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Group of Experts on Consumer Price Indices

Eight meeting
Geneva, 10 – 12 May 2006

Report of the Group of Experts

The meeting was organised jointly with the International Labour Office (ILO)

I. INTRODUCTION

1. The Group of Experts on Consumer Price Indices meeting was held in Geneva from 10-12 May 2006. It was attended by Angola, Australia, Austria, Azerbaijan, Bulgaria, Canada, China, Croatia, Cyprus, Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Ghana, Hungary, Iceland, Indonesia, Iraq, Ireland, Israel, Italy, Japan, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Malawi, Netherlands, New Zealand, Niger, Norway, Poland, Republic of Korea, Romania, Russian Federation, Serbia and Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States of America and Vietnam. The European Commission (Eurostat) and the Organization for Economic Cooperation and Development (OECD) attended. The following specialized agencies and intergovernmental organizations also attended: the European Central Bank, the World Bank, the International Monetary Fund (IMF) and the Bank for International Settlements. Friedrich Ebert Stiftung, Labour Relations and Social Dialogue in South-East Europe and AFRISTAT attended as observer organizations. Mr. W. Erwin Diewert attended the meeting at the invitation of the UNECE Secretariat.

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2. The provisional agenda was adopted.
3. Mr. Rosmundur Gudnason (Iceland) was elected Chairperson and Mrs Alina Gluchowska (Poland) Vice-Chairperson.

II. ORGANIZATION OF THE MEETING

4. Information on activities and events was provided to the participants by:
 - Report by the ILO
 - Report by the IMF
 - Report by Eurostat
 - Report by the Intersecretariat Working Group on Price Statistics (IWGPS)
 - Report of the Ottawa Group
5. The following substantial topics were discussed at the meeting:
 - Systems of price indices
 - Concepts and measurements – defining the (ideal) measure for the purpose
 - Core inflation measurement
 - Structured product descriptions
 - The CPI Manual – Usefulness, applicability, completeness
 - CPI measurement problems in emerging economies
 - Other CPI issues

III. SUMMARY OF DISCUSSION AND THE MAIN CONCLUSIONS REACHED AT THE MEETING

6. Recommendations for future work are given below. Other conclusions that the participants reached are presented (in English only) in the annex prepared after the meeting and distributed to participants. The proceedings of the meeting are available on the UNECE website <http://www.unece.org/stats/documents/2006.05.cpi.htm>.

IV. RECOMMENDED FUTURE WORK

7. The meeting recommended that the following work be included in the programme of work of the UNECE Secretariat, subject to the approval of the Conference and its Bureau:
 - (a) A further UNECE/ILO joint meeting of the Group of Experts on Consumer Price Indices be held in 2008. The following substantive topics were considered of greatest interest for possible inclusion in the agenda:
 - (i) Coherence between different price indices (e.g. CPIs and PPIs)

- (ii) Integration between CPIs and estimates of price levels. Coordination of price data collection systems for different purposes (e.g. CPIs and PPPs)
 - (iii) Data collection:
 - Sampling; representativity, the optimal size and allocation of the sample
 - Different data sources (e.g. scanner data and administrative sources) and techniques for price collection, and price collection periods
 - (iv) Data processing and editing, including the treatment of missing data and imputations
 - (v) Quality adjustments for services
 - (vi) House price indices
 - (vii) Other issues: The CPI Manual
- (b) A special session for Transitions Economies be organized back-to-back with the next joint UNECE/ILO Meeting on CPI, subject to consultations with member countries.
- (c) The UNECE Secretariat jointly with the ILO to conduct a user's feedback survey on the CPI Manual, guided by the IWGPS.

8. The meeting also recommended that work undertaken in the area of price indices should provide an input into future updates of the electronic version of the CPI Manual.

ANNEX
SUMMARY OF THE DISCUSSION
(English only)

Welcome

1. **Mr. Brüngger**, Director of the UNECE Statistical Division, opened the meeting and welcomed the participants. He said that the role of the meeting as a forum for international discussions and exchange of experiences in the field of price indices has been established over more than 20 years and that this was underlined by the wide interest in the meeting and the large number of participants, including delegates from Asia, Africa and the Arabic speaking world.

2. He reminded about the importance of the national statistical offices and their responsibility to compile and improve the statistics, and said that the meeting should contribute to this work. Also the new international CPI Manual should help to support and improve the work on CPIs in national offices.

3. Finally, Mr. Brüngger stressed the importance of adhering to the UN principles of official statistics which requires, among other things, integrity and that the statistics be based solely on sound and recognized statistical methods.

4. **Mr. Sylvester Young**, Director of the ILO Bureau of Statistics, welcomed the participants to the joint ECE/ILO meeting. He highlighted the unique nature of this meeting, which provided an opportunity for national CPI specialists to exchange views and experiences in the field of price statistics.

5. He stressed the importance the ILO has always given to the CPI due to its widespread use for indexation of wages and social security payments and informed participants about the status of the CPI manual and urged them to provide feedback on it.

6. Mr. Young pointed out the importance of the deliberations at this meeting, not only for the attendants but for national statistical offices throughout the world. He therefore proposed that the discussions and outcome of the meeting should take the form of recommendations or summary of conclusions that could be used as reference material on CPI.

Information items

7. **Ms. Valentina Stoevska** (ILO) reported on the activities on training and technical assistance and how ILO promulgates the standards of the CPI resolution and CPI Manual. Participants were informed about various training courses on price statistics organised jointly with regional organisations like SADC, CIS Stat Committee and UN/SIAP, as part of the ILO efforts to educate price statisticians around the world. To facilitate training activities, a training compendium is being prepared. The ILO also reported on the status of the CPI Manual (which in

electronic form is available on <http://www.ilo.org/public/english/bureau/stat/guides/cpi/index.htm>) and preparations for future revisions of the Manual.

8. **Mr. Paul Armknecht** (IMF) reported on the IMF activities in the area of price statistics over the last two years. The IMF has been involved in the production of both the CPI and the PPI Manual launched in 2004, and in the development of the Export and Import Price Index (XMPI) Manual, which has the same chapter structure as the CPI and PPI manuals. The XMPI Manual is planned to be finalized in 2007. Both in training courses, Technical Assistance to countries and in the Data Quality Assessment Framework (DQA) reference is now made to the Manuals and the implementation of the recommendations of the Manuals are supported.

9. **Mr. Joao Liborio** (Eurostat) informed about Eurostat work and activities on HICP since the last Joint UNECE-ILO meeting. In 2005 a new regulation on the temporal coverage of the CPI was agreed. The regulation, which states in which periods prices should be collected, came into force in 2006. From 2006 the index reference period of the HICP was changed from 1996 to 2005. Documentation on HICP methodology is available on Eurostat's webpage. The main priorities in the coming period are the treatment and possible inclusion of owner occupied housing in the HICP and agreement on rules/regulations on quality adjustment and sampling. In addition, a HICP constant tax rate index (HICP-CT) is under development. The HICP-CT aims to show the price changes excluding the effects of tax changes.

10. **Mr. Mick Silver** (IMF) reported on the activities in the Intersecretariat Working Group on Price Statistics (IWGPS). The Spanish and French versions of the CPI/PPI manuals should be available in mid-2006 and the Russian CPI version in 2007. There has been no progress on an Arabic version due to a shortage of translators. Given the high demand for the Russian version, the IMF will investigate the possibility of making available for dissemination the non-edited version of the Russian translation.

11. The electronic version of the Manuals will be updated in two stages. The first would be a seeking of comments, determining which are minor revisions, and including these, along with the erratum and existing non-substantive comments, in the electronic versions. The seeking of comments and sending of the erratum and existing ones to the authors could be expected to be completed in mid-2006. The original authors will be, if willing, responsible for the updating of their (revised) chapters, subject to the ultimate approval of the IWGPS. The ILO would assume responsibility for managing the revision of the *CPI Manual*, and the IMF the *PPI Manual*. In the second stage more substantive issues would be considered. The ILO, in cooperation with the UNECE, has agreed to survey NSIs for comments on the *CPI Manual* and issues requiring further clarification. The feedback obtained in the survey is expected to be available by the end of the year.

12. The IWGPS suggests that *Supplementary Handbooks* be produced on the practical implementation of methods and recommendations of the CPI Manual.

13. **Mr. Timo Koskimäki** (Statistics Finland) informed about the outcome of the 8th Ottawa Group meeting in Helsinki in August 2004. A number of papers were presented for discussion

under the following sessions: Price indices for services, Relationships between CPIs and other statistical systems, Housing, and Quality control of price index production processes. The proceedings of the meeting, including summaries of the sessions are available on http://stat.fi/tup/julkaisut/isbn_952-467-530-7_en.html.

14. The next meeting in the Ottawa Group would be in London, organized by ONS, 14-16 May 2006. Topics for this meeting would include Families of indices, Housing costs, Services, Healthcare, Measuring quality changes and the Statistical quality of indices and “other issues”). The agenda and the papers for this meeting is available on http://www.statistics.gov.uk/events/ottawa_group/agenda.asp

System of Price Indices

Discussant: Ms. Becker Vermeulen, The Federal Statistical Office of Switzerland

15. **Ms. Becker Vermeulen** introduced the four invited papers by pointing out that with the increasing demand for a number of price indices the challenge for the price statistician is to develop a system of price indices, which is coherent and integrated. She also introduced the four invited papers that discussed the topic from different perspectives.

16. **The UK paper** reviewed various price indices and the supporting frameworks, which ensure coherence and integration of a family of price indices into the statistical system. The paper distinguishes between the underlying conceptual frameworks used to define different methods of index compilation, and frameworks, like SNA, Social Accounting Matrices, Stage of Processing Frameworks, designed to identify gaps in the provision of price indices which can then be compared with user needs. The importance of frameworks for better understanding of the relationships between different indices and ensuring coherence and integration of a family of price indices into the statistical system was pointed out. The frameworks like SNA, Social Accounting Matrices, Stage of Processing Frameworks, provide a much more structured approach to index construction and facilitate the process of identifying and defining in statistical terms user needs for price indices. Once the users' needs are identified, the frameworks facilitate conceptualisation of these needs into economic theory and defining them in statistical terms, construction of the indices so defined and their evaluation against the purpose.

17. It was indicated that not all users' requests for various types of indices could be satisfied, and therefore compromises have to be made. To resolve some of these problems and conflicts, a better use of data in a systematic way, identification of gaps and prioritizing the user needs were recommended as possible solutions. Finally, necessity of a more co-ordinated and systematic approach to the production of price indices by national statistical offices, facilitated by greater debate amongst the international statistical community of price statisticians and more communication with users including national accountants about the construction of deflators, was pointed out.

18. The presentation concluded with a request for mini-review of SNA 93 and expansion of the CPI and PPI Manuals in order to clarify the conceptual issues, identify the data linkages and

gaps, and provide a fuller articulation of the conceptual and measurement issues relating to deflators in national accounts. This was supported by the discussion.

19. **The Israeli paper**, which elaborated on the Ch.13 of the CPI manual, addressed several issues relating to publication of a family of indices. The presentation included an overview of various price indices, and corresponding CPI numbers, that are published in Israel. Some of these indices are computed as part of the CPI (e.g. Total excluding vegetables and fruits); others are related or are alternative to the CPI (e.g. seasonally adjusted indices) or complimentary series to the CPI (for example Housing Index).

20. The main message of the paper was that an index should be published only if it is relevant (somebody needs it), it can be explained and if the costs are justified. To avoid confusion among users, and in order to differentiate the official CPI from the supplemental information, sufficient explanations of underlying concepts should be distributed along with the publication of the CPI. The importance of regular publication of an index disseminated simultaneously to all users and dissemination of all indices at identical times were stressed. An analysis of the contributions of various product groups to the overall change and an explanation of any unusual factors affecting the price changes of the major contributors to the overall change were also indicated as information widely appreciated by the users.

21. The **paper presented by the US BLS** introduced the experimental consumer price index for the United States that follows the methods of the Harmonized Index of Consumer Prices (HICP). The main differences between the two were highlighted. Namely, the HICP includes the rural population in its scope. Second, the HICP excludes owner-occupied housing. To construct the experimental US HICP, the US CPI's population coverage was extended to the whole population and its item coverage was narrowed to remove the owner-occupied housing costs that the HICP excludes from its scope. Other differences, like use of the geo mean for most of the US elementary aggregates, treatment of household and vehicle insurance, differences in the division between public and private medical care and education, were not accounted for. The results have shown that the US HICP has risen more slowly than the official US CPI has.

22. During the presentation but also during the discussion it was pointed out that difference between the US HICP and the European HICP is due in part to differences between the US and European methods but also due to the significant differences in the consumption patterns between European and American households, and that the differences in the services provided for free or subsidised affect the comparability as well. To have a better understanding of the difference between the US HICP and the European HICP it was suggested to decompose the difference into a part due to differences in price changes, and a part due to differences in weights. Decomposing the price of services provided by government to a part paid by paid by household and by government was also mentioned as an alternative.

23. **The Japanese paper** presented the new index to be released in August 2006. The new basket will be based on the most recent information on the consumption pattern and will take into account the new products and services and price diversification due to deregulation, technological breakthrough, global competition, etc. The weights are based on consumption pattern of multi-person households. With the number and the share of expenditures of one-

person households increasing over time a possibility of including these households as well is being considered.

24. The prices for some items such as electricity, gas, transportations and tobacco, which are regulated, are collected directly from the regulating institutions rather than from the outlets providing them. Another interesting fact is that, with the increasing number of purchases made by using new technologies, these prices will be consolidated with those collected from outlets.

25. During the **discussion**, there was a general agreement that the frameworks play an important role in developing the price indices, although their application in practice may not be so easy. Unavailability of data was also pointed out as one of the constraints. Many countries indicated that, as in the UK, an integrated system of price indices is still in development and need to be further elaborated. Opinion was expressed that the different CPIs might be confusing for the users. The importance of making users understand the differences between different types of indices was highlighted

26. Discrepancies between what users need and what statistical offices could produce were mentioned. There was agreement that compilers should try, with the resources available, to accommodate the users' needs for various indices. To progressively familiarize the users with the new indices produced it was recommended to start first with an experimental index and then make it official. Educating the users and preventing them from misuse was also advised. Finally, it was reaffirmed that all limitations and assumptions should be explicitly stated and made available to the general public.

Concepts and measurements

Discussant: Mr. W. Erwin Diewert, University of British Columbia, Canada

27. **Mr. Diewert** opened the discussion on concepts and measurements and introduced the papers for the session. He noted that there are many conceptual problems that still need to be addressed. One of the core questions concerns the definitions of, on the one hand, a Cost-of-Living Index and, on the other hand, a Fixed Basket Index. The distinction between these, and in particular the consequences in the practical implementation of the two concepts, is still not completely clear; for example the treatment of housing, health services and whether to include imputed prices or not depends on which basic concept has been applied.

28. The paper by the **Federal State Statistics Service of the Russian Federation** discussed the conceptual framework for compilation of a Cost-of-Living Index (COLI) in the Russian Federation. The implementation of market reforms has brought about dynamic changes in the social and economic situation of the population of the Russian Federation. To be able to reflect better the changes in living conditions it has been decided to develop a COLI, and it is under consideration if it should be compiled for different groups of the population and perhaps for different regions of the country.

29. The basket of goods and services used for the compilation of the CPI will also be used for the compilation of the COLI. The weights should take into account the value of consumption

from own production (measured by farm-gate prices) and social transfers to households. However, it is also under consideration if the weights from the CPI can be applied for the COLI. It is suggested that it might be helpful to have a wide-range discussion of the initial results of the development of a COLI not only in the Russian Federation but also with foreign experts on CPIs.

30. The paper by **Statistics Netherlands** described the re-design of the Dutch CPI. The aim is to improve its quality and bring the CPI more in line with a cost of living index. In late 2003 it was decided that the CPI should be brought in line with the latest insights as reflected in the (draft) CPI manual. The decision was based on the recommendations of an expert group, and among the most important users there seemed to be agreement that there is room for a separate national CPI that, unlike the EU Harmonized Index of Consumer Prices (HICP) and the national accounts consumption deflator, is meant to approximate the change in the cost of living.

31. A modular approach was preferred, which should make it possible to compile CPIs for different types of outlets, regions, and household groups. At the end of 2004 a project termed 'Re-design CPI' was set up. In the first phase several pilot studies were carried out to investigate the feasibility of the ideas suggested by the expert group. The second phase of the re-design project started late 2005 and aims at implementing new methods and improvements in the production process in a stepwise manner.

32. The COLI-CPI will apply a hybrid approach, varying between different product groups. The weights will be updated annually and a so-called matrix of transaction categories will be implemented. The sampling will be based on information from business registers; outlets will be selected first, and then the individual products to be priced. The health care sector has provided particular problems, including the treatment of expenditures on health insurances, where a gross premium approach will be applied. Finally, extended use of scanner data is planned.

33. The paper from the **International Labour Office (ILO)** recognized, based on the Resolution on CPI from the 17th International Conference of Labour Statisticians in 2003, that a set of indices may be required to meet different purposes. Thus, the coverage of goods and services, population and geographical area as well as the concepts of prices and weights and the calculation formulas should in principle be determined according to the main purpose of the CPI. It was noted that the question of whether to include second-hand goods by their gross or net weight might be controversial, as the National accounts net acquisition approach might not reflect the importance of the respective product group from the viewpoint of the households. From this perspective the "netting out" of purchase and sale of second-hand goods should be omitted and the gross weights applied. It was concluded that some types of fixed basket indices that measure only the pure price changes, might also approximate COLI very closely.

34. On the basis of the *CPI Manual* the paper from **UNECE** discussed the issue of price-updating expenditure weights for the regular calculation of the CPI. In practice countries apply weights from a past reference period. In this context the paper argued that the question of whether to price-update the weights from the weight reference period to the price reference period is important for the interpretation of the CPI and the measured rate of price change.

35. The ideal or target index does not give any clear answer on whether to price-update the weights or not. The Lowe index, which uses price-updated weights, is conceptually clear, but also to some extent “backward looking”, measuring the cost of buying a past reference basket. However, if the relative quantities remain constant, the Lowe index will be a good estimate of an ideal basket index. The Young index uses the unadjusted expenditure weights, which can be seen as estimates of the “true” weights in the future index link period. It can approximate an ideal basket index, and hence in practice also a cost of living index, if the unadjusted weights are good estimates of the average expenditure weights in the index link period. The Lowe index will exceed the Young index if there are long-term trends in relative prices. If the weights are price-updated, special attention should be given to goods and services with unusual price movements as price-updating in these cases may lead to biased results.

36. Potential bias is likely to increase the longer the time from the weight reference period to the price reference period, and from the price reference period to the current period. Therefore, the weights should be updated regularly and be as representative as possible for the index link period. The paper concludes that different practices in different countries may affect international comparability, and that there is a need for further research and discussion, both on theoretical, conceptual and practical issues.

37. The paper from the **Central Statistical Office in Poland** described the development of the Polish CPI. The biggest step was made in the second part of the nineties when the EU harmonised methodology was gradually implemented in Poland. International methodology is developing constantly and therefore further improvement of consumer price statistics is needed. Development in this area of statistics in Poland should take advantage of recent international achievements of price statistics, such as new EU legislations on HICP, the *CPI Manual* and the 2003 ILO resolution on CPI.

38. In view of the EU membership it seems reasonable to adopt the Eurostat HICP methodology also for the Polish national CPI. The idea of constructing a “family” of price indices based on HICP methodology would in practice mean adopting HICP as an official inflation measure and HICP methodology for the other consumer price indices compiled for national needs. To improve efficiency measures should be taken to optimize sampling, weighting systems and dissemination of the data.

39. In the **discussion** the paper from Statistics Netherlands was welcomed as a pioneering work suggesting methods for the practical implementation of a COLI in various different areas, including health and health insurance, related sampling issues and the use of scanner data. It was thus also felt that the paper would be of great value to other national statistical offices.

40. Concerning the issue of price-updating of expenditure weights it was noted that the Young index might be more volatile compared to the Lowe index in the case of unusual or sharp price movements. It was also mentioned that the Young index was less conceptually clear and had poorer axiomatic properties than the Lowe index. On the other hand the relevance of these arguments was questioned. ONS and the Czech Statistical Office noted that they have found that the Young index was less subject to upward bias, similar to the findings in the UNECE paper.

41. The conclusion was that there is a need for further research and discussion on the theoretical and conceptual issues regarding price-updating of weights, as well as the empirical consequences. It was also felt that the CPI Manual should be improved on this area, although it should not be too prescriptive but rather try to explain more clearly the conceptual and methodological differences.

Core Inflation Measurement

Discussant: Mr. Yoel Finkel, The Central Bureau of Statistics, Israel

42. **Mr. Yoel Finkel** opened the session and introduced both invited and supporting papers on core inflation measurement. He stressed the fact that (i) the problems that statisticians face in designing a CPI are infiltrated into core inflation measures as well, (ii) some of the methods used for estimating core inflation are complicated and not easily understood and accepted by the users, (iii) economic models used for estimating core inflation do not work well if the future is different from the past. .

43. **The IMF paper** provided an overview of various methods currently used for measuring core inflation. These approaches include exclusion-based methods, trend estimates, limited influence estimators, re-weighting, and economic modelling. It was indicated that there are many alternative approaches and these can provide quite different results. It was also pointed out that the same approach can be implemented in different ways and again this can lead to quite different results.

44. The presentation also outlined the criteria by which different methods can be chosen. These include credibility, control, deviations from a smoothed reference series, volatility, predictive ability, causality and co-integration tests, and correlation with money supply.

45. **Mr. Silver** noted that there is considerable variation in the methods employed to measure core inflation and indicated that there is little consistency in the results of country studies to readily suggest guidelines on accepted methods. It was indicated that, for operational purposes, exclusion is a good starting point and that the exclusions should be country driven. It was also recommended to use more than one measure. If the resulting measures give similar results, then this should give confidence to monetary authorities in making decisions based on such measures. If they do not, differences in the nature of the measures used should allow for insights into the inflationary process.

46. The presentation concluded by indicating that there is no convergence in the methods used by the countries and there is no unanimity on the best measure(s). It was also mentioned that timelines and credibility of the core inflation measure is of crucial importance.

47. **The Swedish paper** described the method used by Statistics Sweden to calculate two official measures of underlying inflation, or core inflation, in Sweden. These measures are published monthly after the CPI has been computed. They are based (i) on the CPI domain excluding the interest costs for owner-occupied dwellings and indirect taxes and subsidies, and,

for the second one, excluding products that are mainly imported, and (ii) on the assumption that changes in taxes and subsidies have immediate and full impact on consumer prices.

48. These measures are designed in the same way as the CPI. As the national CPI is based on a superlative index formula (Walsh index) since January 2005, some of the practical calculations of underlying inflation were altered. For example, in the retrospective calculation, it is no longer necessary to recalculate the elementary indices but the higher-level indices only. The paper also highlighted the relationship between the national Swedish CPI, the Net Price Index and the two official measures of underlying inflation.

49. **The ECB paper** presented the view of central banks on core inflation measures. The necessity of distinguishing between short-term volatility and more lasting evolutions was pointed out. Various methods employed by the central banks were briefly described. It was indicated that the measures differ not only because of the methods used but also because of the substantial differences in the definitions, which underlie these core inflation measures.

50. The paper proposed a typology of the possible methods for core inflation measures, described three possible uses of these measures, and evaluated the properties of some measures. The presentation concluded by indicating the usefulness of various core inflation measures today.

51. **The paper by Statistics Norway** described the three new core inflation indicators derived from the Consumer Price Index. The first one is the CPI excluding energy goods (CPI-AE), the second is the CPI adjusted for real changes in taxes (CPI-AT) and the third one the CPI adjusted for both real changes in taxes and energy prices (CPI-ATE).

52. Adjustment for tax changes can be made in different ways. One approach would be to simply take out all nominal taxes. However, the CPI-AE is constructed to measure only the effect of real tax changes, i.e. changes that deviate from the general development in prices. This is obtained by deflating the nominal taxes for price changes. This way a fixed tax, for example, will be recorded as a decrease in the real tax if the general price level has increased. A possible drawback of the method is that the contribution of taxes to the CPI-AE will vary in periods where no actual tax changes have occurred.

53. The presentation also described the two common ways of obtaining a measure of underlying inflation (i) one is to exclude certain items from the price index (exclusion approach), usually because they are volatile or subject to administrative price setting, (ii) the other is to exclude all extreme individual price movements (statistical approach). The two most common statistical measures are the trimmed mean and weighted median.

54. The core inflation measures developed by **Statistics Russia** in close collaboration with the Central Bank, is based on exclusion of some items from the regular CPI. Two options were considered. With the first one, all goods and services whose price changes deviated for plus or minus 5% (and plus or minus 10%) from the average change were excluded ("Variable list method"). As this measure was not fully satisfactory, a second measure that exclude goods and

services with unstable prices, like seasonal items, and those whose prices are subject to administrative regulation at the federal or regional level, were excluded (“Constant list method”).

55. The measurement of the core inflation in **Czech Republic** got into the focus of attention in the beginning of 90’s, when inflation rates become much more significant than in the previous decade and were strongly influenced by administrative interventions. As there has been no consensus about the definition of core inflation, alternative approaches for its measurement were considered. The paper presented the current core inflation measure, the alternative measures used, their characteristics, and the reasons for the decision leading to the actual state. The paper pointed out the necessity of producing a simple measure that would be easily understandable by the users.

56. The paper presented by the **Central Bank of Norway** stressed the fact that no single measure of core inflation performs well in all circumstances. Various empirical tests were described and results presented. The conclusion was that a central bank should monitor various measures of core inflation, and not relies on only one indicator in the assessment of the underlying price pressure.

57. **The discussion** started by pointing out that there is no economic theory on core inflation and that the concept of core inflation is not very useful from the statistical point of view. In the discussion of advantages and disadvantages of various methods there was a general agreement that exclusion of all volatile items would significantly affect the credibility of the index. In that respect it may be more appropriate to exclude the prices with high mean deviation. In countries where the seasonal items have significant weight in the CPI basket, criteria other than volatility is needed and it was suggested that seasonal adjustment might be a solution.

58. From the CBS point of view, it was indicated that forecasting inflation is not possible on basis of one single measure. Therefore, the need of producing a set of core inflation measures that would be developed in close collaboration between NSOs and Central Banks was stressed. It was also mentioned that, ideally, the core inflation measures should be based not only on the past development of prices but should also take into account the policy makers’ responses to the inflation.

Structured product descriptions

Discussant: Mr. Timo Koskimäki, Statistics Finland

59. **Mr. Timo Koskimäki** opened the discussion on structured product descriptions (SPDs). While recognizing the potentials for coordination of sampling and price collection for PPPs and CPIs, he also raised questions on the practical implementation of SPD and the possible gains in the coordination of price collection systems. For example much more observations are usually needed for the CPI and the prices are collected monthly whereas for the European Comparison Programme, prices are only collected every third year.

60. The paper by **Eurostat and OECD** compares the structured product descriptions (SPDs) for consumer goods and services that are being developed for the Eurostat-OECD Purchasing

Power Parity (PPP) Programme with the ones used in the International Comparison Programme (ICP). SPDs can be seen as a further breakdown of COICOP, which is applied in both the PPP Programme and the HICP Programme. Currently the HICP Programme is developing a more detailed level of aggregation, namely the “consumption segment by purpose”, one of its objectives being to provide countries with guidance for sampling. The SPDs and the consumption segments are still work-in-progress and no final decisions have been taken.

61. Both the PPP Programme and the HICP Programme are concerned with the pricing of comparable products. The two programmes also have a spatial dimension and a time dimension, although the emphasis differs between them. Synergies between the two programmes that may arise from the development of consumption segments and SPDs are therefore of interest. For example, a review of consumption segments by basic heading could identify important gaps in the PPP price collections and the need for more SPDs. These SPDs could be based on an analysis of the product specifications that countries use for their CPIs. In addition, the SPDs could be useful to CPI price collectors in describing the products they have found and priced in the various outlets. A systematic collection of such product descriptions would enhance the possibilities of convergence of CPI and PPP price collection. This would imply also a major organisational challenge to the existing collection systems. If the potential synergies are to be realised, the two programmes will need to work closely together.

62. In the **discussion** the potentials for integrating the sampling of products and the price collection systems for PPP and CPI were recognized. However, it was also felt that practical obstacles remain because of different purposes and data needs for PPPs and CPIs. For example the sample for CPI should aim to provide the best measure of price changes over time, while the PPP sample should aim to provide the best measure of the price level at a certain point in time.

Future work

63. On the basis of a proposal of the **CPI Steering Group** the meeting recommended a programme for future work. The recommendations are provided in the report of the meeting.

64. Under the agenda item Future work, **Mr. Paul Van den Bergh** (Bank for International Settlements) reported from the Workshop on "CPI measurement: Central Bank Views and Concerns", organized by the Irving Fisher Committee on Central Bank Statistics, Basel, 20-21 April 2006. The main conclusions were that significant improvements have been made in recent years; that important issues remains to be dealt with, such as the treatment of owner-occupied housing and Quality changes, and that closer cooperation between NSOs and Central Banks might prove useful.

The CPI Manual - Usefulness, applicability and completeness

Discussant: Mr. Peter Hill, The World Bank

65. **Mr. Peter Hill** introduced the two papers by indicating that the first one was describing what had been done up to this point and the second one was looking at what is to be done in the

future and invited participants to express their own views regarding the usefulness, applicability and completeness of the CPI manual.

66. **Ms. Valentina Stoevska** from the ILO provided background information on the revision of the manual, explained the purpose of the manual, method of work and intended audience of the manual. She indicated that the amount of work involved in the finalisation of the manual has been underestimated and thanked all those involved in the drafting of the manual and others who had made valuable contributions.

67. The ILO also reported on the status of the revision process of the CPI manual. It was pointed out that the guidelines contained in the Manual are consistent with the recommendations on CPI adopted by the 17th ICLS. It was mentioned that there are areas that may need to be further elaborated or supplemented with additional materials and practical working examples. The presentation included an overview of various comments received and suggestions for possible revisions/additions to the manual. Participants were also informed about the process for future updates of the electronic version of the manual, which is considered to be a “living document”.

68. The paper presented by **Mr. Hill** explained the need for further revisions of the manual, differences between the printed and electronic version of the manual, process of revision and indicated the areas in the CPI compilation process that are serious candidates for separate handbooks that would supplement the manual. This list included consumption of own production, purchasing via the Internet, the treatment of seasonal products, the use of hedonics for quality adjustment, CPIs under high inflation, etc.

69. In the **discussion** that followed some participants drew the attention to the fact that many national statisticians are not aware of the existence of the manual and in a situation where the manual is available only in English it might be too early to plan any further revisions. The importance of translating the manual was stressed. In response to these observations participants were informed on the progress of the translations in French, Spanish, Russian and Japanese and possibility of translating it in Arabic and Chinese. It was also explained that what is meant under “revisions” is further explanation and elaboration of the existing text rather than a revision.

70. With respect to the revision process it was requested that all updates and modification are highlighted to avoid confusion and that all controversial issues are clearly indicated. One of the participants pointed out that there are official guidelines for revisions and these could facilitate or minimize the problems.

71. The meeting agreed on the proposal to produce supplementary manuals, which should support the practical implementation of methods and recommendations of the CPI Manual and include practical working examples. For example, these supplements may include more concrete guidelines and examples on treatment of seasonal items, missing prices, hard-to-measure areas or other areas neglected in the Manual. Participants were informed that the ILO, in cooperation with the UNECE, would survey NSOs for feedback on the Manual and proposal of subject areas that requires further work.

72. Participants were informed that the updating would be to the electronic versions of the manuals only and a new edition is not expected before 2010.

CPI measurement problems in emerging economies

Discussant: Mr. David Fenwick, Office of National Statistics, UK

73. **Mr. David Fenwick** opened the session and welcomed the invited and contributing papers. He gave a short overview of the papers: The paper from Serbia and Montenegro shows the difficulties in compiling a CPI under changing market conditions and hyperinflation; the paper from Bulgaria describes an index of a small basket for low-income households, where the exclusion of alcohol and tobacco was questioned; the paper from Azerbaijan explains the system of price indices and it was noted that also regional CPIs are calculated; the Georgian paper shows that training of price collectors to deal appropriately with product replacements and quality issues is important; the paper from Malawi highlighted the importance of the treatment of production for own consumption; the paper from Nigeria provided a good example of quality assurance and dynamic data control; and the paper from Papua New Guinea provided an example of core inflation measurement, where it was noted that the weights from 1975/6 should be updated.

74. The paper by the **Statistical Office of Serbia and Montenegro and the Statistical Office of the Republic of Serbia** described the price collection in unstable markets in the Republic of Serbia. In 1990 – 2005 the market conditions in Serbia were characterised by large structural changes hyperinflation. Hyperinflation reached its peak at the end of 1993 and in January 1994, when prices daily changed at the rate of 60%. It caused the breakdown of the market and trade systems and a significant part of the turnover was relocated into the underground and illegal part of the economy. Simultaneously with the disappearance of big enterprises, small shops with limited and changing assortments appeared. This made the price collection extremely difficult and equally severe problems were encountered in the calculation of the CPI; the validation of price changes and the treatment of seasonal products caused particular problems.

75. The contrary process began after 2001 with inflow of foreign capital and privatization of large enterprises. The appearance of big supermarkets and chain stores decreased the role of small shops that gradually diminished. In the interior of Serbia the supply of goods was in shortage and the number of shops with certain products was deficient. Thus, in case of shops closing down, substitutions could not be found. Problem of missing prices and quality changes were the major methodological problems to be solved in that period. The Statistical Office of the Republic of Serbia has paid increasing attention to improve price collection and to this end created a new instruction for price recording and intensifying the collectors' training. The Statistical Office intends to publish a new CPI in accordance with EU HICP standards from January 2007.

76. The paper by the **National Institute of Statistics of Bulgaria** described the Bulgarian CPI and the special Index of a Small Basket (ISB) of goods and services compiled by the Institute. As a result of the transition from planned towards market economy the National

Statistical Institute (NSI) established a new survey of consumer prices for the calculation of a national CPI from May 1990. In 1997 work on the calculation of a Bulgarian HICP started. The implementation of HICP Regulations has been essential for the improvement of the CPI, and today the Bulgarian HICP is equal to the National CPI. The overall CPI is defined as a "pure price change" index and should not be referred to as a measure of the cost-of-living index. It is used as the official measure of inflation, for deflation and for indexation of salaries and pensions etc.

77. The ISB is constructed as a price index for the lowest-income households. It has been calculated from 2001 and is based on the price changes of 100 goods and services considered socially accepted and of vital importance for the well being of the population. The initiative for calculating the ISB belongs to the Ministry of Labour and Social Policy (MLSP) and representatives of trades unions in Bulgaria. The ISB is used for socio-economic analysis, to inform negotiations between social partners and in decisions on social transfers.

78. The paper by the **State Statistical Committee of the Azerbaijan Republic** explained about the system of prices indices in Azerbaijan. At present the following indices are compiled:

- (a) Consumer price index;
- (b) Price index for industrial producer enterprises;
- (c) Price index for agricultural products;
- (d) Indices of tariffs for goods transport.

79. The CPI is compiled for both regions and the whole country applying COICOP. Efforts have been made to establish uniformity as regards the sample of outlets, the sample of goods and services, including a common nomenclature, the weighting systems and calculation formulas. The systemic approach increases efficiency and improves the comparability between the different indices. The work to improve collection and calculation systems continues. One of the issues to be addressed in future is the development of an indicator for the overall rate of inflation.

80. The paper by the **State Department for Statistics of Georgia** describes the Consumer Price Index in Georgia. The basket of consumer goods and services was developed in 1992 with assistance from the IMF. Prices were registered in Tbilisi only. From January 1996 prices for four other cities of Georgia are also collected and included in the calculation of the CPI. From the beginning of 2004 COICOP has been applied and the basket of goods and services regularly updated. Thus, from 2004 the sub-indices of the Georgian CPI can be compared with those of other countries using COICOP.

81. The current weights are based on the household survey for second half of 2002/first half of 2003. Compared to the previous weights, the relative expenditure on food (including beverages and tobacco) decreased from 61.5% to 48.8%. At the same time the share of communication services increased about ten times, and the share of medicines and healthcare doubled. The quality of the CPI is significantly improved during the last years. However, improvements remain to be done concerning the samples of outlets and products; the treatment

of quality changes and “hidden” inflation (e.g. when prices are kept constant while the quantity is reduced); the calculation of average national prices; and the treatment of seasonal products.

82. The paper by the **National Statistical Office of Malawi** described the CPI measurement problems in Malawi. In the case of Malawi particular problems have been encountered in the determination of weights, the price collection, the choice of formulae and the treatment of quality changes, missing observations and seasonal products. It was noted that although critical to a developing country, the above-mentioned issues also pose problems in developed countries.

83. The weights are derived from the household survey conducted every five years. Some 90% of the households live in rural areas and are engaged in production for own final consumption. The value of production for own consumption is included in the current weights leading to an unusually large weight for food (68%) for the rural population. For fresh food, price collection is made through the actual purchase of the items. Because of the associated cost this practice may not prevail in the future. In the case of missing prices the last observed price is carried forward. In the case of product substitution where the quality change is negligible the whole of the price difference is included in the CPI. In its future work the NSO will continue to seek to improve the weighting data, the price collection system and the calculation techniques.

84. The paper by the **National Bureau of Statistics of Nigeria** explained about the development of the CPI in Nigeria. The CPI is mainly used by the Government as an important fiscal tool for the yearly budget. Some institutions such as the National Accounting Standard Board of Nigeria use it as a deflator. The Labour Unions, other agencies and individuals settling disputes on contracts or agreements over periods utilize the CPI as a reference. The help of consultants outside the country and known institutions such as the Bureau of Labour Statistics (BLS) had been sought in the past.

85. The index covers both the urban and rural areas in Nigeria. It is compiled monthly from prices observed in 90 urban towns and 333 rural areas. The expenditure weights, based on the National Consumer Expenditure Survey, have been updated to May 2003, which is the reference base of the current CPI. In order to reduce the upward Laspeyres bias any information from consumer surveys are applied to keep the basket of goods and services up-to-date. Nigeria, to some extent has experienced the same problems in price collection as was reported by Malawi.

86. The paper by the **National Statistical Office of Papua New Guinea** described the compilation of the CPI and measures of underlying inflation. Because of climate effects, seasonal patterns or policy issues, e.g. tax reforms, the CPI can be very volatile. Therefore, three measures of underlying inflation are compiled: 1) CPI excluding seasonal products; 2) CPI excluding seasonal products and alcohol and tobacco; and 3) CPI excluding seasonal products, alcohol and tobacco, and goods and services under price control. The NSO has already improved the timeliness of the CPI and plans to improve also the quality of the index. It was recognised that the weights more than 20 years old should be updated. Finally, there is also a need for training of young staff in price statistics.

87. In the **discussion** it was generally recognized that limited human and IT resources forms an important restriction to further develop the CPI in many emerging or transition economies. It

was underlined that sub-optimization should be avoided and that the available resources be used where they contribute most to the quality of the overall CPI.

88. As regards sampling and price collection it was recommended that cut-off sampling aiming to cover the most important outlets might be preferred to a traditional probability approach because of resource constraints. In addition under unstable market conditions collection of prices from large supermarkets and chain stores may be one way of ensuring that prices for identical products can be followed over time.

89. The treatment of seasonal products appeared to be a particular problem, and countries tend to deal with seasonality in different ways; some have solved the problem by excluding seasonal products from the CPI. The general feeling was that the CPI Manual should be improved, and it should provide more practical guidelines on how to deal with seasonal items. It was noted that at least some of the problems associated with bargain prices is dealt with in the CPI Manual chapter 6 on price collection.

90. It was noted that **AFRISTAT**, Observatoire Economique et Statistique d'Afrique Subsaharienne, Mali, provided a room document, *Problématique des indices de prix à la consommation dans les économies d'Afrique subsaharienne*, for this session.

Other CPI Issues

Discussant: Mr. George Beelen, Statistics Canada

91. **Mr. George Beelen** opened the session by introducing the five papers prepared for this session.

92. **The paper by ISTAT, Italy**, described a possible general sampling strategy for the sampling frame construction (by using the data of the Business Register), that could improve the quality of the CPI estimates and, at the same time, solve some of the problems with the purposive sampling strategy. A complex random multiple stage PPS sampling schema is proposed where the inclusion (or selection) probabilities at the different stages are proportional to the turnover.

93. The proposed sampling strategy is developed under the assumption that that (i) an outlet register exists and that (i) the sample of elementary items and outlets could be updated each year to take into account the rapid changes in the products and in outlet universes. New samples of outlets and items are selected each year by using permanent random numbers techniques, which allow a prefixed rotation rate. The sample of Local Districts, however, remains unchanged for several years. This is justified by cost consideration, connected with the high cost of training the interviewers for the local districts, and by the fact that the structure of local districts changes over time very slowly. The results of the experimental testing of the proposed strategy are encouraging.

94. The paper by the **Lodz Regional Statistical Office of Poland** provided an analysis of the sensitivity of the CPI in reaction to changes in sample size. The overall purpose is to optimize

the sample and ensure efficient use of resources. The analysis was carried out for about 1650 products distributed in some 300 product groups. Two methods were applied: (I) correlation analysis and (II) least discrepancies method.

95. The overall conclusion was that such types of analysis are useful and do provide valuable information that can be used for improving (optimizing) the sample. In general, it was found that the number of price observations could be reduced without significantly affecting the overall CPI precision. However, at lower level of aggregations there may be an impact. It was also found that although both methods have weaknesses (II) appears to be the better one. If used, (I) should be modified because of risk of bias.

96. The paper from the **Central Statistical Office of Hungary** described the experiences from work on different areas such as pharmaceutical products, gas (tariff prices), airfares and gambling. The market for pharmaceutical products is highly regulated and subsidized and the associated problems and solutions are described. For gas it is described how tariff prices and changes in tariff structures are dealt with.

97. The HICP Regulation on the timing of entering of purchaser prices states that 'prices for services shall be entered into the index for the month in which consumption of the service at the observed prices can commence'. However, for airfares, if the 'consumption can commence' in January, for example, it is not clear when the prices should be collected since most of the tickets are sold well in advance and at different prices. If sufficient data is not available some average of prices for 3 or 6 months, say, may be applied. As regards gambling (lotteries) the paper provided an example of how to take into account changes in the premiums paid out.

98. The paper from the **Central Bureau of Statistics of Israel** discussed the issues relating to the inclusion of E-commerce in the Israeli CPI. E-Commerce may include traditional goods or services purchased from Internet sites that are "extensions" of the traditional shops; goods/services sold exclusively on internet sites; consumption of services in bundles that did not exist in the pre-internet period (like financial services, banking); or consumption of Internet provided services (connection to Internet and ISP added value services).

99. The growing importance of E-commerce and the competition between E-commerce and traditional outlets is likely to lead to different price developments. It is therefore important to include E-commerce in the calculation of the CPI. Although many difficulties were encountered, explained in more detail in the provided paper, it was decided to measure E-commerce as of January 2005. Data from the Household Expenditure Survey and other sources were sufficient to derive expenditure weights. New ways of commerce, such as on-line auctions, are yet to be included in the Israeli CPI.

100. The **supporting paper by the ILO** introduced the new experimental estimates of regional and global price changes developed by the ILO Bureau of Statistics, in collaboration with the Federal Reserve Bank of Cleveland. The presentation described the methodology used to construct them, listed some of the problems encountered, presented the estimates themselves, and looked at future research work that should lead to better estimates and possibility of expanding the aggregates to group indices as well. Aggregated measures of consumer price

inflation are estimated for seven regions, and these, together with monthly and annual consumer price indices figures for some 200 countries, areas and territories around the world, are available for consultation at <http://www.clevelandfed.org/research/inflation>.

101. In the **discussion** that followed, it was indicated that the probability sampling methods are not widely used in spite of their theoretical advantages. The reasons for that are multiple, including the cost, non-availability of sampling frame, etc. The meeting agreed that the national statistical offices should be encouraged to share their experiences on sampling with others. Improving the representativity of the samples should be an over-all goal for all NSOs.

102. Concerning reduction of sample sizes it was pointed out that the reduced number of price observations could have implications of the quality of the imputed prices of missing products. For the problems faced with the treatment of weights and prices for gambling it was stressed that if consistency is the main priority either a gross weight-gross price or net weight-net price approach should be followed.

103. Inclusion of E-commerce in the calculation of the CPI was also considered as an important issue that could improve the reliability and relevance of the index. Further investigation on various problems linked to the treatment of delivery charges, price variations etc. is however required.

104. The experimental estimates of regional and global price changes developed by the ILO were welcomed and problems faced with this type of aggregations recognised. Exchange of ideas with IMF, which has been calculating regional and worldwide CPI for the latest 15 years applying a similar method, was regarded as beneficial for the further development of the ILO project.
