Session 1:
Producer Prices: Telecommunications Services

Presented papers

1. *A Price Index of Residential Long-distance Telephone Services Based on a Sample of Invoices: Issues*
    Klaus Kostenbauer, Statistics Canada
2. *Wireless Communications Index of the U.S. Bureau of Labor Statistics and Mobile Telecommunications Services in the Corporate Service Price Index (CSPI) of Japan*
    Junko Kunihiro, Yuko Koga, and Kuniko Moriya, Bank of Japan
    Anthony Hill, U.S. Bureau of Labor Statistics
3. *Telecommunications: The Sector Structure, Its Representation in the Italian National Economic Accounts and Price Dynamics*
    Sandra Maresca and Monica Montella, ISTAT

Summary

Irwin Gerduk (USA BLS) introduced the Prices Session. He noted that different countries are organised in different ways. This results in different business models and different government regulation. The result is different perspectives on PPI methodologies.

Francois Borde (Statistics Canada) introduced a paper on Price Indexes of Residential Long Distance Telephone Services. They intended to use an invoice method, in which they choose a sample of invoices, which are priced again in each subsequent period. However, in reality this was not a practical method as companies are reluctant to provide the detail requested.

New plans are introduced all the time, but it is not possible to monitor consumers changing plans. There is often no quality difference between plans. It is not possible to assume that all consumers change to the latest plans.

Kuriko Moriya introduced a paper on Wireless/Mobile Telecommunication Services in USA and Japan. There is rapid change taking place and it will continue in the future with 3rd Generation and WAP technologies coming on line. Pla ns change quickly and there is dynamic discounting. There is a problem with introducing new services. Japan's pricing methodology involves specification pricing with the inclusion of discounts. Often, discounts must be applied retroactively as they are subject to government regulation. The U.S. utilizes a unit value with fixed base period weights approach. This approach results in pricing the full population of plans each pricing period.

Paul Armknecht (IMF) commented that data was available to produce a Fischer Ideal or other superlative index. Irwin Gerduk replied that, while this was possible for telecommunications, these indexes would be aggregated with other Laspeyres indexes so it was pragmatic to produce a Laspeyres index.

Monica Montella (ISTAT) introduced a paper on Telecommunications in the Italian National Accounts. Italy also faced a problem with rapid change and convergence of technologies.

General Discussion

Irwin Gerduk noted the parallels between the methods used in the United States and Italy. Several speakers noted the convergence between price statistics and national accounts. It was agreed that this was not surprising, as both have the same goals. However, it is pleasing as it indicated the soundness of the methods being used. It is beneficial for National Accountants to have an understanding of the difficulties faced by price statisticians.

Ron McKenzie (Statistics New Zealand) asked about the difficulties where telephones and telecommunication services are bundled. Irwin Gerduk said that the US distinguishes between sign-up services and ongoing services.

David Collins (ABS) said that traditional methods do not cope with the dynamics of the market place. They use a combination of unit values and sample plans. They also build strong relationships with suppliers because highly commercially sensitive information is required. He commented that the best way to evaluate PPIs is within an SNA framework. If a PPI is used as a deflator and odd volume measures fall out, this is a sign that there is something wrong with the price measure.

Nick Palmer (ONS) said that the UK has a method that is simple but works. Published tariff information is sorted by types of customers; fixed quantities are defined for each service. This static model is appropriate for the uses of the index.

Eurostat is concerned about three issues: bundling of services, new services and the distinction between consumers and businesses. They are developing a manual on measuring prices and volumes, building on the SNA. They will recommend the use of unit-value based measures or detailed breakdown of services as a good approach. They are also developing a standard for describing the quality of price indexes.

Statistics Canada asked for comments on the usefulness of the CPC definition of telecommunications services. ABS commented that a split between business and household services was needed as the two markets had different price strategies. There was an agreement that these splits are difficult to obtain from telecommunications providers.

Producer Prices: Accounting Services

Presented papers

1. *A Producer Price Index for Accounting Services*
   Francois Borde and Gaetan Garneau, Statistics Canada
2. *Corporate Services Price Index: Accountancy Services*
   Nick Palmer, UK Office for National Statistics

Francois Borde (Statistics Canada presented a paper called <u>A Producers Price Index for Accounting Services</u>. In Canada customers tend to deal with the same accounting firm for a long time and they buy the same set of services over time. Therefore they use actual specification contract pricing. Indexes are produced annually, because this is the frequency at which accounts are completed and contracts renegotiated.

Patrice Roussel (INSEE) asked about the production of regional indexes, whether there was a particular need for these in Canada. The answer was that Statistics

Canada has a mandate to produce regional statistics. However, this is only done if robust information is available at a regional level.

Nick Palmer (ONS) presented a paper on Corporate Services Prices. Their use of model pricing has only been partially successful. They have measured fee income for different grades of staff.

General Discussion

Irwin Gerduk suggested that it was important to define a unit of output to ensure that the price index is measuring price change correctly. The ABS suggested that output is measured in terms of inputs of labour units. If there is a change in the mix of experience of accountants, there is a change of output. The IMF commented that accounting services are delivered as staff supply sold as the time of a particular type of accountant. Since it is a staff supply situation, the suggested approach is satisfactory.

Eurostat asked if a change in the legislated basis for accounting standards would result in an increase in real output. It was agreed that this is the case.

The ABS commented that national accountants have tended to use wage rates as deflators in the past. However, it is reasonable to assume that productivity changes are included in charge-out rates. If this is the case, then a PPI based on charge out rates or fees is an improvement.

Session 1:

Producer Prices: Legal Services

Presented papers

1. *Australian Price Indexes for Legal Services*
   David Collins, Australian Bureau of Statistics
2. *Legal Services within Producer Price Indexes: The New Zealand Experience*
   Ron McKenzie, Statistics New Zealand

Summary

Both countries attempted similar pricing methodologies. New Zealand successfully used a model pricing approach. Australia had problems with this approach and switched to using the charge out rate for the labor service.

Shaila Nijhowne of Statistics Canada asked why the kind of detail available in the CPC was not used. David Collins replied that they relied on the industry to specify the publication structure.

Martin Brand of ONS stated that if the national accounts are more concerned about annual movements, the model pricing method is considered superior. Ron McKenzie said that the model pricing method is difficult to put together, which may mean that charge out rates actually give a better measure of price change. A discussion of the composition of charge out rates followed. Charge out rates include valuation of margins and can be adjusted to account for changes in the labor mix.

Paul Armknecht of the IMF raised the issue of the need for quality adjusted data for the national income accounts use.

Producer Prices: Architectural and Engineering Services

Presented paper

1. *Developing PPIs on Architectural and Civil Engineering Services: The Norwegian Experience*
   Andreas Kruger Enge, Statistics Norway

Summary

Andreas Enge explained their use of regression models in calculating indexes for architectural and civil engineering services.

David Collins asked about what factors caused price change. Andreas Enge responded that staff mix composition and demand had the largest impact on wages. There was a discussion about price volatility and the need to frequently update the hedonic models.

Producer Prices: Real Estate Services

Presented papers

1. *The Development of Corporate Services Price Indexes for Real Estate Services and Property Rentals*
   Nick Palmer, U.K. Office of National Statistics
2. *Australian Price Indexes for Real Estate Agents' Fees*
   David Collins, Australian Bureau of Statistics
3. *Real Estate Price Statistics in China*
   Ye Shifang, National Statistical Bureau of People's Republic of China

Summary

Australia and the U.K. used similar approaches. Model pricing was utilized augmented by the use of a real estate price index to measure change in selling price. The change in broker commission fees was picked up directly from a sample of real estate brokers and applied to the real estate selling price index.

A discussion followed on what was the output concept. Paul Armknecht of the IMF stated that it was for the sale of the property, not for the amount of effort put into the activity by the real estate agent. There also was a discussion of when the transaction occurred. It was determined that this occurs when the sale is finalized. Finally, there was a discussion of the value in using third party data. In this case, it was in using private sector or CPI data to reflect changes in selling prices. It was viewed as quite desirable if it brought down surveying costs. But there is always a quality concern when third party data are used. It must be determined that these data are, in fact, sufficiently accurate for use.

Session 1:
Producer Prices: OECD Survey of International Service Pricing Activities

Presented paper

1. *OECD Inquiry on National Collection of Services Producer Prices*
    Bill Cave, OECD

Summary

Bill Cave of the OECD presented the provisional report on the Inquiry on National Collection of Services Producer Prices undertaken in July/August 2000. 35 countries had been sent questionnaires, which was all the OECD countries plus all others present at the 1999 Voorburg Group meeting.

The results showed an expansion of new services producer price collection activity in countries compared to the previous year. Planned collections were more extensive. The maturing of activity was also indicated by many more series than previously being published. 18 countries had indicated that they collected at least some services PPIs, while 11 did not collect any. A new OECD webpage carried the results of the Inquiry, national contact names, links to relevant sites and news of developments in services PPIs (go to http://www.oecd.org/std/indserv/ and click on services PPIs).

The Group supported the continuation of this data collection, as providing a very useful reference and benchmark for finding out which countries are doing what in this field. Some specific detailed amendments to the tables were provided by Belgium, Finland, Sweden and Italy. The chairman asked where the type of service priced varies between countries for a given activity, whether that might be investigated further in future. France asked that the tables be kept reasonably simple. Australia proposed the inclusion of construction next time, even though it was not usually considered a service. Italy suggested that the webpage also show links to technical papers.

Regarding possible OECD publication of services PPI data, Australia proposed that it might be interesting to investigate a single service activity e.g. telecoms, where a number of countries had a published PPI and to compare the movements of the time series, perhaps against a conventional industry PPI and CPI.

Producer Prices: Aggregation Models

Presented papers

1. *Australia's Economy-wide Price Index Frameworks*
   David Collins, Australian Bureau of Statistics
2. *Producer Price Index Aggregation Models and the Expansion Into the Service Sector*
   Irwin B. Gerduk, U.S. Bureau of Labor Statistics

Summary

The primary reason for this session was that no consensus exists on how to aggregate services into the traditional goods only PPI. The papers in this session provide insight into some solutions being explored in several countries.

David Collins summarized his paper which presented a broad framework for integrating price measures of various sectors into one system. ABS opted for a suite of indices to present complementary and not conflicting views of inflation. The measures relate to market activity. ABS allocates market transactions to discrete sectors following a market transactions view of the economy.

A major index in this framework is the Domestic Final Purchases (DFP) index. Intermediate transactions are captured in the earlier stages of the Stage of Production framework. The eventual goal of ABS is to have complete coverage in the SOP model including construction and trades.

The IMF inquired about how the structure related to the national accounts. The emphasis in ABS is on measuring inflation not GDP deflation. And non-market transactions are excluded.

The UK asked about resource requirements. David Collins stated that they are 5 years into the expansion and their sample size increased by about a third. Costs have been relatively low due to use of existing production systems. But it has been costly to develop new industries initially.

Eurostat inquired about the frequency of publication. Presently, these data are released quarterly. Eurostat also inquired about whether any time lag analysis has been conducted. The data are as yet insufficient to do a proper analysis.

Irwin Gerduk gave a presentation on the model the U.S. is working towards. Non-market transactions are excluded as are imports. Exports are included. The model aggregates to final demand and separately to the major sectors of intermediate demand (services, distribution, crude materials, and intermediate materials).

The U.S. attempted to build a single integrated model that maximized forward flows while minimizing skips, backflows, and internal flows. They were unable to create such a model. Either the model made little economic sense or there was little rationale for where services was placed in the model. Traditional models, such as Stage of Processing, rely on the concept of transformation of goods into more finished products to determine where a product is classified. Services are consumed when purchased and do not enter the transformation process. So assigning them to a stage of processing is rather arbitrary.

Other alternatives followed in Japan, Australia, the UK, and France involve creation of a Corporate Services Price Index separate from the PPI.

IMF asked whether the stage of processing framework was going to be completely abandoned in the U.S. The U.S. stated that the goods related stages are being embedded in the new proposed model. But there would not be integration with services.

The UK asked if the index is net weighted or gross weighted. The U.S. responded that the index is weighted by final demand and intermediate demand separately.

Diewert inquired about a value added weighted index.

Sweden inquired about the need to have an aggregate framework in mind prior to embarking on a services sector expansion. ABS and the US emphasized the value of having a framework in mind as it answered many of the scoping and methodological questions that arise. Also, the index should service a much broader set of users than just thenational income accountants.

A discussion developed over the ability of smaller countries to follow an aggregate approach and the role of Eurostat in providing guidance for the service sector expansion. There were feelings voiced that a single aggregative framework was not desirable at present. Service sector work is at too early a stage in too many countries and resources are too scarce to consider mandating an approach that may not be attainable in many countries.

Session 1:

Producer Prices: Discussion of Future Plans

Summary

The following was resolved in discussing the future role of PPI in Voorburg:

1. The strategy of generating a paper detailing international practices in a given industry area was accepted.
2. The body of the paper would follow the draft outline for the principal paper circulated before the Madrid meeting with several changes.
3. The paper would include a section presenting and analyzing time series data for price movement for a country that was following the methodology detailed in the body of the paper.
4. A series of appendices would be drafted documenting the experiences of other countries who had undertaken surveying in this same industry area. This would be the author of the paper's responsibility.
5. The final paper would undergo a formal edit and then be posted to the Voorburg web site.
6. The author of the paper would select the experiences of one country to represent in the body of the paper and present the full context of that country. The business model should represent a frequently encountered way of conducting business internationally. The pricing methodology should represent the state of the art for that particular business model.
7. Authors will be sought to draft four papers for next year's Voorburg conference finalizing the areas of: accounting services, telecommunications services, legal services, and engineering services.
8. The main body of the paper should be drafted within six months and then circulated to Voorburg members who have engaged in surveying in those areas. This will facilitate the author's mission to seek international practices information to include in the appendices.
9. Each year there will be specified an annual theme for an additional paper session. Possible themes include quality adjustment, fitness for use, e-commerce impact on service sector surveying.

Session 1:

Producer Prices: International Monetary Fund – Framework for Data Quality Assessment

International working group Representative(s)	IMF Representative(s)
	Kim Zieschang
	Paul Armknecht

Summary

A talk entitled *A Framework for Data Quality Assessment* was presented by Mr. Zieschang, introducing a draft version of the topic structure and protocol for data quality assessment being developed by IMF in consultation with a series of focus groups of national and international experts in economic statistics. The framework is designed to operate under an assessment protocol using information supplied by countries on the current status of their administrative arrangements and methodology for compilation and dissemination of statistics. The talk dealt with

- IMF's current activities in the description and assessment of these aspects of the production and dissemination of economic data, including its review of work done in several national statistical offices (http://dsbb.imf.org/dqrsindex.htm),
- a brief description of the IMF data dissemination framework underlying the Special Data Dissemination Standard (SDDS) and General Dissemination System (GDDS), including their Data, Access by the Public, Integrity, and Quality dimensions (http://dsbb.imf.org/),
- a brief description of the emerging themes of a data quality assessment framework (DQAF) underlying the Experimental Reports on Observance of Standards and Codes (ROSCs), comprising Integrity, Conceptual consistency, Accuracy, Serviceability, and Accessibility (http://www.imf.org/external/np/rosc/index.htm),
- the relationship between the data quality assessment framework of the ROSCs and the SDDS./GDDS,
- IMF's past and planned consultations with experts in economic statistics to refine and establish a broadly based and widely accepted data quality assessment framework. These consultations have included or will include
  - Meeting with a focus group of national accountants from national statistical offices to review a national accounts DQAF
  - Review of a Producer Price Index DQAF by the Technical Expert Group on the PPI meeting concurrently with the Voorburg Group.
  - Reviews of DQAFs for Financial, Fiscal, and External sector statistics in the next months

  o Conference on data quality to be held jointly with the Korean Statistical
     Office in Seoul during December of this year.

Questions were taken from

- Mr. Collins, Australian Bureau of Statistics, on whether the DQAF is intended for self
  assessment of data quality by national statistical offices or for use in IMF audits

  Mr. Zieschang replied the former, but noted that IMF expects the DQAF would
  become its principal framework for statistics technical assistance and surveillance. He
  said the function of the DQAF would also be to support the production of consistent
  quality assessments in the ROSCs and through its linkage with the data dissemination
  frameworks, the transparency of reporting on the institutional arrangements,
  methodology, and dissemination of economic statistics.

- Mr. Verrinder, EUROSTAT, on the relationship of the DQAF to earlier studies of
  business excellence, and whether it would also accommodate the more specific
  accuracy aspects of statistical quality such as estimates of statistical variances and
  bias.

  Mr. Zieschang replied that the DQAF was founded on a review of business excellence
  as well as and more narrowly focused studies of data quality in statistical agencies,
  including studies in the UK, Ireland, the United States, and the Netherlands, among
  others. He also noted that there is a home in the DQAF for traditional mean square
  error measures of accuracy encompassing estimates of statistical variance and bias.

Session 1:

Producer Prices: International Monetary Fund – PPI Technical Expert Group

Summary

The topic of the discussion, presented by Paul Armknecht of the IMF, was the background that lead to the project to develop a new PPI manual and a status report on the content of the new manual and progress made to date in writing draft chapters. The discussion centered on five topics: (i) the Boskin Commission Report, (ii) concerns about existing manuals being out of date, (iii) forming of the Intersecretariat Working Group on Price Statistics (IWGPS), (iv) role of the Technical Expert Groups for both the CPI and PPI, and (v) the manual outlines and progress in drafting chapters.

Boskin Commission

The primary result of the Commission report was that the CPI overstates inflation and that this problem was potentially the same in other countries. There were a number sources of bias that may be applicable to both the CPI and PPI. These include substitution effects in which fixed quantities from a previous period are no longer purchased, choice of elementary formula for estimating price change, choice of aggregation formula for averaging price changes at higher levels, lack of proper adjustments for quality changes, and the introduction of new products into the sample.

There are a variety of possible solutions to the problems raised by Boskin Commission report. More frequent weight updates, such as on an annual cycle, could help resolve the substitution effect. The use of the geometric mean or ratio of averages may be more appropriate elementary estimation formulae than the average of price relatives, particularly when there are no weights available and all observations are then equally weighted. The use of a superlative index formula such as the Fisher or Tornqvist would improve the aggregation of price change to higher levels. In addition, more effort and attention is needed to make quality adjustments in our price indexes. There are a variety of methods that can be used to make such adjustments that include statistical imputations or more advanced hedonic modeling methods. Also, efforts can be made for more timely introduction of new products into our statistical samples. This can be accomplished using two stage weighting methods where higher level aggregations use on set of weights that remain fixed while at lower levels new product samples are introduced along with more up-to-date weights.

Another issue is that the existing price manuals are out of date. The CPI Manual was published by the ILO in 1989 and the PPI Manual by the UN in 1979. These manuals do not reflect recent index number research concerning the problems just discussed and are missing the up-to-date techniques for resolving them. At the ECE/ILO CPI meeting in November 1997, the members noted need for new price index manuals and recommended that a revision project be undertaken. The Intersecretariat Working Group on Price Statistics (IWGPS) was formed in September. 1998 to coordinate the development of these manuals. The ECE serves as the secretariat for the IWGPS.

The IWGPS established two technical expert groups to accomplish this job. The two Technical Expert Groups (TEG-CPI and TEG-PPI) are composed of price experts from international organizations, national statistical offices, and academia. The two groups are being aligned with the work of Ottawa Group and Voorburg Group, respectively. The ILO coordinates TEG-CPI and the IMF coordinates TEG-PPI.

The work of the two groups to date have resulted in preparation of price manual outlines and written drafts for a number of chapters. The material for the CPI manual can be found on the ILO website using the following URL:
http://www.ilo.org/public/english/bureau/stat/guides/cpi/index.htm
Drafts for 8 of the 18 chapters are posted at this site. The material for the PPI manual is posted on the IMF website and can be found using the following URL:
http://www.imf.org/external/np/sta/tegppi/index.htm
Drafts for 5 of the 18 chapters posted at this site.

The complete draft manuals are expected to be available for additional review and comments during 2001. The CPI draft should be complete in June 2001 and the PPI manual in September 2001.

The structure of the PPI manual is as follows. The Introduction provides information on the history of price indexes, background on research, and the overall structure of manual. The manual consists of 18 chapters divided into to parts--Part I: Chapters 2-5 which discuss the purpose and uses, the theory of index numbers, a system of price statistics, and the economic concepts underlying the PPI.

Part II: of the manual deals with practical measurement issues. Chapters 6-12 discuss basic compilation methods and procedures. They include an overview of the PPI, its coverage, sampling issues, price collection, development of weights, calculation methods, and methods for chain linking and re-weighting.

Chapters 13-18 present specific issues related to quality adjustment of prices, treatment of specific difficult products, issues of index quality--bias and measurement error, approaches to organization and management, and approaches to publication and dissemination.

The role of Voorburg Group in the development of the manual was discussed. The group includes substantial price index expertise which is an important asset for development of a PPI manual. Therefore it can review and provide input to draft manual chapters. The group has special expertise for difficult products in services which is particularly important for Chapter 14 with regard to service sector.

Members provided several comments related to the manual. David Collins from Australia noted that a structure and format for the contributions of the group to Chapter 14 needs to be developed. The discussion about this point noted the detailed structure of the PPI Principle Paper is probably too much for the manual. A method for incorporating these detailed papers needs to be developed, perhaps by presenting a summary of important conceptual issues and

approaches to resolving them and reference to the detailed papers on the Voorburg Group website.

John Verrinder from Eurostat noted the development of the manual on constant price GDP and its close parallel structure to the draft PPI manual. There are a number of areas of overlap between the manuals with regard to acceptable methods and procedures. It will be important that the two manuals are consistent in the recommended approaches presented. Since both manuals will have draft chapters on the respective organizations website, such coordination can be easily facilitated.