | | | | |
| residents | 100 | | 20 | | 120 | 120 | | | | 120 | + 20 | |
| non-residents | 100 | | | | 100 | 120 | | | 20 | 100 | | - 20 |
| **Imports of goods** | | | | | | | | | | | | |
| | exports | imports | exports | imports | Mgs | exports | imports | exports | imports | Mgs | exports | imports |
| **CIF** | | | | | | | | | | | | |
| residents | | 100 | | | 100 | | 120 | 20 | | 100 | - 20 | |
| non-residents | | 100 | | 20 | 120 | | 120 | | | 120 | | + 20 |

# <u>Adjustments in BoP statistics</u>

- The analysis based on monthly data that SORS provided to the NBS has brought forward new information.

- A **comparative overview** of the old CIF/FOB coefficients for exports and imports of goods and the results of new method of calculation:

**Average of 2014-2019 period**

| | CIF/FOB Ratio | | The share of terms of delivery in total value | | | | The share of residents and non-residents in CIF parity | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Old | | New | | Old | | New | |
| | Old | New | CIF | FOB | CIF | FOB | resident carriers | non-resident carriers | resident carriers | non-resident carriers |
| **Export** | x | **2.7** | x | x | **35%** | **65%** | x | x | **77%** | **23%** |
| **Import** | 3.1 | **3.9** | 100% | x | **82%** | **18%** | 60% | 40% | **33%** | **67%** |

# Adjustments in BoP statistics

- **Improvement of goods account balance** is mainly result of reduction of goods imported (**higher CIF/FOB ratio** comparing to previously used).

- This fact in the trade account is to some extent offset by higher values of imports of transport and insurance services as a consequence of already mentioned higher CIF/FOB ratio, but also **changed share of resident and non-resident carriers** in CIF invoiced **imports of goods**: instead of 60:40, new ratio is about 33:67.

- **Transport and insurance costs** provided by resident carriers to non-residents are included in **exports** in balance of payments data.

- **Ratios** regarding both CIF share of declarations (invoice) of total declarations and resident/non-resident carrier share for exports and imports are **calculated on a monthly basis**.

- New method of CIF/FOB adjustment should contribute to better understanding of **macroeconomic developments**.

# Thank you for your attention!