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For information

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REPORT ON INTERNATIONAL COMPARABILITY OF SHORT-TERM STATISTICS IN THE CIS AND SOUTH-EAST EUROPEAN COUNTRIES

Note prepared by the UNECE secretariat

Contents

"The use by statistical agencies in each country of international concepts, classifications and methods promotes the consistency and efficiency of statistical systems at all official levels."

The ninth principle of *The Fundamental Principles of Official Statistics in the Region of the Economic Commission for Europe*, UNECE

Executive summary[1]

Background

Over the last decade the national statistical offices of the CIS and South-East European countries have made significant progress in terms of providing international comparable statistics. In the field of short-term statistics there is, however, still a significant lack of statistics compiled and published according to international standards and recommendations. This seriously hampers international comparisons, and in many instances users are left without comparable statistics.

To provide the basis for decisions of possible activities to reduce the gap between the CIS and South-East European countries and other ECE member countries, the UNECE Statistical Division as a first step during 2007 conducted a thorough investigation of available short-term statistics in the CIS and South-East European countries.

Findings

For 17 CIS and South-East European countries the following short-term economic key indicators available from the websites of National Statistical Offices have been evaluated:

- Consumer Price Index (CPI)
- Producer Price Index (PPI)
- Index of Industrial Production (IIP)
- Retail Trade Turnover (RTT)
- Wages and Salaries (W&S)

For all of these indicators, there are a number of issues where further development and improvement is needed in order for the countries to be able to publish suitable and internationally comparable statistics. These are:

- Provision of seasonally adjusted series. Of the 17 countries examined only two publish seasonally adjusted series
- Provision of longer time series. Depending on the indicator between 4 and 14 countries publish long series, suitable for comparisons and analysis
- Provision of fixed base indices and absolute values. A handful of countries does not provide fixed based indices for consumer or producer prices or for industrial production.
- Provision of appropriate metadata. Depending on the indicator only few countries provide the adequate documentation essential for the interpretation and use of the data.

[1] The report is prepared by Artur Andrysiak and intern Chiara Radielli with support from Carsten Hansen and Vitalija Gaucaite.

- Provision of release calendars, revision policy and compilation and dissemination practices for PPI, RTT and W&S statistics in accordance with international manuals and standards.

Recommendations

On the basis of the findings of the investigation, the following recommendations should be considered:

- UNECE should produce seasonally adjusted short-term statistics for countries that do not publish such series and publish these in the UNECE Statistical Database, subject to consultations with the countries.
- UNECE should provide technical assistance and training to help CIS and South-East European countries to produce seasonally adjusted series, if possible in cooperation with national statistical offices with the required expertise, and/or other international organisations.
- UNECE should support dissemination of long time series and fixed base indices.
- UNECE should support the implementation of international standards and good practices on dissemination of metadata, advance release calendars and revision policies.
- UNECE should increase the amount of technical assistance and training sessions provided to the selected CIS and South-East European NSOs in order to reduce the gap between more advanced and less advanced NSOs.

Possible follow-up activities on the above mentioned recommendations are subject to the resource allocation in the Statistical Division.

Activities already initiated or proposed

At present three activities have been initiated or proposed:

Seasonal Adjustment Pilot Project initiated by the Statistical Division of UNECE and aimed at producing experimental seasonally adjusted short-term economic statistics. The project is aimed at selected CIS and South-East European countries (for more information see Annex III).

For a regional Training Workshop on Economic Statistics in Teheran, Iran, June 2008, jointly organized with the Statistical Institute for Asia and the Pacific, compilation of international comparable short-term statistics has been suggested an agenda item. The workshop is planned to take place with participants from the SPECA countries (Afghanistan, Azerbaijan, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan), Armenia, Georgia and Iran.

For the preparation of the 7th tranche of the UN Development Account a project on capacity building in short-term statistics in SPECA, Southern Caucasus and other CIS member countries is proposed. The purpose is to support countries to build up capacity for compilation of key short-term economic statistics according to international standards and methods. Activities may include organisation of regional workshops and provision of technical assistance.

1. Introduction

The National Statistical Offices (NSOs) of the **South-East European and Commonwealth of Independent States (SEE AND CIS) countries** have made significant progress in terms of international comparability and usability of their economic statistics. Since the fall of the Eastern Block, most of these countries moved from producing statistics designed for central planning system to producing statistics needed by market based economies. The report looks at the current statistics produced by the NSOs of:

- Armenia
- Azerbaijan
- Belarus
- Georgia
- Kazakhstan
- Kyrgyzstan
- Moldova
- Russian Federation
- Tajikistan
- Turkmenistan
- Ukraine
- Uzbekistan
- Albania
- Bosnia and Herzegovina
- Montenegro
- Serbia
- The former Yugoslav Republic of Macedonia

The paper has been written from the international user perspective and focuses on the monthly and/or quarterly:

- Consumer Price Index (CPI)
- Producer Price Index (PPI)
- Index of Industrial Production (IIP)
- Retail Trade Turnover (RTT)
- Wages and Salaries (W&S)

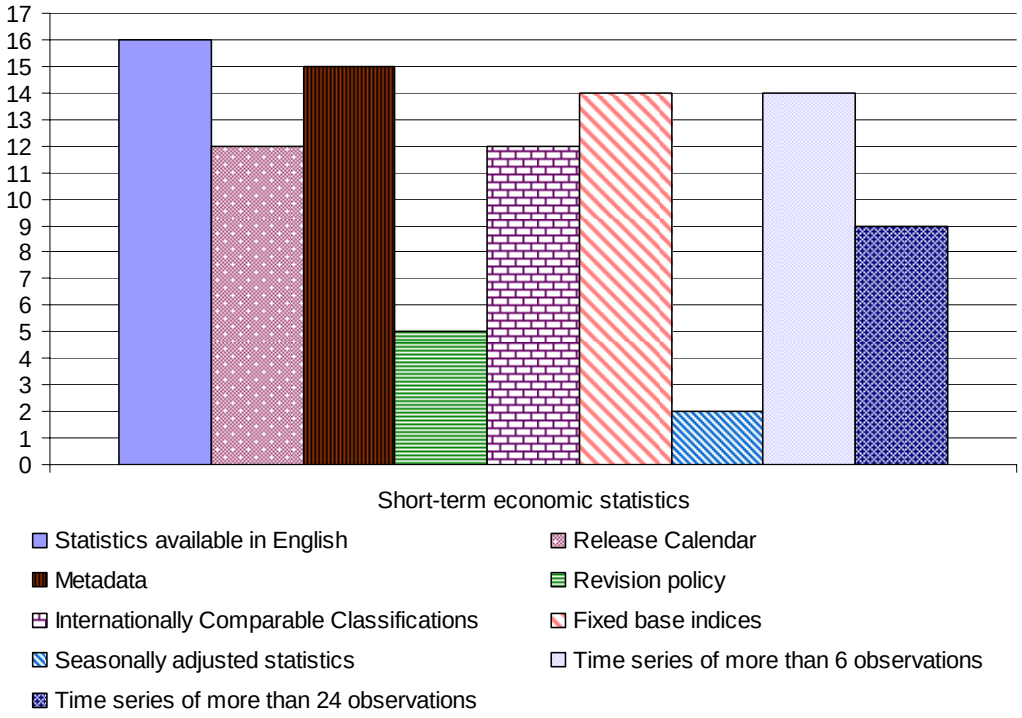
The paper looks at the short-term economic statistics available from the English version of the NSOs websites and assesses their suitability for international comparison and analysis. It identifies the areas that need further improvement and development, highlights the relevant international standards and good practices as well as points towards relevant manuals/guidelines and other relevant publications. It also briefly outlines the possible future role of UNECE Statistical Division in addressing some of the issues outlined in this paper. Finally, Annexes I and II of this document contain detailed reports on the current status of short-term economic statistics of SEE AND CIS countries. Annex III contains information about the Statistical Division's *Seasonal Adjustment Pilot Project.*

2. Current situation

Almost all SEE AND CIS countries continue to improve and modify their statistical systems to meet the demands of a market economy. The statistics produced by these countries are available from the websites and/or publications of the NSOs and/or Central Banks. In the case of each country we focused on the English version of the NSOs websites, as a substantial number of international users do not necessarily speak Russian or national language or have access to the hard copy publications. The detailed results of this investigation are presented in tabular form in Annex I and II. Graph I summarizes these results. Below is a list of the key findings.

- With the exception of Turkmenistan, all the remaining NSOs of the CIS countries have websites with English language interfaces. Turkmenistan has only a government website containing some statistical information.
- The information available from the websites varies greatly between the 17 countries.
- Only some NSOs publish monthly and quarterly statistics that are fully suitable for international comparison and analysis.
- Not all SEE AND CIS countries publish fixed base indices, long timeseries, methodological information, release calendars and revision policy.
- Only two countries publish seasonally adjusted estimates.
- There are significant methodological differences (as well as differences in collection and compilation practices) across the SEE AND CIS countries for PPI, RTT and W&S statistics.

Graph I. Overview of short-term economic statistics available from the websites of the SEE AND CIS NSOs



Below is a list of the key areas that need to be addressed in order to improve international comparability of the SEE AND CIS statistics.

2.1 Monthly/quarterly vs annual

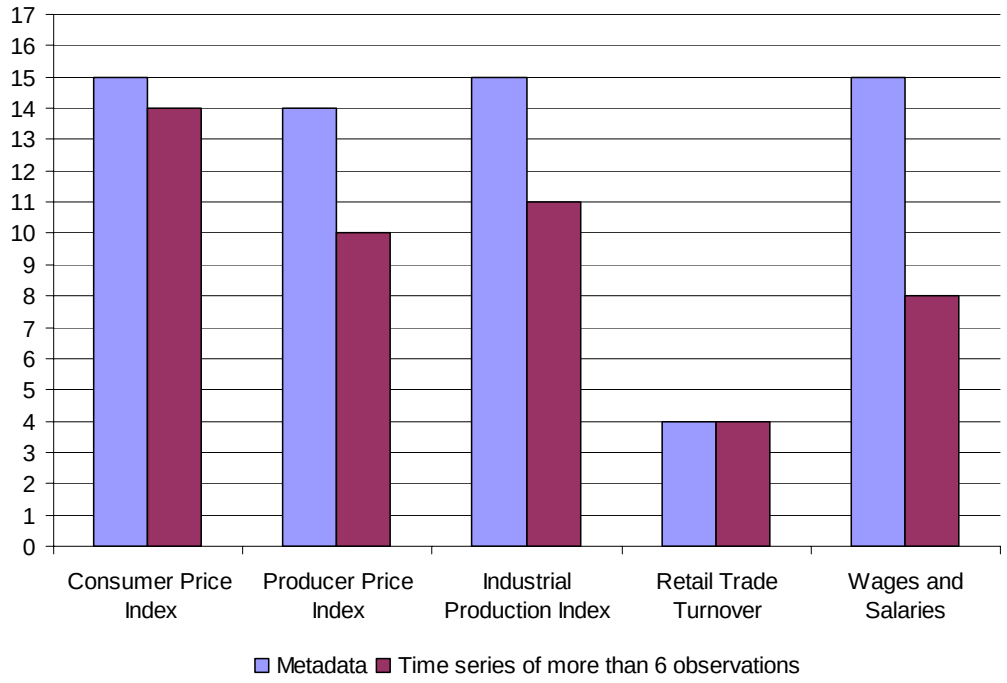
The main focus of this survey was the monthly/quarterly (sub-annual) CPI, PPI, IIP, RTT and W&S statistics. It is essential to stress that there are significant differences in the way SEE AND CIS countries publish their monthly/quarterly and annual statistics. Most of the observations below are only relevant to the sub-annual statistics.

In most instances the SEE AND CIS annual statistics are presented in a more user friendly and internationally comparable format. The majority of countries provide annual timeseries that are published as either fixed base indices or absolute values. The annual statistics are usually quite easy to access and are available from the Internet, the monthly/quarterly publications and from Yearbooks. Furthermore, the importance of seasonality in annual data is negligible and few countries in the world adjust their data for the number of working days. All of the above factors make the annual SEE AND CIS statistics more suitable for international comparison and analysis than the sub-annual statistics. However there is a significant international demand for comparable short-term statistics, hence the focus on the sub-annual statistics.

2.2 Timeseries

Timeseries are essential for any sort of economic analysis. In our assessment of the statistics available from the NSOs websites we looked at the availability of timeseries and their length. There has been some improvement in this area during the last year, nevertheless only 14 countries publish one or more timeseries of short-term economic statistics with 6 or more observations and only 9 countries publish timeseries with more then 24 observations. Graph II shows the number of countries that publish timeseries of 6 or more observation by indicator; of the 17 countries surveyed 14 countries publish timeseries of more than 6 observations of CPI, 10 of PPI, 11 of IPI, 4 of RTT and 8 of W&S. The remaining countries only publish the last 2 to 3 observations/movements. The countries that publish timeseries usually publish longer timeseries (more than 24 observations) of CPI, PPI and W&S statistics. Very few countries publish long timeseries of IIP and RTT statistics.

Graph II. Number of countries publishing metadata and timeseries of more then 6 observations



2.3 Revision policy/revisions

Closely related to the issue of long timeseries is revision policy and practices. NSOs which publish timeseries, snapshots or sets of observations should also ensure that where viable all appropriate revisions are implemented (methodological, survey results, correction of errors, changes to classifications, etc) to the historical data. In cases where NSOs publish individual snapshots for each month (the latest 2 or 3 observations) and maintain a database of these snapshots, efforts should be made to ensure that the snapshots contain all the relevant revisions. In particular NSOs should ensure that where appropriate the sub-annual statistics aggregate to the official annual statistics. In our assessment of the websites of the NSOs of SEE AND CIS countries we have found that very few countries attempt to maintain complete timeseries that include all the relevant revisions. Out of the 17 countries only 5 publish a revision policy on their websites. Some of the countries do not publish the revised historical statistics. The problem is particularly significant for countries which publish snapshots rather then complete timeseries. If a user attempts to construct a timeseries out of the available snapshots the constructed timeseries may or may not align with the official annual statistics.

2.4 Methodological information

International comparison of statistics relies on detailed methodological information that allows users to identify and understand (and sometimes adjust for) the differences between the same statistics published by different countries. Fifteen of the surveyed countries provide some methodological information in English (see Graph II). In our assessment we found that the countries that subscribe to IMF's SDDS[2] or GDDS[3] in general provide a much more comprehensive set of metadata (for the indicators required by the IMF) than the non-subscriber countries. In the majority of instances the IMF subscribers only provide links on the NSO's websites to the IMFs website which contains the metadata.

In our assessment of the methodological information available from the IMF's website for the selected countries we found that the SEE AND CIS subscribers to the SDDS in most instances provide more comprehensive metadata than the GDDS subscribers. In particular the information on methods, surveys samples and coverage as well as advance release information appears to be more comprehensive for the SDDS subscribers. However, very few countries provide methodological information for statistics not included in the SDDS/GDDS. As a result, there is very little metadata available for the RTT statistics.

The methodological information provided by the non IMF subscribers in most instances only contains general definitions and glossary. There is little information available about the methods of collection, compilation, survey sizes, coverage and other technical information essential for informed users.

2.5 Fixed base indices and absolute values

More than half of the SEE AND CIS countries continue to publish their statistics as year-to-date indices or values (11 publish year-to-date information about CPI, 10 about PPI, 9 about IPI, 6 about RTT and 4 about W&S). However, most of these countries also publish the same statistics as either fixed base indices, values for individual months or/and percentage change from the same month/quarter last year or/and percentage change from previous month/quarter.

2.5.1 Fixed base indices

There has been some progress made in terms of the availability of fixed base indices and absolute values in the SEE AND CIS countries. During the last year, the number of CIS countries publishing fixed base indices for CPI and PPI increased from 7 to 8. Overall out of the 17 SEE AND CIS countries surveyed in the current paper 13 published fixed base indices of CPI, 12 of PPI and 14 of IPI. The remaining countries publish the CPI, PPI and IIP statistics as:

- Percentage change from same month/quarter last year; or/and

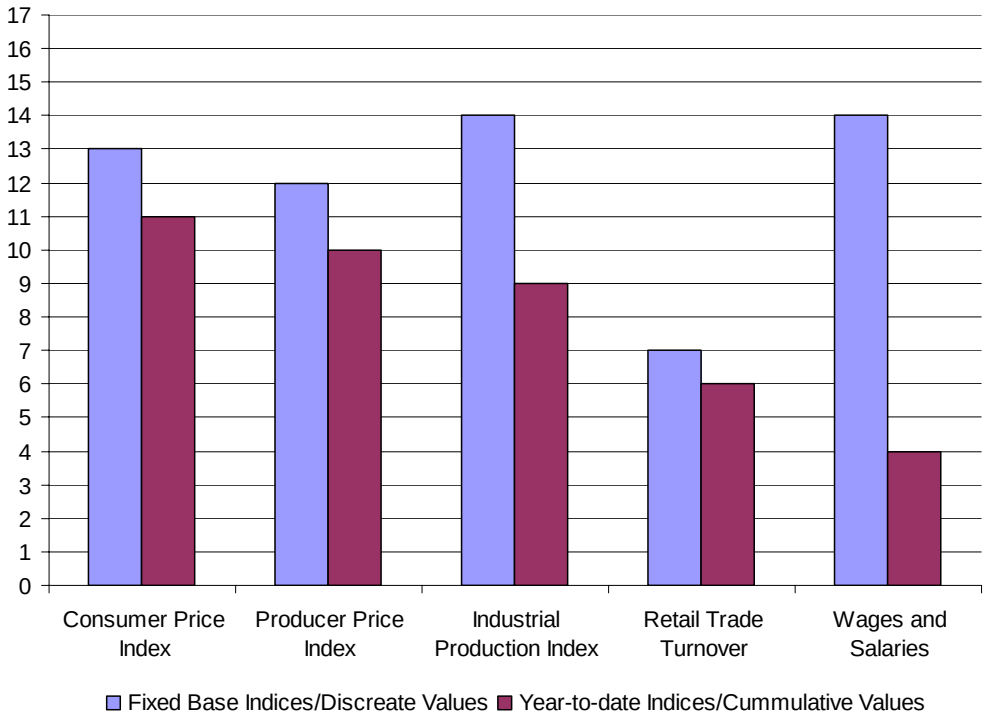
[2] Countries subscribing to SDDS: Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation and Ukraine.
[3] Countries subscribing to GDDS: Albania, Azerbaijan, Georgia, fYR of Macedonia and Tajikistan.

- Percentage change from previous month/quarter; or/and
- Year-to-date indices.

Graph III summarizes the individual country practices by indicator. Although it is relatively simple to derive fixed based indices using the "percentage change from same month/quarter last year" or "percentage change from previous month/quarter" this can only be done correctly if longer timeseries are available. Publishing just one value will not be of great use if the earlier observations have been revised. The revisions to the earlier observations will affect the overall quality of the series.

More importantly deriving fixed base indices from the year-to-date indices is not an advisable method of producing statistics and can only be done with some degree of reliability if longer timeseries are available (for all the other cumulative periods). Attempting to derive a fixed base index using previously reported values (which have been since revised) could produce misleading results.

Graph III. Number of countries publishing fixed base indices/absolute values and year-to-date indices/cumulative values



2.5.2 Value of the Retail Trade Turnover and Wages and Salaries

Contrary to general expectations, not all CIS countries publish the actual values of RTT and W&S for individual (discrete) months/quarters. Fourteen of the SEE AND CIS countries publish values of W&S for individual months/quarters, but only seven countries publish values of RTT for individual months/quarters. In a number of instances only year-to-date results are available.

2.6 Seasonally adjusted estimates

The Russian Federation and Georgia are the only two SEE AND CIS countries which publish on their websites any seasonally adjusted statistics (both countries publish only seasonally adjust IPI statistics). The remaining 15 countries do not publish any seasonally adjusted statistics and instead most of these NSOs publish only:

- Percentage change from same month/quarter last year; or/and
- Percentage change from same year-to-date period last year.

Although this sort of year on year analysis allows user to draw some valid conclusion without seasonally adjusting the estimates, it is important to recognize that the observations for the two years are still different in terms of seasonality and for some periods and series this sort of analysis can produce misleading results.

Current prices original data is not always suitable for international comparison and analysis. Seasonal factors (which can be affected by a country's location, climate, culture, religion, political and economical system, school holidays, etc) such as: seasonal influences, trading day influences and moving holiday influences, vary significantly from country to country. This means that although current prices original monthly/quarterly statistics are useful, for series where seasonality plays an important role (such as IIP and RTT), comparing seasonally unadjusted data from different countries can result in highly misleading results.

2.7 Release calendars and timeliness

The majority of the SEE AND CIS countries publish some information about the expected future release date of statistics. In our assessment we found that 12 out of the 17 SEE AND CIS countries publish some release calendars. As with the methodological information the countries which subscribe to IMF's SDDS or GDDS (to lesser degree) in general provide much more detailed information about the release dates for their statistics than the non-subscriber countries.

The majority of countries which publish the advance release calendars only publish the calendars for the upcoming quarter, in our assessment we have found only two countries which provide the advance release calendars for the upcoming year.

Providing users with information about the future release dates of statistics benefits both users and NSOs. Users can access the statistics as soon as they become available. Publishing release calendars also ensures that there is no (reduces the chances of) external interference with the release of statistics.

Although few countries publish advance calendars for more than a quarter, the majority of the SEE AND CIS countries have very clear guidelines stating the timeliness of their statistics and the expected release periods (stated in the form of number of days after the reference period). In our assessment of the timeliness of the statistics published by the NSO's of SEE AND CIS countries, we have found that SEE AND CIS countries often publish their statistics in a very timely manner (see Annex II). They usually take less time to release the statistics to the public than many western countries.

For CPI the timeliness ranges from the last working day of the reference period (Armenia) to 4 weeks after reference period (Russian Federation). For PPI (monthly) from the 3 days after the reference period (Kazakhstan) to 4 weeks after reference period (Russian Federation). For IPI (monthly) from 12 days after the reference period (Kazakhstan and Tajikistan) to 4 weeks after reference period (Russian Federation and the fYR of Macedonia). W&S (monthly) take the longest to be produced, with the timeliness ranging from the 20 days after the reference period (Armenia) to 45 days after reference period (Tajikistan and the fYR of Macedonia).

ESS did not attempt in anyway to measure the accuracy of statistics published by the SEE AND CIS countries and its correlation to the timeliness of statistics. It is up to the NSO's to best judge the balance between the timeliness and the accuracy of their statistics.

3.0 Overview by indicator

3.1 Consumer Price Index

The detailed review of CPI by country is presented in the Annex II Table 1. Below is a short overview of these results.

3.1.1 Availability of sub-annual statistics

With the exception of Turkmenistan (for whom it is difficult to locate any statistics) all the SEE AND CIS countries publish monthly CPI statistics. Uzbekistan does not publish CPI statistics for individual months and instead only provides cumulative CPI statistics.

3.1.2 Dissemination format and availability of timeseries

The dissemination format of CPI statistics varies greatly between the SEE AND CIS countries. As presented in Annex I, 14 SEE AND CIS countries publish CPI statistics as "% change from previous month/quarter", 13 as "fixed indices", 10 as "% change from same period last year" and 11 as "year-to-date" indices. With the exception of Turkmenistan and Uzbekistan, all countries present their CPI statistics using at least two or more above mentioned formats.

Fourteen of the SEE AND CIS countries provide on their websites CPI statistics for 6 or more most recent periods. Few countries publish longer timeseries of CPI statistics.

3.1.3 Classification

The majority of SEE AND CIS countries publish their CPI statistics using COICOP classification or national classifications that are harmonized with COICOP. Out of the SEE AND CIS countries for which Statistical Division was able to find the relevant methodological information Tajikistan (Commodity Glossary, a regional classification developed by the CIS Statistics Committee) was the only country which did not use COICOP harmonized classification.

3.1.4 Coverage/scope

The majority of countries (for which detailed methodological information is available) publish their CPI statistics using the data collected from major cities. Taking into consideration the size of the countries, Azerbaijan (54 cities and regions), Kazakhstan (45 urban and rural areas), Tajikistan (600 outlets in capital, big and small cities and rural areas) and Ukraine (140 administrative and territorial units) appeared to have the most comprehensive coverage, covering both urban and rural areas. Russian Federation produce their CPI statistics using information collected from 266 cities from across all the regions but when the size of the country is taken into account that appears to be in line with remaining NSOs which collect prices in urban areas only.

The number of commodities for which prices are measured varies greatly across the SEE AND CIS countries. Albania collects prices for the least number of commodities and services (262 items) with Moldova collecting prices for the most number of commodities and services (820 items). Although few countries provide details about the exact number of prices and tariffs collected each month, out of the countries which provide this technical information Kazakhstan has the larges number, collecting 1,400,000 prices and tariff each month.

The treatment of VAT, other taxes, subsidies and delivery costs is not always very clear from the methodological information provided. Some countries, for example consider the additional amounts for the delivery, others include the VAT but not other kinds of taxes (sales tax and indirect taxes).

3.1.5 Method

Out of 11 SEE AND CIS countries for which detailed methodological information is available 9 compile Laspeyres Indexes and 2 compile modified Laspeyres Indexes. Statistical Division was unable to locate the detailed methodological information for the remaining 6 SEE AND CIS countries.

3.1.6 Suggestions for further improvements

Out of all the statistics investigated in this paper, CPI statistics published by the SEE AND CIS countries appear to be the most internationally comparable. Most countries follow internationally accepted methods and use internationally harmonized classifications. As with most statistics there are some issues with the dissemination formats and lack of fixed base indices for a number of countries. However unlike the IPI, few countries produce seasonally adjusted CPI statistics, making the CPI statistics published by the SEE AND CIS mostly comparable. Minor differences remain with the geographical and population coverage and the coverage of goods and services (i.e. housing, social security and second-hand goods). The majority of countries only collect prices in urban areas (mostly large cities) but some countries also measure prices in rural areas. The differences in geographical coverage also exist within more developed countries making this a possible issue for future consideration of price experts.

3.2 Producer Price Index

The detailed review of PPI by country is presented in Annex II Table 2. Below is a short overview of these results.

3.2.1 Availability of sub-annual statistics

With the exception of Turkmenistan, Uzbekistan and Albania (quarterly only), the remaining SEE AND CIS countries publish monthly PPI statistics.

3.2.2 Dissemination format and availability of timeseries

The dissemination format of PPI statistics varies greatly between the SEE AND CIS countries. As presented in Annex I, 12 SEE AND CIS countries publish PPI statistics as “fixed indices”, 11 as “% change from previous month/quarter”, 11 as “% change from same period last year” and 10 as “year-to-date” indices.

Ten of the SEE AND CIS countries provide on their websites PPI statistics for 6 or more most recent periods. Few countries publish longer timeseries of PPI statistics.

3.2.3 Classification

Most SEE AND CIS countries publish their PPI statistics using NACE classification or national classifications that are harmonized with/based on NACE. Out of the 13 SEE AND CIS countries for which Statistical Division was able to find the relevant methodological information 9 publish their PPI statistics using NACE classification or national classifications that are harmonized with NACE. Armenia and Belarus use OKONh (developed by CISSTAT) whereas Bosnia and Herzegovina and Tajikistan use national classifications.

3.2.4 Industrial coverage

In most SEE AND CIS (for which Statistical Division was able to find the relevant methodological information) PPI covers the following NACE categories: C (Mining and quarrying), D (Manufacturing) and E (Electricity, gas and water supply). However some countries deviate from that definition, for example: Kyrgyzstan only covers 40% of industrial production (no more detail provided); Tajikistan does not mention mining; whereas Albania includes forestry and fishing. Furthermore the treatment of gas and water supply requires more investigation with a number of SEE AND CIS countries not specifying their inclusion: Armenia, Belarus, Moldova, Tajikistan and Albania (with the last three including gas but not specifying water).

3.2.5 Coverage/scope

The geographical coverage of PPI (for 13 SEE AND CIS countries of which detail methodological information was available) appears to be consistent across the countries, with the majority of countries covering their entire territories. On the other hand the business coverage appears to be less consistent, for example Tajikistan only surveys 100 enterprises representing 75-80% of total industrial production; Bosnia and Herzegovina - all businesses (in category C,D,E) with 4 or more employees and sales of more then 500,000KM; and Azerbaijan - 340 large enterprises and a survey of smaller enterprises representing 97% of total industrial production. Furthermore the percentage coverage of total industrial production ranges greatly across the countries from: 40% of total industrial production for Kyrgyzstan to 97% for Azerbaijan.

The number of commodities for which prices are measured varies greatly across the SEE AND CIS countries. Tajikistan collects prices for the least number of commodities and services (100 items) with Ukraine collecting prices for the most number of commodities and services (11,300 products). Although very few countries provide details about the exact number of prices and tariffs collected each month, out of the countries which provide this technical information Russian Federation has the largest number, collecting 25,000 price quotations each month.

3.2.6 Method

Out of 11 SEE AND CIS countries for which detailed methodological is available ten compile Laspeyres Indexes and 1 compiles modified Laspeyres Index. Statistical Division was unable to locate the detailed methodological information for the remaining 6 SEE AND CIS countries.

3.2.7 Suggestions for further improvements

The present situation shows a wide range of practices and methodologies used in compilation of PPI statistics across SEE AND CIS countries. Based on the limited technical information available it is clear that there are some fundamental differences in terms of industries, businesses and commodities covered by the surveys, percentage coverage of total industrial production and classifications used. Although some of these factors depend on the economic development of the country (with smaller businesses possibly playing a more significant role in well developed market based economies than in less developed economies), these differences mean that in a number of instances the PPI are not fully comparable across the SEE AND CIS region let alone across the UNECE region. Due to these significant differences it is evident that in a number of instances the PPI measures different things across different countries. This implies that there is a need for better standardization of PPI across the region, with a focus on use of internationally harmonized classifications and more standardized industries, businesses and commodities coverage.

3.3 Industrial Production Index

The detailed review of IPI by country is presented in Annex II Table 3. Below is a short overview of these results.

3.3.1 Availability of sub-annual statistics

With the exception of Turkmenistan, Georgia (quarterly only), Uzbekistan (cumulative only) and Albania (quarterly only), the remaining SEE AND CIS countries publish monthly IPI statistics.

3.3.2 Dissemination format and availability of timeseries

The dissemination format of IPI statistics varies greatly between the SEE AND CIS countries. As presented in Annex I, 14 SEE AND CIS countries publish IPI statistics as "fixed indices", 8 as "% change from previous month/quarter", 11 as "% change from same period last year" and 9 as "year-to-date" indices.

Eleven of the SEE AND CIS countries provide on their websites IPI statistics for 6 or more most recent periods. Few countries publish longer timeseries of IPI statistics.

3.3.3 Classification

Most of SEE AND CIS countries publish their IPI statistics using NACE classification or national classifications that are harmonized with/based on NACE. Out of the 14 SEE AND CIS countries for which Statistical Division was able to find the relevant methodological information 12 publish their IPI statistics using NACE classification or national classifications that are harmonized with NACE. Belarus uses OKONh (developed by CISSTAT) and Tajikistan uses SICNE (Soviet Industrial Classification of National Economy).

3.3.4 Industrial coverage

In almost all of the SEE AND CIS, for which Statistical Division was able to find the relevant methodological information, IPI covers the following NACE categories: C (Mining and quarrying), D (Manufacturing) and E (Electricity, gas and water supply).

3.3.5 Coverage/scope

The technical information about the coverage of IPI statistics differs across the SEE AND CIS countries. Some define the coverage of IPI statistics from the output perspective referring to the % of the total industrial production covered, others from the scope of the survey perspective specifying the number or characteristics of businesses covered. In the first case the coverage of IPI statistics ranges from 75% of total manufacturing for Belarus to 95% of total for Russian Federation. In the second case the scope of the survey ranges from 10% of all enterprises for Tajikistan to 200,000 large, medium and small enterprises for Russian Federation.

3.3.6 Method

Out of 11 SEE AND CIS countries for which detailed methodological information was located 7 compiled Laspeyres Indexes, 2 compile Paashe Indexes, 1 Modified Laspeyres Index and 1 physical index. Statistical Division was unable to locate the detailed methodological information for the remaining 6 SEE AND CIS countries.

3.3.7 Seasonally adjusted estimates

As mentioned previously Russian Federation and Georgia are the only two SEE AND CIS countries which publish on their websites seasonally adjusted IPI statistics. The remaining 15 countries do not publish any seasonally adjusted Series.

3.3.8 Suggestions for further improvements

The main areas of concern which impact on the reduced international comparability of IPI statistics produced by SEE AND CIS countries are: publication of long timeseries, fixed base indices and seasonally adjusted estimates. In addition the survey coverage varies greatly across the SEE AND CIS countries. Although like with PPI this is due to differences in economic system, nevertheless there is a need for standardization of IPI across the region, with focus on more standardized businesses coverage. Finally, UN Statistical Division is in the process of producing International Recommendations for Industrial Statistics.

3.4 Wages and salaries

The detailed review of W&S by country is presented in Annex II Table 4. Below is a short overview of these results.

3.4.1 Availability of sub-annual statistics

With the exception of Turkmenistan, Georgia (quarterly only), Kyrgyzstan (quarterly only), Uzbekistan (annual only) and Albania (quarterly only), the remaining SEE AND CIS countries publish monthly W&S statistics.

3.4.2 Dissemination format and availability of timeseries

The dissemination format of W&S statistics varies between SEE AND CIS countries. As presented in Annex I, 14 SEE AND CIS countries publish W&S statistics as “monthly/quarterly value”, 5 as “% change from previous month/quarter”, 6 as “% change from same period last year” and 4 as “year-to-date” values.

Eight of the SEE AND CIS countries provide on their websites W&S statistics for 6 or more most recent periods. Few countries publish longer timeseries of W&S statistics.

3.4.3 Classification

Most SEE AND CIS countries publish their W&S statistics using NACE classification or national classifications that are harmonized with/based on NACE. Out of the 12 SEE AND CIS countries for which Statistical Division was able to find the relevant methodological information 8 publish their W&S statistics using NACE classification or national classifications that are harmonized with NACE. The remaining four countries: Belarus, Tajikistan, Bosnia and Herzegovina and Montenegro publish W&S statistics using national or other classifications.

3.4.4 Coverage

The coverage of W&S differs across the SEE AND CIS countries. Out of 13 countries for which Statistical Division was able to find the relevant methodological information, in 10 instances W&S cover all economic activities (based on the limited information available), in 2 instances W&S cover all industrial activities and in one case W&S cover only public sector.

3.4.5 Definition

The exact definition of W&S varies across the SEE AND CIS countries. Some countries calculate the value taking into accounts both wages and earnings, while some provide separate data for the two categories. When looking at the definitions provided by the countries, it is almost impossible to find two similar definitions (some countries include part-time employed, while others do not; some take account of bonus and annual holidays). Finally, a number of countries publish both gross and net W&S, with the remaining countries publishing either gross or net W&S.

3.4.7 Suggestions for further improvements

The biggest and most fundamental problem with W&S is the lack of common definition and measurement. Across the SEE AND CIS countries the definitions and coverage of W&S (full time employed, all, bonuses, holidays, etc) differ significantly. The problem is even greater at the global level where different countries use totally different indicators. More developed economies tend to use “hourly earnings” as the key indicator of pay/earnings, a few countries publish “weekly earnings”, some also publish “annual W&S” whereas most of the developing economies in the UNECE region (including SEE AND CIS countries) publish “average monthly W&S“. This in turn means that unlike CPI, PPI or IPI there is no single globally accepted measure of wages and salaries/pay/earnings. There is an urgent need for harmonization of this area of statistics at the global level so that at the very least one single measurement/indicator is published by all/most countries in the world.

3.5. Retail trade turnover

RTT is not a part of the IMF SDDS/GDDS requirements. As a result very little detailed metadata (including technical details) are available.

3.5.1 Availability of sub-annual statistics

Ten out of 17 SEE AND CIS countries publish some sub-annual RTT statistics.

3.5.2 Dissemination format and availability of timeseries

Of the 10 SEE AND CIS countries which publish any sub-annual RTT statistics, 7 publish “monthly/quarterly values” and 6 publish “year-to-date values”. In addition some countries provide “% change from previous period”.

Where monthly RTT information is available, it usually only goes back to 2006.

3.5.3 Suggestions for further improvements

The key problem with the RTT statistics is poor availability of RTT statistics from NSOs websites (due to RTT not being compiled or published). Furthermore, as with most of the statistics evaluated in this paper there is a need for improved publication standards (longer timeseries, provision of monthly/quarterly values) as well as a desperate need for more detailed methodological information.

4. Generally accepted good practices and international standards

In the compilation and publication of official statistics, countries should follow international standards and good practices. International manuals, guidelines and information about good practices are available for most areas of statistics.

The ninth principle of *The Fundamental Principles of Official Statistics in the Region of the Economic Commission for Europe* by UNECE clearly states:

“The use by statistical agencies in each country of international concepts, classifications and methods promotes the consistency and efficiency of statistical systems at all official levels.”

In this part we look at the relevant international standards and good practices that should be applied more uniformly.

4.1 Monthly/Quarterly vs Annual

The major mission of a short-term indicator (monthly/quarterly) is to give early and correct identification of change in the current trend. Thus, short-term indicators are

typically made available shortly after the end of the period. In addition to being important for the identification of turning points in the economy, short-term indicators are also valuable in timeseries analysis and econometric modelling. Despite the fact that short-term statistics are in general less comprehensive than annual or less frequent data, nevertheless, the indicators are an essential input for timely economic analysis and policy formulations. (World Bank, 2006). From the international user perspective, high frequency statistics are essential for identifying global/regional trends and turning points.

4.2.1 Reference period

There are no strict international standards about the reference periods with which statistics should be published.

Some publications such as the European Commission's *Methodology of Short-Term Business Statistics* specifies the required reference periods for some short-term statistics.

Recommendations (Regulations for EU members) of the European Commission

Indicator	HICP	PPI	IIP	RTT	W&S
Frequency	Monthly*	Monthly	Monthly	Monthly	At least quarterly

*Not covered in the *Methodology of Short-Term Business Statistics*, but required in EU Council Regulation (EC) No. 2494/95.

IMF's *Guide to the Data Dissemination Standards* specifies the following reference periods for the subscriber countries.

IMF's recommendations for the subscriber countries

Indicator	CPI	PPI	IIP	RTT	W&S
Frequency	Monthly	Monthly	Monthly or as relevant		Quarterly

As mentioned previously not all SEE AND CIS countries publish/compile sub-annual CPI, PPI, IIP, RTT and W&S statistics. Resources should be allocated to follow the recommendations of the international guidelines and other relevant manuals.

4.2.2 Timeliness

Similarly as with the reference period there are no strict international standards covering timeliness of statistics. Practices vary greatly between different countries. NSOs have to ensure that short-terms statistics are published in a timely manner but at the same time are of sufficient quality.

The European Commission's *Methodology of Short-Term Business Statistics* specifies the required deadlines for data transmission, which could be used by non-EU members as an indicator of timeliness.

Recommendations (Regulations for EU members) of the European Commission

Indicator	HICP	PPI	IIP	RTT	W&S
Deadlines for transmission after end of reference period	30 days*	1 month and 5 calendar days	1 month and 15 calendar days	2 months	3 months

*Not covered in the *Methodology of Short-Term Business Statistics*, but required in EU Council Regulation (EC) No. 2494/95.

IMF's *Guide to the Data Dissemination Standards* specifies to following required deadlines for data transmission for the subscriber countries.

IMF's recommendations for the subscriber countries

Indicator	CPI	PPI	IIP	RTT	W&S
Deadlines for transmission after end of reference period	1 month	1 month	6 weeks (1 month recommended) or as relevant		1 Quarter

4.3 Timeseries

Reliable, long timeseries of short-term business statistics are essential for international comparison, analysis and appraisal of business cycles in both a historical perspective and for forecasting purposes. Current practices vary significantly between different countries and indicators. There are currently no strict international standards about the length of timeseries, methods for back-casting, linking and implementing changes to classifications.

The European Commission's *Methodology of Short-Term Business Statistics* stresses the importance of long timeseries for short-term statistics and provides a number of reasons why long timeseries are so important:

"To carry out statistical analysis such as seasonal adjustment it is generally considered necessary to have observations for a minimum of 5 years. The same is true for the correction of working days, insofar as regressions are used. Moreover, the use of timeseries (raw or adjusted) is delicate or even impossible if the series are too short. This concerns both the econometric aspects (stability and quality tests of the forecast are very relative on short series) and the direct use of the series for economic analysis, for example, in the search for turning points it is important to be able to have data available for several complete cycles."

The issue of timeseries is particularly relevant to SEE AND CIS countries; few countries publish long timeseries of all their statistics. In the case of CPI, PPI and W&S just over half of the countries had timeseries of more than 24 observations. SEE AND CIS countries should address this issue as soon as possible and ensure that at the very least they publish 5 years timeseries but resources and data permitting they should make an effort to publish monthly and quarterly statistics back to mid to late 1990s.

4.4 Methodological information

Comprehensive and accurate metadata is essential for any international comparison and analysis of statistics. According to the UN *Guidelines for Statistical Metadata on the Internet*, metadata should assist the user in searching for statistical information, interpreting its content and, after downloading from the Internet, they should help in the post-processing statistical applications. Countries should ensure that they have:

- *Metadata assisting search and navigation, which provides general information about the statistical web-site.*
- *Metadata assisting interpretation. The requirements for metadata depend very much on the subject area and target user groups. A driving force for the minimum metadata set formulated in this group is that as much information as necessary should be made available to ensure a correct interpretation and to avoid misuse.*
- *Metadata assisting post-processing should be included when the user intends to use the information from the Internet for further statistical applications.*

Furthermore countries should ensure that they follow UN *Terminology on Statistical Metadata*, to ensure that the published information uses internationally accepted terminology.

In addition to the guidelines produced by UN the OECD's *Data and Metadata Reporting and Presentation Handbook* provides an excellent overview on what should the metadata cover and how it should be published.

4.5 Fixed base indices and statistics for individual months/quarters

A number of statistical manuals for specific areas of statistics (such as CPI and PPI manuals) talk in great detail about compilation and presentation of statistics. There are some areas of statistics where providers can choose between publishing indices or absolute values. The OECD's *Data and Metadata Reporting and Presentation Handbook* provides an excellent overview of how statistics should be published.

The European Commission's *Methodology of Short-Term Business Statistics* states that only production and prices indicators have to be provided in the form of fixed base indices and building permits in absolute values, the remaining short-term business statistics can be provided as either fixed base indices or absolute values.

However, according to international guidelines and good practices countries should be publishing either fixed base indices or/and absolute values for discrete periods. It is not an acceptable practice for countries to only publish the movements between the periods.

If contrary to best practices countries continue to only publish movements or cumulative statistics they should ensure that they provide a reasonable timeseries of period-to-period rate of change. In its web based *Statistical Manual*, the World Bank provides a justification why period-to-period changes in absolute data are most suitable for some types of economic analysis.

"For early identification of turning points in the economy, data over discrete periods (weeks, months or quarters) rather than cumulative data are required. Period-to-period changes in discrete data give the earliest identification of turning points, while year-to-year changes identify turning points on average to periods later, and year-to-year changes on cumulative data even later." (World Bank, 2006)

Table 1: Quarterly GDP at constant prices (World Bank, 2006)

			Rates of change		
	Discrete data	Cumulative data	Period-to-period	Year-to-year (discrete)	Year-to-year (cumulative)
q1 1990	1537.9	1537.9			
q2 1990	1530.2	3068.1	-0.5%		
q3 1990	1522.6	4590.7	-0.5%		
q4 1990	1515.0	6105.7	-0.5%		
q1 1991	1507.5	1507.5	-0.5%	-2.0%	-2.0%
q2 1991	1500.0	3007.5	-0.5%	-2.0%	-2.0%
q3 1991	1470.0	4477.5	-2.0%	-3.5%	-2.5%
q4 1991	1440.0	5917.5	-2.0%	-5.0%	-3.1%
q1 1992	1350.0	1350.0	-6.3%	-10.4%	-10.4%
q2 1992	1395.0	2745.0	**3.3%**	-7.0%	-8.7%
q3 1992	1425.0	4170.0	2.2%	-3.1%	-6.9%
q4 1992	1575.0	5745.0	10.5%	**9.4%**	-2.9%
q1 1993	1605.0	1605.0	1.9%	18.9%	**18.9%**
q2 1993	1590.0	3195.0	-0.9%	14.0%	16.4%
q3 1993	1575.0	4770.0	-0.9%	10.5%	14.4%
q4 1993	1500.0	6270.0	-4.8%	-4.8%	9.1%
q1 1994	1500.0	1500.0	0.0%	-6.5%	-6.5%
q2 1994	1515.0	3015.0	1.0%	-4.7%	-5.6%
q3 1994	1530.0	4545.0	1.0%	-2.9%	-4.7%
q4 1994	1545.0	6090.0	1.0%	3.0%	-2.9%

The table illustrates that looking at period-to-period changes the upturn of the economy is detected in the second quarter of 1992. Year-to-year changes, on the other hand, identifies the turn in the forth quarter of 1992, and cumulative data not before the first quarter of 1994.

Annex I clearly shows the wide range of formats in which SEE AND CIS statistics are presented. Due to IMF SDDS requirements countries that report to the IMF have to produce fixed base indices and absolute values for discrete periods. However not all countries publish these statistics on their websites. It is essential that countries publish fixed base indices and/or absolute values for discrete periods on their websites and other measures are only published as complementary information.

4.5.1 Year-to-date statistics

Publishing year-to-date indices or movements comparing year-to-date results is a legitimate way of presenting statistics. It allows for analysis of the corresponding periods. It permits users to draw some conclusions (without having to seasonally adjust the estimates) about performance this year as compared with same period in previous year/s. However some important points should be noted:

- Year-to-date indices or movements comparing year-to-date result with same period previous year can not be used as substitutes for fixed base indices or values for individual months/quarters. They should only be provided as additional information complementing fixed base indices and values for individual months/quarters statistics.
- Comparing year-to-date results with same period previous year allow users to draw some valid conclusions without seasonally adjusting the statistics. However it should be recognised that in terms of seasonality there are still significant differences between the two periods.
- Year-to-date indices or movements comparing year-to-date result with same period previous year should not be used to derive the fixed base indices and values for individual months/quarters statistics unless complete and up-to-date timeseries are available.
- Year-to-date statistics are not suitable for international comparison and analysis.

4.6 Seasonally adjusted estimates

Bell and Hillmer (1984) suggested that seasonal adjustment has three main purposes:

- To aid in short term forecasting;
- To aid in relating timeseries to other series or extreme events;
- To allow series to be compared from month to month.

From the international user perspective in addition to the three points identified above, seasonal adjustment is also essential to allow statistics from different countries to be compared.

During the last two years significant progress has been made in terms of availability of international manuals and guidelines for Seasonal Adjustment. In the past most of the information was available from US Census Bureau and Bank of Spain and some fragmented information from Eurostat, European Central Bank as well as NSOs and CBs. The information available ranged from technical information intended for experts (US Census Bureau and Bank of Spain) to training manuals and methodological papers describing individual country practices. However there was no International Guidelines tailored to the needs of the NSOs. This has been recently addressed with two handbooks:

- *Seasonal Adjustment Methods and Practices* – released in 2007 and produced by the Hungarian Central Statistical Office in cooperation with other NSOs;
- *Manual on Seasonal Adjustment* – to be released by Eurostat sometime in 2008.

Both documents are intended for NSOs and offer detailed information suitable for both SA experts and more importantly statisticians.

Currently only two SEE AND CIS countries publish seasonally adjusted short-term business statistics. Most countries in this region see year-to-year (compared to same period last year) as a simple solution to get around the seasonal patterns. However according to the World Bank (see Table 1), this technique has the disadvantage that turning points are detected with some delay only. Furthermore, annual rates of change do

not exclude seasonal elements like moving holidays (e.g., Easter might fall in the first or second quarter) and the differing number of working days within a period. Therefore, year-to-year rates of change are not necessarily adequate for business-cycle analysis.

Although it is possible for the international organizations to seasonally adjust the original data published by the NSOs (given sufficiently long timeseries) nevertheless where appropriate countries should try to publish seasonally adjusted estimates as they posses a better understanding of their data.

4.7 Advance release information

There are no strict international guidelines on the release calendars and no detailed international requirements for NSOs to publish advance release information on their websites.

IMF requires the countries that subscribe to the SDDS (but not GDDS) to provide details about their advance release information.

As mentioned previously providing users with information about the future release dates of statistics benefits both users and NSOs. Users can access the statistics as soon as they become available. Publishing release calendars also ensures that there is less (reduces the chances of) external interference with the release of statistics. Providing users with a release calendars for major economic indicator (at least one year in advance) makes it easier to resist possible external pressure or interference.

5. Generally accepted good practices, international standards and manuals by Indicator

International manuals and other relevant documents provide comprehensive methodological information which can be used by the NSOs to ensure that the statistics they publish are collected, compiled and disseminated in accordance with good international practices and standards. As stated in the ninth principle of The Fundamental Principles of Official Statistics in the Region of the Economic Commission for Europe countries should where possible follow these reference materials.

Below is a short overview of the key international manuals for each of the 5 indicators overviewed in this paper.

5.1 Consumer Price Index

The key international manual for the CPI is the *Consumer Price Index Manual, Theory and Practice*. The electronic version of this manual is currently available from the ILO website [http://www.ilo.org/public/english/bureau/stat/guides/cpi/index.htm]. The Russian language version of this manual is available from the IMF website [http://www.imf.org/external/pubs/ft/cpi/manual/2004/rus/cpi_ru.pdf

All countries should ensure that their CPI statistics are collected, compiled and disseminated in accordance with the CPI manual.

5.2 Producer Price Index

The key international manual for the PPI is the *Producer Price Index Manual, Theory and Practice*. The electronic version of this manual is currently available from the IMF website [http://www.imf.org/external/np/sta/tegppi/index.htm].

All countries should ensure that their PPI statistics are collected, compiled and disseminated in accordance with the PPI manual.

5.3 Index of Industrial Production

The existing manual for the IIP – *Index Numbers of Industrial Production* dates back to 1950 and is probably out of date. The UN Statistical Division is currently in the process of producing the revised version of this manual. The new manual should be published sometimes during 2008. In addition to the revised manual on *Index Numbers of Industrial Production*, UN Statistical Division will publish in 2008 *International Recommendations for Industrial Statistics.* Although this publication is intended for compilation of annual statistics, nevertheless some of the information contained in it, might be useful for compilers of the IPI.

In absence of an international manual on the IPI the European Commission's *Methodology of Short-Term Business Statistics* could be used as an alternative to the UN approved manual. It provides a comprehensive set of methodological information on IPI, from the basic definition through detailed information on how to collect, compile and disseminate the IPI statistics.

5.4 Retail Trade Turnover

The key international manual for the RTT is the *International Recommendations for Distributive Trade Statistics 2008 (currently being finalized)*. The electronic version of this manual is currently available from the UN website: [http://unstats.un.org/unsd/distributive_trade/distributive_trade_draft_documents.htm].

During 2008 UN Statistical Division is also planning to produce two follow up publications providing practical guidance on compilation of distributive trade statistics, including description of good practices:

- Distributive Trade Statistics: Compilers Manual
- Indices of Distributive Trade: A Handbook of Good Practices

UNSD will develop a database which will store and disseminate data and metadata on distributive trade statistics in accordance with the IRDTS.

5.5 Wages and Salaries

There is no international manual dealing specifically with the W&S. Unlike the previous four indicators the situation with W&S is much more complicated. Different countries around the world use different measures of wages and salaries. The OECD statistical glossary provides 2 different definitions for wages and salaries. The only document

currently available that attempts to deal with this area of statistics on the global scale is the *Resolution concerning an integrated system of wages statistics, adopted by the Twelfth International Conference of Labour Statisticians*, ILO, 1973.

The poor state of wages and salaries statistics should be to some degree addressed by the upcoming *International Recommendations for Industrial Statistics,* which provides clear guidelines on how to collect, compile and disseminate the annual W&S statistics. Nevertheless there remains a need for an internationally accepted manual for W&S statistics.

6. The role of the UNECE Statistical Division

Based on the presented information we believe that there are a number of possible areas where Statistical Division can play a significant role.

6.1 Seasonally adjusting SEE AND CIS statistics and publishing them on the UNECE Statistical Database

Based on experience with other countries moving towards seasonally adjusting their statistics, we believe that it might take some time before the remaining SEE AND CIS's NSOs decide to publish seasonally adjusted statistics. As a result Statistical Division initiated the previously mentioned *Seasonal Adjustment Pilot Project*. The project is currently is in its final stages and will hopeful address this issue to some degree. We believe that until the SEE AND CIS countries begin publishing seasonally adjusted statistics, Statistical Division could attempt to produce and publish such statistics in the UNECE Statistical Database.

6.2 Providing technical advice and training to help SEE AND CIS countries producing seasonally adjusted estimates

One of the key areas of concern is unavailability of seasonally adjusted short-term statistics from SEE AND CIS countries. As outlined in this paper, only two NSOs of the SEE AND CIS countries publish seasonally adjusted statistics. To address this issue Statistical Division has initiated the *Seasonal Adjustment Pilot Project* (see Annex 3) involving producing experimental seasonally adjusted IPI statistics for the SEE AND CIS countries. Using the experience obtained during the pilot project Statistical Division could provide technical advice and training to help SEE AND CIS countries with producing seasonally adjusted statistics.

6.3 Provide technical assistance and training to selected SEE AND CIS NSOs

The investigation has highlighted significant gaps between the more advanced NSOs and less advanced NSOs in the SEE AND CIS region. UNECE should provide technical assistance and training to the less advanced NSOs. Particular attentions should be given to Montenegro, Moldova and political conditions permitting Uzbekistan and

Turkmenistan. All four countries appear to be lagging in terms of the development of their statistical systems and the statistics they provided to the general public.

6.4 Supporting the SEE AND CIS countries in adopting good international practices

We believe that Statistical Division could support the relevant NSOs in adopting international good practices in the following areas by providing relevant training and technical advice:

- Provision of longer time series
- Provision of fixed base indices
- Provision of metadata and methodological information

6.5 Supporting the SEE AND CIS countries in adopting international standards

We believe that Statistical Division could play a key role in the promotion of international standards, manuals and guidelines and assisting the SEE AND CIS countries in implementing the related changes. Statistical Division could play an active role in harmonization of the collection, compilation and dissemination practices across the SEE AND CIS countries, with focus on the PPI, RTT and W&S statistics. This would also include support of implementation of international standards on dissemination of metadata, advance release calendars and revision policies.

6. References

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Appendix I - Monthly and Quarterly Short-term statistics available from the websites (English version) of the NSOs of SEECIS countries (results collected on 20/07/07)

		Consumer Price Index						Producer Price Index						Industrial Production Index						Retail Trade Turnover								Wages and Salaries									
Country	Internet addresses WWW.	Fixed Base Index	% change from same month/quarter last year	month/quarter /December last year =100	Year-to-date Indices	Metadata	Time series of more than 6 observations	Fixed Base Index	% change from same month/quarter last year	month/quarter /December last year =100	Year-to-date Indices	Metadata	Time series of more than 6 observations	Fixed Base Index	% change from same month/quarter last year	month/quarter /December last year =100	Year-to-date Indices	Seasonally Adjusted	Metadata	Time series of more than 6 observations	Monthly/Quarterly Value	Fixed Base Index	% change from same month/quarter last year	month/quarter /December last year =100	Year-to-date Value (Cumulative)	Seasonally Adjusted	Metadata	Time series of more than 6 observations	Monthly/Quarterly Value	% change from same month/quarter last year	month/quarter /December last year =100	Year-to-date Value (Cumulative)	Seasonally Adjusted	Metadata	Time series of more than 6 observations	National Summary Data Page	Time series of more than 24 observations
Armenia	armstat.am	Y	Y	Y	Y	Y[1]		Y	Y	Y	Y	Y[1]		Y	Y			Y	Y[1]		Y		Y			Y			Y	Y	Y	Y			Y	
Azerbaijan	azstat.org	Y		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y		Y			Y[1]		Annual only								Y		Y			Y	Y		Y
Belarus	belstat.gov.by	Y	Y	Y	Y	Y[1]	Y	Y	Y	Y	Y	Y[1]	Y	Y	Y	Y	Y		Y[1]	Y	Y				Y				Y	Y	Y			Y[1]	Y	Y	Y
Georgia	statistics.ge		Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y			Y*	Y	Y	Y	Annual only								Y*					Y			Y
Kazakhstan	stat.kz	Y	Y	Y	Y	Y[1]		Y	Y	Y	Y	Y[1]		Y	Y	Y	Y		Y[1]						Y				Y	Y	Y			Y[1]	Y		
Kyrgyzstan	stat.kg	Y		Y		Y[1]	Y	Y		Y		Y[1]	Y	Y	Y				Y[1]	Y									Y					Y[1]	Y	Y	Y
Moldova	statistica.md	Y		Y	Y	Y[1]	Y	Y			Y	Y[1]			Y		Y		Y[1]						Y							Y		Y[1]		Y	Y
Federation	fsgs.ru	Y	Y	Y		Y	Y	Y	Y	Y		Y		Y	Y	Y		Y	Y	Y	Y						Y		Y					Y	Y[3]		
Tajikistan	stat.tj		Y	Y	Y	Y[2]	Y		Y	Y		Y[2]	Y	Y	Y				Y[2]	Y	Annual only								Y					Y[2]	Y		Y
Turkmenistan	turkmenistan.gov.tm																																					
Ukraine	ukrstat.gov.ua	Y	Y	Y	Y	Y[1]	Y	Y	Y	Y	Y	Y[1]	Y	Y	Y	Y	Y		Y[1]	Y	Y		Y	Y	Y				Y					Y[1]	Y	Y	Y
Uzbekistan	stat.uz				Y		Y				Y		Y				Y			Y				Y			Y	Annual only								
Albania	instat.gov.al	Y				Y	Y	Y				Y		Y					Y										Y					Y	Y		
Bosnia and Herzegovina	fzs.ba	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y		Y	Y	Y						Y	Y	Y			Y	Y	Y	Y	
Macedonia	stat.gov.mk	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y						Y	Y	Y	Y			Y	Y	Y	Y
Serbia	webrzs.statserb.sr.gov.yu	Y		Y		Y	Y	Y				Y	Y	Y	Y				Y	Y	Y	Y		Y			Y	Y	Y	Y			Y	Y		Y
Montenegro	monstat.cg.yu	Y	Y	Y	Y	Y	Y							Y	Y	Y			Y	Y									Y	Y	Y	Y		Y	Y		
Total "Yes" responses		13	10	14	11	15	14	12	10	11	10	14	10	14	11	8	9	2	15	11	7	1	2	2	6	0	4	4	14	6	5	4	0	15	8	10	9
Number of countries surveyed		17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17

[1] Methodological information not available from the NSO's website but note pointing to the IMF's SDDS published

[2] Available from IMF's GDDS

[3] National Summary Data Page Hosted on the Site of Ministry of Finance not the NSO's

4 Available from a downloadable publication

Appendix II Table 1 Consumer Price Index

Country	Internet addresses WWW.	No of commodities covered	Classification	Coverage	Method	Periodicity	Timeliness	Seasonal Adjustment	Advance release calendar	Methodological information	Fixed base Indices
Armenia	armstat.am	470 commodities (560 representatives)	National classification which corresponds to COICOP	all types of households. 11 large population centers plus capital	Laspeyres index	monthly	last working day of the reference	No	Yes	IMF	Yes
Azerbaijan	azstat.org	585 goods and services (108492 price quotations)	National classification which corresponds to COICOP	54 cities and regions. capital, large cities and regions of the country	modified Laspeyres index	monthly	within 3 days after reference day	No		IMF	Yes
Belarus	belstat.gov.by	408 goods and services (45,000)prices and tariffs)	Classification of Individual Consumptions by Purpose (conforms with international classifications)	Only urban households are included	modified Laspeyres index	monthly	12 days after reference day	No	Yes	IMF	Yes
Georgia	statistics.ge	311 goods positions	COICOP	5 largest cities of Georgia	Laspeyres index	monthly	5 days after reference day	No		IMF	
Kazakhstan	stat.kz	508 quotations of representative goods and services (1,400,000 quotations)	COICOP	Almaty, 14 olbast centers, 27 rayon centers and towns (urban and rural)	Laspeyres index	monthly	2-3 days after reference day	No	Yes, but only one quarter in advance	IMF	Yes
Kyrgyzstan	stat.kg	348 goods and services (45000 price quotes per month)	National classification which corresponds to COICOP	8 main cities and 1 districts (35% of entire population)	Laspeyres index	monthly	2 weeks after reference period	No	Yes, but only one quarter in advance	IMF	Yes
Moldova	statistica.md	820 locally collected items	National classification which corresponds to COICOP	8 cities	Laspeyres index	monthly	within 14 days after reference day	No	Yes, but only one quarter in advance	IMF	Yes
Russian Federation	fsgs.ru	400 goods and services (560,000 prices and tariffs)	OKP, OKUN; use of COICOP planned	266 cities. All regions of Russian Federation	Laspeyres index	monthly	4 weeks after reference period	No	Yes, but only one quarter in advance	IMF	Yes
Tajikistan	stat.tj	274 items	National classification	600 outlets in capital, big and small cities and rural areas	Laspeyres index	monthly	12 days after reference day	Adjustment of seasonal food products		IMF	
Turkmenistan	turkmenistan.gov.tm										
Ukraine	ukrstat.gov.ua	296 goods and services	COICOP	140 administrative and territorial units		monthly	10 days after reference day	No	Yes, but only one quarter in advance	IMF	Yes
Uzbekistan	stat.uz					monthly, cumulative		No		Glossary only, no technical information	
Albania	www.instat.gov.al	262 items	COICOP	11 cities		monthly	8 days after reference day	No		IMF	Yes
Bosnia and Herzegovina	www.fzs.ba	646 elementary products	COICOP	11 main towns of the Federation of Bosnia Herzegovina (FBiH)	Laspeyres-type pure price index	monthly		No		NSO, downloadable publication	Yes
Macedonia	www.stat.gov.mk	518 goods and services	COICOP	8 cities	Laspeyres index	monthly	1 day after reference day	No		IMF	Yes
Serbia	www.webrzs.statserb.sr.gov.yu					monthly		No		NSO, but only general definition provided, no technical details	Yes
Montenegro	www.monstat.cg.yu					monthly		No			Yes

Appendix II Table 2 Producer Price Index

Country	Internet addresses WWW.	No of commodities covered	Classification	Geographical/survey coverage	Statistical coverage	Method	Periodicity	Timeliness	Seasonal Adjustment	Advance release calendar	Methodological information	Fixed base indices
Armenia	armstat.am	888 categories	OKONh	entire territory	electricity, ferrous metallurgy, non-ferrous metallurgy, chemical, petrochemical and biotechnology, mechanical engineering,	Laspeyres index	monthly	20 days after reference day	No	Yes	IMF	Yes
Azerbaijan	azstat.org	97% of total industrial production	National product classification and NACE	340 large enterprises and a survey of smaller enterprises representing 97% of total	NACE C (Mining and quarrying), D (Manufacturing) and E (Electricity, gas and water supply)	Laspeyres index	monthly	8 days after reference day	No		IMF	Yes
Belarus	belstat.gov.by	4500 goods and services (14,000 prices and tariffs)	OKONh	Entire territory. 66% of industrial production.	electric power, fuel, ferrous metals, chemical and petrochemical industry, machine building and metal cutting, logging, wood-working and pulp and paper, building materials, glass, porcelain and faience, light industry, food industry, microbiological industry, flour grains and combined fodder, medial industry and other	Laspeyres index	monthly	12 days after reference day	No	Yes	IMF	Yes
Georgia	statistics.ge		CPA and NACE rev 1	Survey of large, medium and small enterprises	mining industry, refinery industry (except production of nuclear heat and aircraft construction), electricity, gas and water supply.	Laspeyres index	monthly	10 days after reference day	No		IMF	
Kazakhstan	stat.kz	700 types of products and services	GCEA similar to NACE	14 oblasts, 3 large cities plus Almaty and Astana	all types of economic activities. Including mining, manufacturing and generation of distribution of electricity power, gas and water	Laspeyres index	monthly	3 days after reference day	No	Yes, but only one quarter in advance	IMF	Yes
Kyrgyzstan	stat.kg	289 price quotations	GKED based on NACE	7 oblasts and city of Bishkek. 40% of manufacturing	40% of industrial production	Laspeyres index	monthly	2 weeks after reference period	No	Yes, but only one quarter in advance	IMF	Yes
Moldova	statistica.md	600 products	CEAM which complies with NACE	most representative big and medium size enterprises which represent 70% of sales	mining, quarrying, manufacturing and electricity	Laspeyres index	monthly	within 18 days after reference day	No	Yes, but only one quarter in advance	IMF	Yes
Russian Federation	fsgs.ru	800 products (25,000 price quotations)	OKVED harmonized with NACE rev 1	all of the constituent territories of the Russian Federation	NACE C (Mining and quarrying), D (Manufacturing) and E (Electricity, gas and water supply)	Laspeyres index	monthly	4 weeks after reference period	No	Yes, but only one quarter in advance	IMF	Yes
Tajikistan	stat.tj	100 goods	National Classification	100 enterprises representing 75-80% of total industrial production	manufacturing, electricity and gas	modified Laspeyres index	monthly	12 days after reference day	No		IMF	
Turkmenistan	turkmenistan.gov.tm											
Ukraine	ukrstat.gov.ua	11,300 products	KVED (NACE) and NIP	all regions of Ukraine	NACE C (Mining and quarrying), D (Manufacturing) and E (Electricity, gas and water supply)		monthly	10 days after reference day	No	Yes, but only one quarter in advance	IMF	Yes
Uzbekistan	stat.uz						monthly, cumulative		No		Glossary only, no technical information	
Albania	www.instat.gov.al	250 goods	CPA and NACE rev 1	All industrial activities. Survey of 460 enterprises.	mining and quarrying, manufacturing, fishing, forestry, gas and electricity		quarterly	1 quarter after reference period	No		IMF	Yes
Bosnia and Herzegovina	www.fzs.ba		SCA	All businesses (in category C,D,E) with 4 or more employees and sales of more then 500 000KM		Laspeyres index	monthly		No		NSO, downloadable publication	Yes
Macedonia	www.stat.gov.mk	486 industrial products	National Nomenclature of Industrial Products harmonized with PRODCOM and NACE	300 enterprises	NACE C (Mining and quarrying), D (Manufacturing) and E (Electricity, gas and water supply)	Laspeyres index	monthly	10 days after reference day	No		IMF	Yes
Serbia	www.webrzs.statserb.sr.gov.yu						monthly		No		NSO, but only general definition provided, no	Yes
Montenegro	www.monstat.cg.yu											

II Table 3 Industrial Production Index											
	Internet addresses WWW.	**Source**	**Classification**	**Scope of monthly**	**Method**	**Periodicity**	**Timeliness**	**Seasonal Adjustment**	**Advance release calendar**	**Methodological information**	**Fi in**
	armstat.am	1200 large and medium enterprises and 1000 micro and small organizations	NACE rev 1.1 2 digit/5 digit	NACE C,D,E	Paashe index	monthly	20 days after release with final 1 month after	No	Yes	IMF	Y
n	azstat.org	270 products from 585 largest enterprises	NACE Rev 1	NACE C,D,E	Laspeyres index	monthly	15 days after reference day	Plan to implement SA		IMF	Y
	belstat.gov.by	75% of total manufacturing	OKONKh	90% of the annual coverage	Physical index	monthly	17 days after reference day	No	Yes	IMF	Y
	statistics.ge		NACE rev 1.1	NACE C,D,E		quarterly	85 days after reference day	Yes		IMF	Y
an	stat.kz	1750 enterprises	NCEA and NACE	NACE C,D,E	Laspeyres index	monthly	12 days after reference day	No	Yes, but only one quarter in advance	IMF	Y
n	stat.kg	85% of total industrial output	GKED based on NACE	85% of total industrial output	Laspeyres index	monthly	2 weeks after reference day	No	Yes, but only one quarter in advance	IMF	Y
	statistica.md	700 units (80% of output)	CEAM harmonized with NACE	CEAM C,D.E		monthly	23 days after reference day	No	Yes, but only one quarter in advance	IMF	
ederation	fsgs.ru	200000 large, medium and small organizations (95% of total)	OKVED harmonized with NACE rev 1		Laspeyres index	monthly	within 4 weeks after reference day	Yes	Yes, but only one quarter in advance	IMF	Y
	stat.tj	10% sample of all enterprises	SICNE		Modified Paashe index		12 days after reference day	No		IMF	Y
stan	turkmenistan.gov.tm										
	ukrstat.gov.ua	90% of total industrial output	NACE Rev 1	NACE C,D,E	Modified Laspeyres index	monthly	2 weeks after reference day	No	Yes, but only one quarter in advance	IMF	Y
n	stat.uz					monthly, cumulative		No		Glossary only, no technical information	
	www.instat.gov.al	enterprises with 10 employees or more	NACE rev 1.1	NACE C,D,E	Laspeyres index	quarterly	1 quarter after reference period	No		IMF	Y
d Herzegovina	www.fzs.ba	legal entities classified in the Register of Business Entities under SCA	National classification harmonized with NACE rev 1.1	NACE C,D,E	Laspeyres index	monthly		No		NSO, downloadable publication	Y
a	www.stat.gov.mk	500 enterprises that represent 86% of employees of industry	NACE	NACE C,D,E	Laspeyres index	monthly	25-28 days after reference day	No		IMF	Y
	www.webrzs.statserb.sr.gov.yu					monthly		No		NSO, but only general definition provided, no technical details	Y
ro	www.monstat.cg.yu		NACE	NACE C,D,E		monthly		No			Y

Appendix II Table 4 Wages and Salaries

Country	Internet addresses WWW.	statistical presentation	Classification	coverage	periodicity	timeliness	Seasonal Adjustment	Advance release calendar	Methodological information
Armenia	armstat.am	Average monthly wage/salary per employee	National Classification harmonized with NACE Rev 1.1	all industrial branches	monthly	20 days after reference day	No	Yes	IMF
Azerbaijan	azstat.org	Average monthly wage/salary per employee	National Classification harmonized with NACE Rev 1	all industrial branches	monthly	35 days after reference day	No		IMF
Belarus	belstat.gov.by	Average monthly wages and salaries	All-union Classification of Branches of National Economy	all branches of economy	monthly	25 days after reference day	No	Yes	IMF
Georgia	statistics.ge	Average monthly nominal wage		public and private sector	quarterly	65 days after reference day	No		IMF
Kazakhstan	stat.kz	Average monthly wages and salaries	OKED/NACE	all types of economic activity	monthly	40 days after reference day	No	Yes, but only one quarter in advance	IMF
Kyrgyzstan	stat.kg	Average monthly wages per worker	SCEA based on NACE	all enterprises, institutions and organizations that are legal persons	quarterly	2 months after reference period	No	Yes, but only one quarter in advance	IMF
Moldova	statistica.md	Average monthly wages and salaries	National Classification harmonized with NACE Rev 1.1	all social and economic units with 20 or more employees	monthly	1 months after reference period	No	Yes, but only one quarter in advance	IMF
Russian Federation	fsgs.ru	Average monthly wages and salaries	OKVED harmonized with NACE rev 1	All economic activities. Survey of all large and medium enterprises and quarterly sample of small organizations.	monthly	4 weeks after reference period	No	Yes, but only one quarter in advance	IMF
Tajikistan	stat.tj	Average monthly wage	SICNE	Entire territory. All sectors	monthly	45 days after reference day	No		IMF
Turkmenistan	turkmenistan.gov.tm								
Ukraine	ukrstat.gov.ua	Average monthly wages and salaries	National Classification harmonized with NACE Rev 1.1	All types of activities. 85% of employees.	monthly	26 days after reference day	No	Yes, but only one quarter in advance	IMF
Uzbekistan	stat.uz						No		
Albania	www.instat.gov.al	Average gross wages		public sector only	quarterly	2 months after reference period	No		IMF
Bosnia and Herzegovina	www.fzs.ba	Average monthly net and gross earnings	KD	all types of ownership	monthly		No		NSO, downloadable publication
Macedonia	www.stat.gov.mk	Monthly net and gross wage paid	National Classification harmonized with NACE Rev 1	70% of all employees. All sectors	monthly	30-45 days after reference day	No		IMF
Serbia	www.webrzs.statserb.sr.gov.yu				monthly		No		NSO, but only general definition provided, no technical details
Montenegro	www.monstat.cg.yu	Average wages by sector	Classification of activities		monthly		No		No metadata located

Annex III – Seasonal Adjustment Pilot Project

In 2006 and 2007 the Statistical Division of UNECE conducted studies of the short-term economic statistics disseminated on-line by NSOs of SEE AND CIS countries. The purpose of the studies was to evaluate the international comparability of the short-term economic statistics of the SEE AND CIS countries.

One of the main factors identified for non-comparability was a lack of seasonally adjusted economic statistics. It was therefore decided to conduct a pilot project on seasonal adjustment. The project had two main objectives:

- To evaluate the possibility of the Statistical Division to produce and publish reliable and accurate seasonally adjusted time series for countries for which such series are not available (short-term perspective).
- To build up experience and technical capacity so as to be able to support countries to produce and disseminate seasonally adjusted time series (longer-term perspective).

Results

In the pilot project the monthly index of industrial production (IIP) from SEE AND CIS countries has been seasonally adjusted. The IIP was selected as a typical economic short-term statistics.

The results of the pilot project are encouraging: It has been possible to produce seasonally adjusted (SA) IIP series for 14 of the 16 selected SEE AND CIS countries. The SA series have been closely analyzed and are believed to be of satisfactory quality to be published in the UNECE Statistical Database. The key findings are:

- 14 out of 16 SEE AND CIS countries publish monthly total IPIs that are suitable for seasonal adjustment. For all these it is possible for the Statistical Division to seasonally adjust the original monthly series.
- In 2 out of the 14 countries (Russia and Georgia) the NSO do produce seasonally adjusted IIP.
- For the remaining 12 countries the seasonally adjusted series produced by Statistical Division are suitable for publication.
- For Russia and Georgia (the only two SEE AND CIS countries which produce seasonally adjusted IIP series) the series produced by Statistical Division are very similar (almost identical in case of Russian Federation) to those published by the countries themselves.
- The SA series provide a much clearer picture of real changes. The original series tend to be very volatile and it is often difficult to understand the real change in the IIP free of any calendar and seasonal effects.
- Publication of the SA series would facilitate better comparison of the SEE AND CIS countries with the remaining countries in the UNECE region.

As a side effect the pilot project allowed Statistical Division to update the original monthly IIP time series in the UNECE Statistical Database with the statistics provided by the countries and consequently improve quality and accuracy of UNECE statistics.

Lessons learned

The following are key lessons learned from the project:

- It is possible for the Statistical Division to produce seasonally adjusted series for selected key economic short-term statistics on a regular basis for SEE AND CIS countries who do not publish seasonally adjusted series. Besides IIP this might include also, for example, employment, BOP current account and retail trade statistics.
- The production and publication of seasonally adjusted series will require additional resources.
- Where feasible countries should be encouraged to undertake SA themselves.
- There is a need of methodological and/or technical assistance to countries to support the implementation of seasonal adjustment methods.

Recommendations

Below are key recommendations from the SA pilot project:

- The Economic Statistics Section of the UNECE Statistical Division (ESS) should disseminate the report and relevant background information to the SEE and CIS countries and following a consultation process (involving SA experts from other NSOs) release it on the UNECE website.
- ESS should disseminate as experimental series the SA IIP series for 12 of the 16 SEE and CIS countries.
- ESS should share its experiences with the SEE and CIS countries and play an active role in assisting these countries in the introduction of seasonal adjustment practices. Activities such as technical assistance or organizing of expert meetings should be considered.
- Depending on the experiences with the IIP statistics, in its future work Statistical Division should consider for selected countries seasonally adjusting: national accounts, BOP current account, employment and retail trade statistics.

Example of results from the *Seasonal Adjustment Pilot Project* - **Belarus**

Original Estimates - Comments

The original total IIP time series shows some volatility. The available series starts in January 1997. The series does follow an annual pattern, which appears to be changing over time. In particular the period after December 2005 appears to show different seasonal pattern. The quality of the original estimates is good, as they have been provided to Economic Statistics Section directly by the Ministry of Statistics and Analysis of the Republic of Belarus.

Original Estimates - Details:

Source	The Ministry of Statistics and Analysis of the Republic of Belarus
Length of the time series:	January 1997 to present
Quality:	Good
Issues:	Changing seasonality

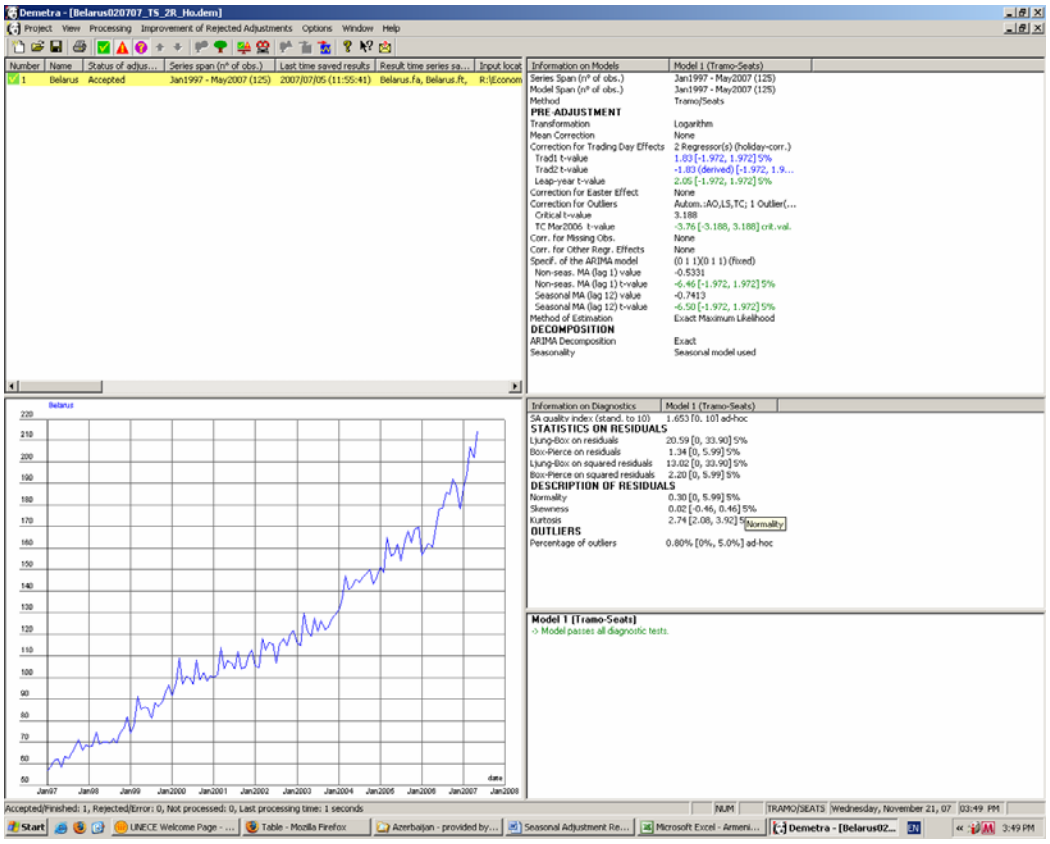
Seasonally Adjusted Estimates - Comments:

The changing seasonality and lack of information for the significant movements in 2006 and 2007 makes the seasonal adjustment challenging. In particular the treatment of the 1st half of 2006 and in particular Mar 2006 would be simplified with having more detailed information about the underlying factors contributing to the unusual movements which are different from the annual pattern of the previous years. The different SA scenarios considered by ESS produced similar results. Overall upon closer inspection the seasonality in the original estimates can be observed, but appears to be changing over time. The preferred model appears to produce good results. Finally the graphic analysis and same period previous month comparison of the original and SA estimates provided satisfactory results, with high correlation between the smpy SA and original movements.

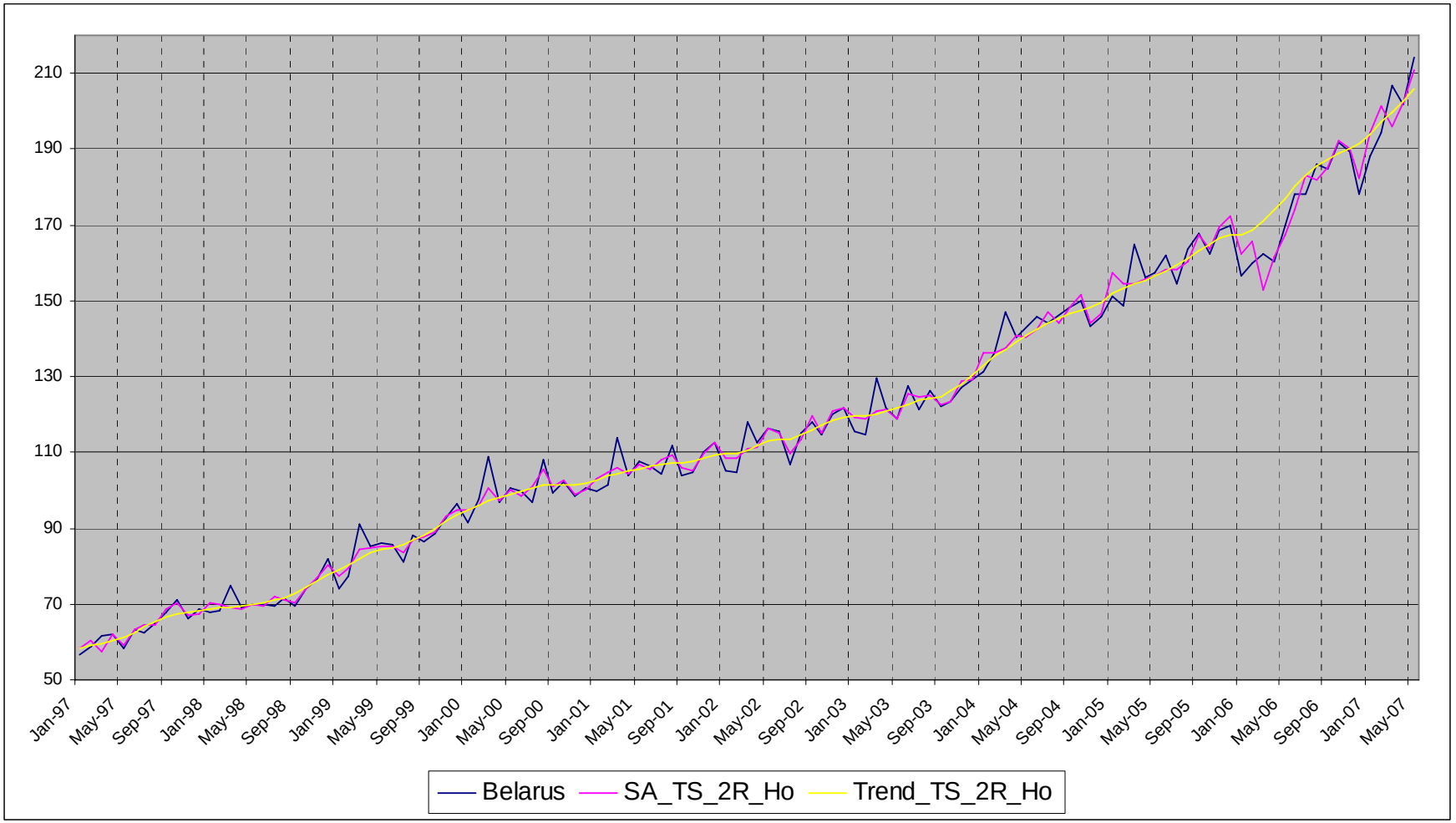
Seasonally Adjusted Estimates - Details

Seasonal Adjustment Completed	YES
Length of the seasonally adjusted timeseries	January 1997 to present
Preferred SA Method	TRAMO/SEATS
Preferred ARIMA Model	011 011
Preferred Number of Regressors	2
Country Calendars	YES
Availability of detailed information	NO
Quality of SA estimates	Good
Suitable for publication on the Internet	YES
Model passes all diagnostic test	YES
Ljung-Box on residual	Acceptable
Box-Pierce on residual	Acceptable
Normality	Acceptable
Percentage of outliers	0.8 %

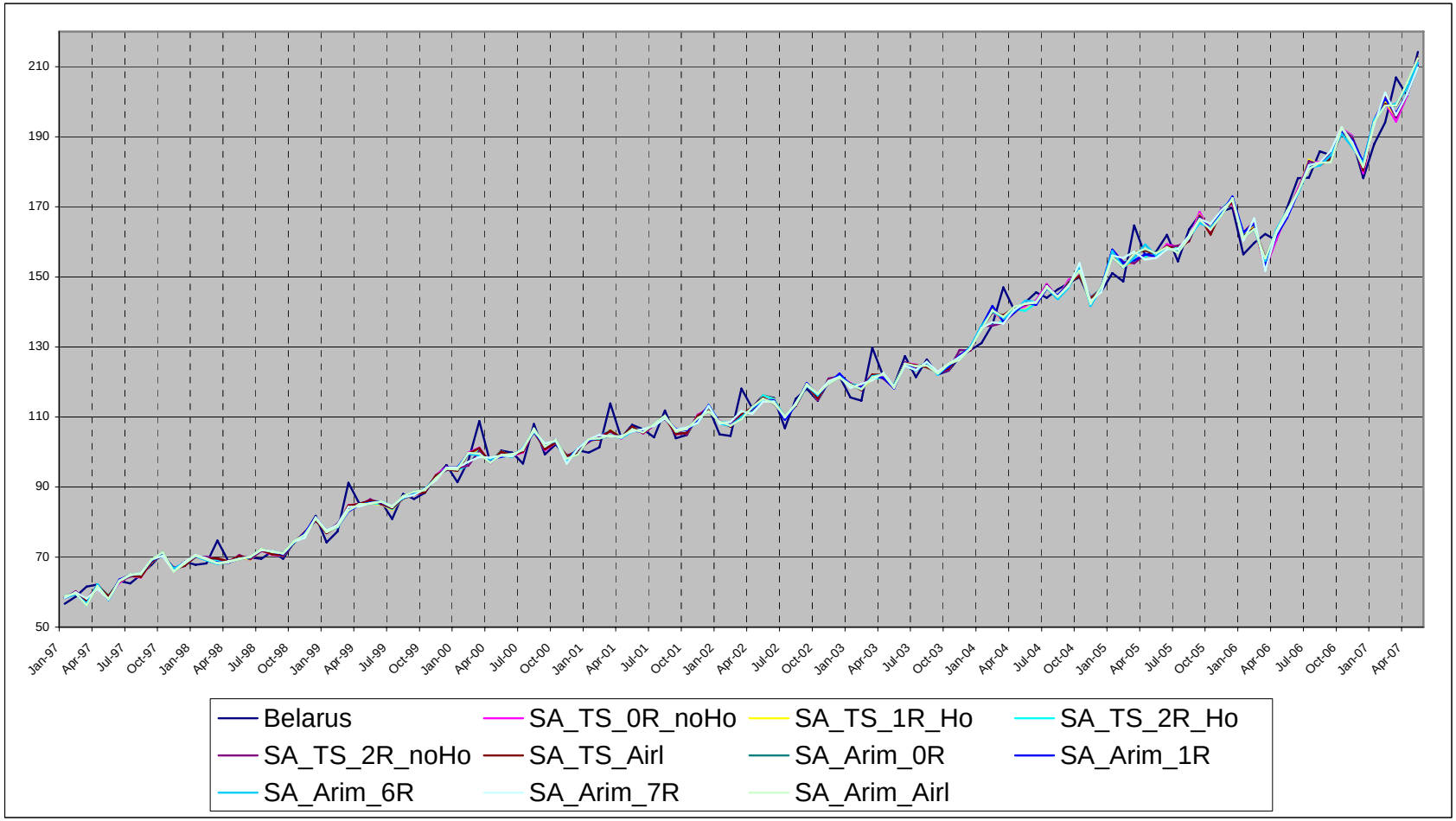
Demetra Report for final seasonally adjusted and trend estimates



Graph 1 Original and final seasonally adjusted and trend estimates – complete timeseries



Graph 2 Original and seasonally adjusted series produced using: both TRAMO/SEATS and X-12-ARIMA methods, varying number of regressors and different ARIMA models – complete timeseries



Graph 3 Original and seasonally adjusted series produced using: both TRAMO/SEATS and X-12-ARIMA methods, varying number of regressors and different ARIMA models – recent years