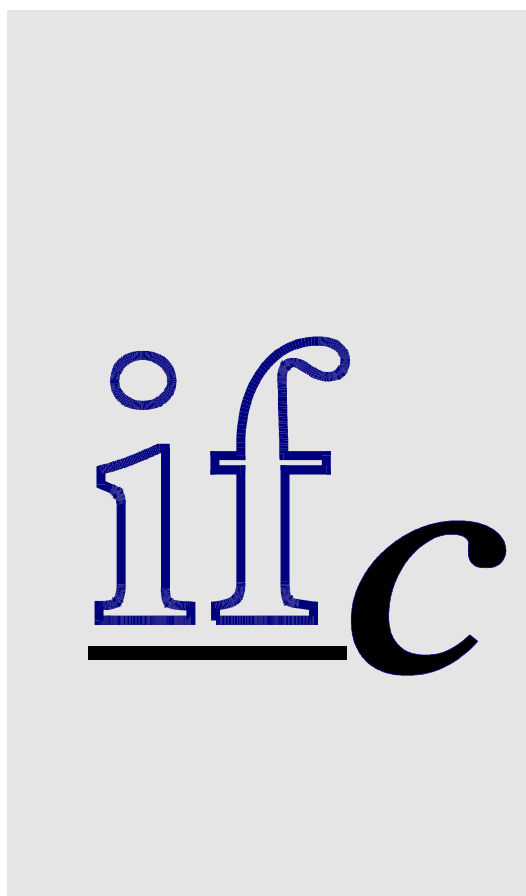

IRVING FISHER COMMITTEE
ON CENTRAL-BANK STATISTICS

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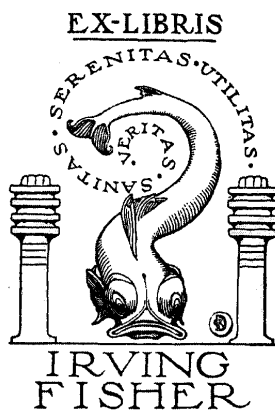


The Irving Fisher Committee is part
of the International Statistical Institute

Contents

Berlin Session 2003

Fisher's "Short Stories on Wealth"



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What is the IFC?

The Irving Fisher Committee (IFC) is a forum for discussion on statistical issues that are of interest to central banks. The Committee, which derives its name from the great American economist and statistician Irving Fisher, is part of the International Statistical Institute (ISI).

Objectives

By providing a forum for discussion, the IFC aims at:

- participating in the discussion on adapting statistical systems to changing requirements;
- promoting the adoption of international statistical standards and methodologies;
- sharing experience on the development of new statistics and the implementation of new methods of collecting, compiling and disseminating statistical information;
- exchanging views between central bankers and academics on statistical methods and techniques;
- facilitating personal contacts between central-bank statisticians.

Strategy

To achieve its objectives, the IFC organizes conferences, which take place both inside and outside the framework of the ISI's biennial Sessions. The first "outside" conference – on the challenges to central bank statistical activities – is scheduled for summer 2002 at the Bank for International Settlements in Basle.

The conferences are supported by the publication of the IFC Bulletin, which contains the conference papers and other articles.

The IFC has a Web site (<http://www.ifcommittee.org>), on which an electronic version of the IFC Bulletin can be found.

What kind of topics are discussed?

Any kind of theoretical or practical statistical subject that has a relationship with the activities of central banks can be considered for discussion. The subjects will mostly be in the area of monetary, financial and balance of payments statistics.

Membership and Structure

In principle, the IFC has no personal members. Central banks and other institutions interested in statistical systems and statistical techniques that have a bearing on the

collection, compilation and distribution of central-bank statistics can become members by simple application. So far, more than 60 central banks and a number of other institutions have applied for membership. Members are entitled to appoint delegates to participate in the IFC's activities and to contribute to its conferences by presenting papers.

The prime decision-taking body is the assembly of members' delegates at the "administrative meetings" that are organized during the conferences. Here the IFC's strategy is determined. At these meetings an Executive Body is elected, which is charged with the committee's day-to-day business and with the preparation of the "administrative meetings". Likewise, at the "administrative meetings" topics are proposed for future conferences, and a Programme Committee is elected to choose from these topics and to organize the conferences.

A Short History

The Irving Fisher Committee (IFC) was established on the initiative of a number of central banks statisticians who were attending the ISI Corporate Members Meeting at the 1995 ISI Session in Beijing.

In 1997, during the 51st ISI Sessions in Istanbul, the IFC held its inaugural meeting. At the "administrative meeting" held during that Session an Executive Body was established and it was decided to start publishing the IFC Bulletin devoted to the activities of the IFC. Two years later, at the 52nd ISI Session in Helsinki, the IFC's presence was further strengthened. In 2001, at the 53rd ISI Session in Seoul, the IFC presented a programme comprising an invited papers meeting on "Financial Stability Statistics" and several contributed papers meetings.

In 2002, a conference on "Challenges to Central Bank Statistical Activities" was organised in co-operation with the Bank for International Settlements, which hosted it at its premises in Basle. 160 statisticians representing 73 countries participated. Some 50 papers were presented.

IFC Bulletin

The IFC Bulletin is the official periodical of the Irving Fisher Committee. The Bulletin contains articles and the text of papers presented within the framework of the ISI Conferences. It also sees as its task the recording of interesting events concerning Fisher's life. Institutions and individuals active in the field of central-bank statistics can subscribe to the Bulletin free of charge.



54th ISI Session, Berlin, 2003

Since the Istanbul Session (1997), the Irving Fisher Committee has on an increasing scale contributed in the activities of the International Statistical Institute. At the 54th ISI Session, to be held in Berlin from 13 to 20 August 2003, once again a number of meetings is going to be organised on behalf of the IFC, which means that our Committee was involved both in the suggestion of the topics and the invitation of organisers and other contributors of these meetings.

We hope and expect that the interest in these meetings will not confine itself to central bank statisticians, but that, as on earlier occasions, the discussions may benefit from the attendance of other participants of the ISI Session. At any rate, a sizeable proportion of the authors of the papers presented at these meetings has a non-central bank background.

A preliminary *programme of the meetings* organised by the IFC, containing a time schedule and a list of contributions, is presented on the next pages. This programme is regularly updated on the IFC web site (<http://www.ifcommittee.org>). Conference papers may be downloaded from this web site.

The IFC *Administrative Meeting* has been scheduled for Friday, 15 August, 11:15-13:00. It may be expected that the following items will be brought up for discussion:

- a report of the developments in the last two years;
- the IFC's request to obtain Section status within the ISI, and its consequences (broadening the scope of the Committee; mandate for the drafting of a business plan; name of the Committee; structure of membership; introduction of a membership fee);
- conferences in the next years;
- organizational matters (election of a new chairperson; role and composition of the Executive Body and the Programme Committee; introduction of a Group of Editors for the IFC Bulletin).

The draft agenda for the Administrative Meeting will be posted on the IFC web site in due course.

To remain informed about possible changes in the time schedules, we advise you to regularly visit the web site of the ISI Session (<http://www.isi-2003.de>). Any new important information will also be posted on the IFC web site (<http://www.ifcommittee.org>), section "Latest News".

Publication of papers in the IFC Bulletin

While, according to the ISI rules, papers should not exceed 4 pages (invited papers) or 2 pages (contributed papers), the IFC encourages authors to submit a more **comprehensive version** of their papers, comprising up to 4000 words, for publication in the IFC Bulletin and on the IFC web site. Authors are requested to send the comprehensive version of their papers to the Editor of this Bulletin (wucwo@wxs.nl) before 1 September 2003.

To facilitate reproduction in the IFC Bulletin, any documents should be submitted as Microsoft Word files (tables should be typed as text), with graphs in the Excel format; use of colours, particularly in graphs, should be omitted.

Meetings of the IFC at the 54th ISI Session, Berlin, 13-20 August 2003

Preliminary Programme

Invited Papers Meetings (IPMs)

Friday, 15 August, 09:00-11:15

IPM 85: “Use of statistics in developing monetary policy”

Organiser: *Armida San José (IMF)*

Part I:

- Development and use of statistics in monetary policy in Cambodia
Phousnith Khay (Central Bank of Cambodia)
- The Role of statistics in the conduct of monetary policy in Albania
Governor Shelquim Cani and Gramos Kolasi (Bank of Albania)

Discussant: *Alfred de Marco (Malta)*

Part II:

- The use of statistics in the monetary policy of the Czech National Bank:
The case of a country in transition
*Ivan Matalik (Czech National Bank) and Josef Arlt (Czech National Bank,
University of Economics, Prague)*
- Use of statistics in developing UK monetary policy
Robin Lynch and Craig Lindsay (Office for National Statistics, UK)
- Statistics on euro area banks’ deposit and lending rates – analytical use, concept
and implementation at the Bundesbank
Stefan Brunken, (Deutsche Bundesbank)

Discussant: *Diwa Guinigundo (Philippines)*

Friday, 15 August, 15:15-17:30

IPM 52: “The use of hedonic methods for quality-adjusted prices “

Organiser: *Bart Meganck*

- Conceptual and measurement issues relating to hedonic methods of quality
adjustment of prices: the UK experience and some practical proposals
David Fenwick and Adrian Ball (Office for National Statistics, UK)
- Quality adjustment of European price data: what role for hedonics?
Geoff Kenny and Henning Ahnert (European Central Bank)
- Comparison of hedonic functions for PCs across EU countries
P. Konijn, D. Moch, and J. Dalén (Eurostat, Germany, Sweden)
- A Different approach to changes in product quality and price
Othmar W. Winkler (Georgetown University, USA)

Discussant: *John Astin*

Contributed Papers Meetings (CPMs)

Thursday, 14 August, 13:00-15:15

CPM 79: “The sectoral and geographical allocation of holdership of negotiable instruments”

Organiser: *Günter Kleinjung (Deutsche Bundesbank)*

- Impacts of securities transactions on the statistical presentation of the money stock development in the euro area
Stefano Borgioli (European Central Bank)
- Reliable statistical recording of negotiable instruments holdership as a precondition for the compilation of money stock and its counterparts
Stefan Brunken (Deutsche Bundesbank)
- Derivation of geographical and sectoral holdership structures for negotiable instruments from periodical reports of security settlement systems
Frank Mayerlen (European Central Bank)
- Recording cross-border holdings of securities in the balance of payments and international investment position statistics: the role envisaged for the ECB’s Centralised Securities Database (CSDB)
Peter Neudorfer (European Central Bank)
- Possibilities of and limits to identifying final holders of negotiable instruments by reporting institution within the monthly balance sheet statistics framework
Beatriz Sanz and Miguel Angel Menéndez (Banco de Espana)
- Recording of cross-border transactions in money market paper and other negotiable instruments by sector within the bop statistics framework and derived geographical holdership structure
Beatrice Timmermann (Deutsche Bundesbank)
- Calculation of holders of marketable securities: UK approach
Richard Walton (Bank of England)
- The means of estimating the negotiable instruments in the Japanese Money Stock Statistics
Mayuko Yasui (Bank of Japan)

CPM 91: “Trade in services – a challenge to statisticians”

Organiser and Chair: *Almut Steger (Deutsche Bundesbank)*

Thursday, 14 August, 13:00-15:15

Part I: The GATS-agreement and the four modes of supply

- The GATS-agreement and the four modes of supply: a new ground for statisticians
Guy Karsenty (World Trade Organisation)
- Cross-border transactions in the field of services: the example of Canada
Art Ridgeway (Statistics Canada)
- Measuring tourism in the context of international trade in services
Antonio Massieu (World Tourism Organisation)
- Analytical value and limitations of FDI statistics: a user’s perspective
Katja Weigl and Masataka Fujita (U.N. Conference on Trade and Development)
- FATS data: Lessons from the French experience
Francois Renard and Frédéric Boccara (Banque de France)
- Temporary movement of natural persons (mode 4) under the GATS
Jolita Butkeviciene (U.N. Conference on Trade and Development)

Thursday, 14 August, 15:15-17:30

Part II: The Manual on Statistics of International Trade in Services and its implementation

- Implementing the Manual on Statistics of International Trade in Services:
Are we progressing?
William Cave (Organisation for Economic Co-operation and Development)
- Trade in services – a challenge to statisticians: the Czech case
Petr Vojtisek (Czech National Bank)
- Evolution of data collection system on services in Russia:
from surveys to an international transaction reporting system
Sergey Shcherbakov (Bank of Russia)
- Japan's implementation of the recommendation of the MSITS
Eika Yamaguchi (Bank of Japan)
- Compiling trade in services statistics in a fully liberalized developing country:
the case of Uganda
Michael Atingi-Ego and Kenneth Egesa (Bank of Uganda)

Saturday, 16 August, 09:00-11:15

Part III: Methodological and analytical aspects of trade in services

- Costa Rica: Enhancements on the services and the current transfers' data
for the balance of payments
William Villegas Calvo (Central Bank of Costa Rica)
- Travel in balance of payments statistics
Branimir Grujić and Igor Jemrić (Croatian National Bank)
- Italian business travellers abroad: a multidimensional perspective
Giovanni Giuseppe Ortolani and Andrea Alivernini (Ufficio Italiano dei Cambi)

Friday, 15 August, 13:00-15:15

CPM 98: "The use of surveys in financial statistics"

Organiser: *Jorma Hilpinen (Bank of Finland)*.

- Redesign of the statistics on insurance corporations and pension funds
Abraham J. de Boo (Statistics Netherlands)
- Surveying Issuing and Paying Agents (IPAs) of securities in the United Kingdom
Bruce Devile (Bank of England)
- Utility of surveys undertaken by the Reserve Bank of India for collection of financial
statistics
K.S. Ramachandra Rao (Reserve Bank of India)
- Selecting reporting agents for MFI interest rate statistics
Daniela Schackis (European Central Bank)
- The implementation of the new ECB interest rate statistics in Austria:
a pragmatic approach to a survey
Aurel Schubert and Gunther Svoboda (National Bank of Austria)
- Sample design and implementation of the Italian survey on harmonised interest rate
statistics
Paola Battipaglia and Fabio Bolognesi (Banca d'Italia)
- Performance evaluation model for primary non-agricultural credit societies
Y.S.P. Thorat, Maria Pardeep and Praggya Das (Reserve Bank of India)



What has Berlin got in store?

The 54th ISI Session, to be held in Berlin from 13 to 20 August 2003, promises to be of more than ordinary importance to the Irving Fisher Committee. The Committee will participate very actively in the conference, with nearly 40 papers, presented at two Invited Papers Meetings and three Contributed Papers Meetings (see the preliminary programme on the preceding pages). All papers, either in a preliminary or the final version, have been reproduced in the present issue of the Bulletin and on the IFC web site (<http://www.ifcommittee.org>).

But it is in particular the prospect that the ISI Council is expected to take a decision on the IFC's application for Section Status within the ISI which gives this ISI Session additional weight. The Application Form, specifying the reasons for the IFC to seek this status, was reproduced in the previous issue of the Bulletin and has been posted on the IFC web site (section "Latest News"). A positive decision may invoke major changes in our future orientation and internal functioning. Therefore, the highest decision-taking body within the IFC, the Administrative Meeting (15 August, 11:15-15:00) has to pronounce on these essential matters. All members, i.e. participants in the ISI Session representing institutions that have acquired membership of the IFC, are encouraged to attend this important Administrative Meeting and are invited to provide suggestions for topics to be discussed.

New IFC Members

Recently, the central banks of Ecuador, El Salvador and Estonia have joined the Irving Fisher Committee, bringing the total number of (institutional) members to 81.

Rudi Acx
IFC Secretary

Administrative Meeting

Friday, 15 August, 11:15-13:00

Administrative Meeting of the Irving Fisher Committee

Executive Body and Programme Committee

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The use of hedonic methods for quality-adjusted prices

INVITED PAPERS

Conceptual and measurement issues relating to hedonic methods of quality adjustment of prices: the UK experience and some practical proposals

*David Fenwick and Adrian Ball (Office for National Statistics,
United Kingdom)*

1. Introduction

The application of hedonic techniques for the quality adjustment of prices has made a significant contribution to the methodological development of price indices in recent years. It is rapidly becoming the preferred method of making explicit adjustments with a number of Statistical Offices applying the technique to a variety of items in both consumer and producer price indices. Most recently this move has been supported by the Schultze Panel on Conceptual, Measurement and Other Statistical Issues in Developing Cost-of-Living Indexes and by the OECD Handbook on Quality Adjustment in the process of being compiled by Jack Triplett. However, whilst there has been a great deal of research literature on the subject, Statistical Offices, in general, until very recently have been less engaged in considering either the basic conceptual issues or in developing solutions to practical application. In consequence, there is no uniformity in the practical application of hedonics or agreement on what is best practice. This paper identifies the main issues that would benefit from resolution in the context of international harmonisation and presents recommendations on best practice based on work undertaken by the Office for National Statistics. It focuses on consumer prices.

2. The conceptual basis of hedonics

As noted by the Schultze Panel, hedonics at its very basic is a statistical technique that exposes nothing more than a purely empirical relationship between the observable attributes of a good or

service and the price paid. The question then is whether this is sufficient in the context of a price index (either a COLI or non-COLI) and whether there is a corresponding economic interpretation.

The question is far from trivial, particularly in a COLI (Cost-of-Living Framework) context, and also because it impacts on the precise application of hedonics, for example decisions over the weighting of observations to which this paper returns to later. It has been argued that one of the strengths of a COLI is that it has a conceptual basis in (micro-)economics. This argument ignores the equally valid fact that a non-COLI has an equally valid context set in stage of production and stage of processing frameworks. That aside, it raises the question of the economic interpretation to be placed on hedonics in a COLI concept where the aim is to measure the minimum that an individual (or household) needs to spend to maintain a given level of utility. It has been argued in this context that only a proportion of the hedonic quality adjustment should be applied. Thus the conceptual integrity of the index needs to be examined.

This issue is, perhaps, best approached by considering the purposes underlying quality adjustment:

- For a fixed-basket (non-COLI) index the objective of quality adjustment is to allow re-pricing (at the current retail value) back to the identical bundle of characteristics associated with the original item that was priced before it was replaced. This is done from the empirical relationship derived from the hedonic function. The latter simply reflects the retail value in the market place of each individual component of the bundle of characteristics. No judgement needs to be made about the state of competition and the impact on pricing policy or the associated impact on consumer utility. The residual issues are essentially measurement ones that will be dealt with later.
- For a COLI we don't have the luxury of such a simplistic approach, rather we aim to measure the utility to the customer. In a perfect market this would be reflected in the marginal cost to the consumer as it could be reasonably assumed that what the customer pays reflects the utility value. But in an imperfect market the market valuation will be higher than the utility value. So, all other things being equal, the application of hedonics without some adjustment for imperfections in the market will lead to an over-adjustment for changes in quality and, assuming quality tends to improve rather deteriorate overall, a downward bias in the index. The authors are not aware of any definitive research on the impact of imperfect markets on consumer utility. But at the very least the arguments laid out above suggest that Statistical Offices should be wary of applying hedonics in markets that don't appear to be very competitive. In these instances it may well be better to use the implicit "class mean" method. This method assumes that the pure price change from the replaced to the replacement item is identical to that for items that continue to be priced and have been identified as being comparable replacements for the disappearing good. In an imperfect market this method at least has the advantage of utilising the more "perfect" competition which should exist between highly "comparable" goods. This has yet to be tested.

More generally, it is clear that in both a COLI and non-COLI context any international application of a "universal" hedonic function will be dependent not only on consumer tastes being similar in different countries but also on similarly competitive markets. This also applies to the application of a "retail" hedonic function to a producer price index. This should be restricted only to competitive markets. Indeed, a breakdown of production costs and a comparative analysis with retail prices will be indicative of the amount of competition. Also the extent to which a market is "international".

3. The application of hedonics

Hedonic methods may "offer the most promising technique for explicitly adjusting prices to account for changing product quality" but they need to be applied with care and a number of basic choices need to be made relating implementation, some of which also relate to conceptual issues.

Prioritisation

The Schultze Panel was somewhat critical of the focus of the Bureau of Labor Market's use of CPIs claiming that the work may not always have centred on the most productive expenditure items. It concluded that "The best candidates for hedonic analysis are categories of goods for which quality change is frequent but incremental and for which the characteristic changes are easy to measure. For example personal computers is seen as an obvious candidate whilst cars [where, for example, measuring performance is highly subjective] and clothes [the challenge of fashion] are seen as problematical".

Two useful quantitative guides to the significance of potential quality changes, identified by Fenwick et al while attempting to measure the price changes of a fixed basket of goods in a dynamic universe are:

- The *turnover* in items as represented by the number of price quotes that disappear from the basket (in a UK context). For instance, a recent analysis has indicated that in the UK. Over 10% of video recorders, hi-fi stacking systems, televisions, dishwashers and washing machines disappear during the twelve months over which the basket is kept constant between January chain link months. In the case of Personal Computers this rises above 25%, all being non-comparable replacements.
- *Implicit Quality Indices*. IQIs were first developed by Jörgen Dalen and Don Sellwood in the context of the European HICP. They are a measure of the effect of the operational adjustments that have been made to the raw price data in order to obtain the published “quality adjusted” price index. That is the aggregate effect of adjustment, including explicit and implicit methods, to remove non-price effects and arrive at the “true” price change. Relatively large IQIs for specific items may indicate areas where particular attention needs to be given to the quality adjustment techniques.

As IQIs can be time consuming to compute, this leads to an alternative simple two-dimensional matrix approach that can be characterised by two statistics:

- Rate of technology change in the good (are new features and improvements regularly being introduced?)
- Rate of turnover of models (are older models disappearing from the market and being replaced by new models at a high rate?)

Clearly if an index item is subject to both a high rate of turnover and of technological change then it should be a prime candidate for explicit quality adjustment. Similarly, the index compiler would not want to give priority to explicit quality adjustment where an item has low turnover and technological change. Both statistics in the matrix should be easily calculated from the raw data used to compile the CPI or from scanner data. The notion could be further developed to provide a useful guideline for best practice. It is an approach being actively used by the ONS.

	Low rate of technology change	High rate of technology change
Low turnover rate	NO	
High turnover rate		YES

Weighting

- This is another area, which has been actively researched, but warrants further consideration by Statistical Offices and is one that the ONS is actively engaged in. Essentially the issue to be resolved is should the hedonic regression be weighted or unweighted and if weighted by what? Clearly weighted regressions are in principle preferred but the choice of weights is far from clear cut and involves both conceptual and axiomatic considerations.
- On the one hand it can be argued that quantity weights should be applied as each transaction is an “observation” and the observation needs to be repeated by the number of transactions to maintain the “representativeness” of the regression in a traditional sense. Thus it might be argued that the alternative of placing a higher “expenditure” weight on a small number of transactions would make the regression less representative than one based on quantities. Also the use of “expenditure” weights can have the impact of double counting “price” in the regression. The latter is expanded below.
- On the other hand it can be argued that expenditure weights are to be preferred from an economic perspective as the coefficients that are generated are more “representative of the market”. For example, they give proportionately larger weights to expensive models that tend to be market leaders and therefore are more indicative of a changing market. Thus the observed difficulty with unavoidable timelags in hedonic regressions can be confronted by giving relatively more weight to “new” expensive items. In addition, it has been shown that the conceptual basis of a COLI and its associated algebraic formulation favours expenditure weights when the time dummy variable approach is used (see next section).

At first sight these opposing arguments would appear to be straightforward although difficult to reconcile. However, in reality there are a number of other issues, largely technical and including sampling. For example, most CPIs will be constructed using either implicit or explicit expenditure weights and this might suggest that expenditure weights should be deployed in the hedonic regressions for consistency, but note the problems referred to above. Note also that collinearity between expenditure weights and the dependent variable “price” in the regression is not a problem in practice.

Clearly there are a number of conceptual and practical issues to be confronted by Statistical Offices.

Alternative methods of application

There are essentially three methods of applying hedonics and each has advantages and disadvantages:

- *The individual coefficient approach.* This uses the coefficients from single-reference period hedonic functions to adjust post-hoc the observed price of the replacement item to impute a new base price. It is claimed to have a common sense appeal but relies heavily on the reliability and stability of the individual coefficients estimated in the hedonic function. For instance multi-collinearity could be problematic. *An over-arching requirement for this approach to work is to have efficient estimates of the individual hedonic coefficients.*
- *Time dummy variables.* This uses single regressions (with time dummies) covering all periods, which are re-run each time the index is compiled, with fixed “characteristics” coefficients and the difference between the time dummies is taken to represent the price change excluding quality differences. One of the main drawbacks with this approach is that consumer tastes can change quickly and in consequence the “characteristics” coefficients become rapidly out-of-date. *An over-arching requirement for this approach to work is the representativeness of the “hedonic” sample.*
- *Predicted prices.* This uses the ratio of the overall prices predicted by the hedonic equation for the replaced and replacement items to adjust post-hoc the price of the replacement item. It tends to be more stable and the outcome less susceptible to the impact of multi-collinearity on the individual coefficients. Thus from a practitioner’s perspective the application tends to be more robust. *Like the individual coefficient approach, this again requires an efficient estimator, but in this case predicted price. Where the data is orthogonal the two estimators will converge.*

The ONS experience indicates that the advantages of the predicted price approach are realised in practice and in addition provide a ready mechanism for routinely testing the validity of models. These advantages are resilient to differences in market circumstances and clearly there would be advantage to be gained in adopting a standard approach internationally, both in knowledge sharing and the perceived integrity of index construction. This is particularly so where there is thought of sharing the same hedonic function, as the criteria for computing the hedonic function will depend, in part, on its precise use (see next section).

Computing the hedonic function

Two issues arise that warrant consideration: the form of the hedonic function and its computation:

- The functional form is both a conceptual issue and a practical one. Thus the semi-log formulation is a multiplicative model in the price dimension and therefore may be considered rational in a market context where attributes associated with an item or service may add value to one another.
- ONS experience is that the frequent presence of collinearity between independent variables means that hedonic regressions may not be globally optimal and there may not be a uniquely best functional form. Rather the best that can be achieved is a local optimisation that gives the best regression fit possible with results that are compatible with what is expected of the market. For this reason a total reliance on regression diagnostic statistics (such as partial F-values and adjusted r-square’s) should be deferent to a more systematic, multistage system relying on human intervention at key stages. This iterative approach has been adopted with success by ONS following closely Statistics Canada practice and is repeated until a satisfactory result is achieved:

“Choose base values for dummy variables – these are left out of the regressions / Run regression with all variables, and produce correlation matrix / Examine correlation matrix, and associated statistics, to inform on collinearity between independent variables. Look at collinear pairs, and decide whether the variables can be combined, or one variable dropped / Examine residuals for evidence as to whether to make continuous variables discrete dummies/Re-run the regression with the amended variables / Remove variables with low t-values (at this stage $t < 1$) / Re-run the regression with the remaining variables / Progressively add and remove variables, until a combination is reached that produces the best fit, with coefficients in line with market expectations (in particular positive coefficients for included variables) / Examine residuals and cooks d-statistics for evidence of outliers / Either remove the outlier observations, or add extra attributes, to remove their influence; Then re-run steps 1 to 9 / Look for evidence of missing variables. If this is present revisit data source for added information / Group together dummy variables within brand, sound card and video card that are not significantly different / Run final regression.”

Judgement is needed on when to stop the iterations, based on an evaluation against market expectations as well as statistical diagnostic tools. This requires market expertise that the ONS have built up during the course of the work.

Updating the hedonic function

ONS experience indicates that a systematic and analytical approach is needed to the updating of the hedonic model, which does not rely solely on emerging market knowledge or on a regular update of the model every six months, say. The latter can easily miss changes in the market, especially the identification of unpredictable market shocks in real-time. For this reason the ONS have adopted an approach where regular updates are supplemented by additional ones triggered from an analysis of predicted against actual prices. A systematic difference between predicted and actual price provides a clear pointer to the need to update the regression. This provides a useful tool as such an analysis can be carried out routinely to a tight timetable.

4. Some general observations and conclusions

In order to establish hedonic techniques more firmly as a standard method in the compilation of price indices, there must be both competence and confidence in the methodology. Researchers in the academic community have become increasingly aware of the fact that the true nature of hedonics is that it is a complex amalgamation of conceptual and measurement issues. This is re-enforced by recent work conducted by Statistical Offices, including the ONS. It could be argued that the use of hedonics for quality adjustment has reached a decisive moment with a number of Statistical Offices now applying the technique in their price indices. But the basic tenant of this paper is that whilst a lot of work has been carried out by individual statistical offices, further progress could be usefully be made by advancing guidelines for the resolution of the practical issues confronted by Statistical Offices.

Résumé

D'après l'expérience de l'ONS, un procédure conventionnelle concernant la mode de l'emploi d'hedonics augmenterait la compétence pour et la confiance en cette méthode. Il améliorerait aussi l'envergure pour la coopération et la comparabilité internationale. Cet article fait propositions fondées sur le travail récent de l'ONS.

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Quality adjustment of European price data: what role for hedonics?

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1. Introduction

In recent years, there has been a renewed interest in the question of how well price statistics measure inflation.² This interest in the conceptual problems and practical challenges of price measurement is to be welcomed. Policy makers rely heavily on the accuracy of price statistics in coming to their assessment of macroeconomic developments and, hence, in setting the course of policy. Top of the list of major issues to be addressed is the problem of ensuring that price statistics accurately account for the dynamism in the quality of the goods and services. Although this challenge is not new, it has become more pressing due to the increased pace of innovation in the economy. Moreover, the need for harmonised price statistics in the EU – first in the run-up to the convergence assessment for Economic and Monetary Union, and since 1999, for the single monetary policy in the euro area – has promoted the discussion on quality adjustment methods in the EU.³

The interest of central banks in quality adjustment stems from the important role that economic statistics, and price indicators in particular, play in helping them ensure that the objectives of monetary policy are achieved. In the case of the ECB, the primary objective of monetary policy is the maintenance of price stability. The ECB's Governing Council adopted a quantitative definition of price stability in terms of the euro area Harmonised Index of Consumer Prices (HICP).⁴ In addition to the important role played by the HICP in defining the objectives of monetary policy, the ECB makes use of a wide range of euro area price indicators in its analysis of macroeconomic developments. These indicators include the HICP and its components, indicators of producer price developments, export and import price indicators as well as the national account deflators. Such indicators represent a vital source of information and mis-measurement of price developments – especially if varying over time and correlated with the economic cycle – due to inappropriate quality adjustment or due to other measurement problems, has the potential to cloud the ECB's assessment of macroeconomic developments.

2. The quality adjustment problem

The Quality Adjustment (QA) problem arises in a number of different ways. For some goods and services, quality change occurs at discrete and relatively low frequency intervals, while for others this process may be almost continuous.⁵ When considering the implications for price measurement, it is useful to distinguish three separate forms in which the QA problem can arise. First, statisticians are often confronted with a situation where there are forced but non-comparable replacements of the items included in the sample. In a static world, where the quality of goods and services

1 *The views expressed in this paper are those of the authors and do not necessarily reflect the views of the ECB. A long version of this paper is available on request.*

2 *Wynne and Rodriguez Palenzuela (2002) discuss some of the main reasons for the renewed interest in price measurement, Camba-Mendez, Gaspar and Wynne (2002) review the conclusions from a joint ECB/CEPR conference entitled "Measurement Issues in European Consumer Price Indices and the Conceptual Framework of the HICP".*

3 *In Europe and the euro area it is the European Commission (Eurostat) who is responsible for European price statistics. In practice, Eurostat and EU Member States agree on common definitions and methods, and Eurostat compiles aggregate European price statistics from national results provided by national statistical institutes.³ Issing (2001) reviews the role played by statistics in helping to shape monetary policy. Domingo Solans (2003) highlights the important role of Eurostat as provider of euro area statistics for the monetary policy of the ECB.*

4 *According to the Governing Council "price stability shall be defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2.0%". In May 2003, the Governing Council further clarified this objective by stating that in the pursuit of price stability it would "aim to maintain inflation rates close to 2.0% over the medium term". See also ECB (2003).*

5 *For example, in the case of products that are tailor-made for specific purposes, product characteristics may change with each transaction: this, however, seems to be more relevant for customised capital goods and business services than it is for consumer price statistics.*

did not change over time, such replacements would not arise. However, in a dynamic environment, new and improved varieties are regularly introduced, while old varieties are withdrawn or driven from the market. In addition to the situation of forced and non-comparable replacements, quality change can also arise in other forms. For example, supplementary - rather than replacement - goods may enter the market. Such goods may not drive existing goods from the market and, therefore, under such circumstances, the statistical agency may continue to compile a pure “matched model” price index. Such a matched model discards the new supplementary good in its sample, thereby by-passing the problem of estimating the contribution to inflation from its introduction. However, to the extent that the price dynamics of these supplementary goods differ from the average dynamics of the goods and services that are included in the index, such a “matched model” approach may mis-measure the actual inflation that consumers face (see Silver and Heravi, 2002). A third way in which qualitative improvements can complicate the measurement of inflation is when a fundamentally new good enters the market and satisfies a consumer need that has not been addressed by any previous good or service. Lane (2000) suggests VCRs, cell phones and new medical vaccines as examples of such “radical innovations”.

Very little data exists as to the severity and frequency of occurrence of the different forms of the quality problem in Europe. Nonetheless, the dynamic nature of modern economies, where differentiating and improving the quality of products and services seems to be a key element which underpins the process of economic growth, suggests that all three forms mentioned above are likely to be quite prevalent. Eurostat (2000) compiled for selected HICP sub-indices information on monthly replacement rates as well as on so-called Implicit Quality Indices (IQIs), which measure the effect of adjustments made to raw price data. Not surprisingly, on average in eight EU countries, the highest average monthly replacement rates (between 8 and 14%) and QA effects were observed for electronic household goods, in particular computers (QA effect of 31% over a period of one year in 7 EU countries), while for clothing - although the replacement rates were high (7%) - the QA effects were very small (0.1%). In a case study for PCs in Austria, Dalén (2002) cites evidence that of the sample of 14 different PCs that are priced in the index, the number of monthly matches ranges from two to eleven. The evidence from non euro area countries also supports the view that the quality issue is quite prevalent. For the US, Moulton and Moses (1997) provide estimates which suggest that quality change effects approximately 30% of the items that enter the US CPI in any given year. Using scanner data for the UK, Silver and Heravi (2002) show that a matched model may deviate substantially from a model which seeks to maintain its representivity, thereby implying that the quality issue is quite pervasive and potentially significant. In addition, the magnitude of quality change is likely to differ across different goods and services. For these reasons, Gordon and Griliches (1997) argue that an overall evaluation of the implications of quality change for price measurement must be conducted “. . . down in the trenches, taking individual categories of consumer expenditure, assessing quality bias for each category and then aggregating using appropriate weights”. (p. 84)

Consumer theory suggests a number of ways in which to tackle the quality adjustment problem. In particular, it suggests that the problem posed by quality change is closely linked to the question of how to assess the extent to which consumers’ value changes in product features. In line with this, the theory of the Cost of Living Index (COLI) recommends the need to estimate the impact on living standards associated with quality improvements and the introduction of fundamentally new goods. In addition, it has been argued that the correct way to approximate this welfare gain in a period (t) when a new good is introduced is to estimate the implicit price reduction compared with the preceding period (t-1) when the good was not available. Under this approach, the implicit price in period t-1 is approximated as the price that would have driven demand for the new good to zero (see Haussman, 1997) in that period. However, the conceptual basis of the HICP, in particular its focus on final monetary expenditures and on the prices of goods and services in which consumers actually transact, appears to place some limits on the extent to which such welfare gains should be incorporated. Hoven (1999) quotes Walsh (1921) whose views seem to appropriately sum up the spirit of the HICP’s approach: “If a commodity exists at one period and not at another, it must be omitted from any comparison of these two periods; for its price has not varied, it has merely appeared or disappeared”.¹

¹ *Aside from the conceptual arguments against including virtual price changes in the HICP, there are major practical objections. In particular, for many goods and services the process of estimating the necessary consumer demand systems is data intensive, while the identification of the precise structure of consumer demand is subject to significant uncertainty and may require extensive judgement on the part of the modeller. This is the reason why in practice these effects are not covered even in CPIs which are intended to measure the cost of living. For the same reason this method was recently rejected in a review of measurement issues in the US CPI (National Research Council, 2002).*

3. Quality adjustment in Europe: current practice

Notwithstanding the complexity of the task, statistical agencies cannot circumvent the challenge posed by quality change. As a result a number of QA procedures exist which are regularly used by National Statistical Institutes (NSIs) in the EU. Two broad approaches to the problem of quality adjustment exist. One frequently used class of methods seeks to incorporate the new varieties into the index without an explicit attempt to value the new features of the product. These implicit quality adjustment methods, which link the prices of new varieties into the index under various assumptions, include simple and bridged overlap methods. In contrast, the other main class of approaches seeks to explicitly place a value on the new features or quality changes in a product (for an overview of the different methods see the Annex).

At present, QA of the European HICP is governed by EU wide regulations. For the EU national accounts, QA guidelines have also been defined (Eurostat, 2001) although they are of a rather general nature. For other price statistics in the EU (e.g. producer prices), the choice of QA methods is left to the Member States. The HICP regulations, though not very detailed, express a preference for QA methods that explicitly attempt to value the contribution of quality to the price change. Such explicit methods include Hedonic Methods (HM) but also cost based QA which assesses the contribution of quality change on the basis of the cost of providing new features. In addition, subjective judgement – of either price collectors or centralised price specialists – and a number of implicit methods are in use. All these methods may be appropriate if their underlying assumptions are met, while they bear the risk of mis-measurement if the assumptions are not met. Moreover, this diversity in approaches implies that some of the dispersion in price developments for some items (e.g. IT equipment or clothing) which is observed for different countries may in fact be due to the quality adjustment used rather than representing the true price evolution. In this regard, the implementation of new methods (e.g. HM for PCs) has promoted some convergence in price developments over-recent years. However, the lack of harmonisation and comparability in the EU may be indicative of measurement error.

4. What role for hedonics?

In recent times, some statistical agencies - particularly in the US - have increasingly turned to HM. HM use regression techniques to assess the empirical relationship between product prices and their characteristics and use this relationship to subsequently assess the contribution of changes in product characteristics to price developments. The application of HM has been less prominent in Europe although it is increasing in line with the preference for explicit QA methods contained in the existing regulations. This raises the question of whether or not a more widespread application of HM could be part of the further improvement and harmonisation of QA practices in the EU.

Economic theory suggests that the extent to which observed price changes should be adjusted for quality depends on the extent to which any qualitative improvements are valued and utilised by consumers. An important issue to consider therefore, is the extent to which HM accurately capture consumer valuations of qualitative improvements. In this regards, the hedonic notion of quality – which is based on technical product characteristics – is likely to exclude (and hence mis-measure) more “hidden” aspects reflecting taste or aesthetic value. In addition, in a situation of a product replacement (where the old variety is not available on the market) consumers may be left with little or no choice. As a result, it may no longer be the case that observed market prices, and the hedonic estimate based on those market prices, reflect actual consumer valuations of the new features. An adjustment method that is based purely on technical features may then incorrectly value quality improvements which are not seen as particularly useful by the consumer.

Another important issue to consider, is whether or not a more widespread use of HM should be expected to have a noticeable impact on aggregate price statistics. HM tend to produce steeper price decreases for, in particular, electronic consumer durables compared with other currently employed methods. However, there may be important exceptions depending on the nature of the methods currently used (e.g. option cost adjustment for cars) and sampling (e.g. frequent replenishment). In addition, the application of HM to other components of a price index – e.g. clothing and rents – might counterbalance these effects. As a result, an overall assessment of the impact of HM on aggregate price statistics must therefore await broader based results.

From the perspective of the users of price statistics, an important issue is the extent to which more widespread use of HM will improve the credibility of these indicators. If quality adjustment is based on procedures that lack transparency and/or are based on subjective judgement rather than objective criteria then this has the potential to undermine their credibility. HM are often cited as holding out the prospect of better objectivity and transparency – and even reproducibility - of qual-

ity adjustment procedures. However, as with many procedures in index compilation, HM also involve many judgmental elements. These judgements arise in any empirical estimation and concern the sample selection, the choice of the regression function and variables as well as the chosen method for constructing a price index from a given hedonic regression. These choices may be decisive for the results. However, notwithstanding this judgmental element, if HM are applied following agreed and comparable criteria, they may improve rather than diminish the credibility of price statistics for some product groups.

Another important aspect of ensuring this credibility is the provision of good documentation on the estimated hedonic functions and on the considerations leading to the chosen specification.¹ Revisions associated with the implementation of HM methods should be explained to the public. In addition, for EU price statistics some effort should be placed on ensuring a transparent discussion of the results prior to any decision on whether or not to actually implement hedonics for a new class of items. Transparency of the process could also be enhanced through comparison of implicit quality indices, showing the extent of the estimated quality change for different goods and services. To the extent permitted by confidentiality restrictions, it would also be preferable if the underlying datasets used in hedonic research programmes were publicly available.

Finally, the ECB as a user of euro area aggregate price statistics must consider the effect of hedonic adjustment on the comparability of the national results. Such comparability does not necessarily imply that the same QA procedures are used in all countries, although it does imply a convergence of national practices toward best practice in order to minimise any systematic error due to quality change. Importantly, an EU wide adoption of HM for selected items would not guarantee completely comparable QA, due to the inevitable judgmental element in the specification of hedonic models. However, if appropriately documented and co-ordinated, an EU-wide application of HM for appropriate product categories offers the opportunity to achieve greater comparability more quickly than would otherwise be the case, in particular if the objective were the harmonisation of the frequently used implicit methods for QA.

5. Concluding remarks

There appear to be a general agreement that QA is the highest priority for the further harmonisation of EU price statistics, in particular HICPs. Comparability and credibility of euro area price statistics is essential for the single monetary policy of the ECB. Though some questions on the meaningfulness of the relationships between price differentials and technical product features remain, HM, if used for appropriate product categories, offer the opportunity to achieve greater comparability and credibility more quickly than would otherwise be the case.

An important question is why the commonly shared priorities have, for the time being, led to only very limited progress towards better QA methods in the EU. The dominant approach of harmonising European statistics is the so-called “output” harmonisation, i.e. defining the desirable output, but not the method (input) by which these results are to be achieved. HM offer (or even call) for intensified methodological co-operation between statistical agencies and Eurostat. Without co-ordinating the input to HM in national price indices – i.e. the data sources, the sampling and econometric techniques – there is no guarantee that HM will ensure comparability of national price statistics.

Several of the ‘critical’ products are offered and purchased with very similar product characteristics in all European countries (e.g. cars and PCs). Better QA methods are costly, and resource constraints appear to be the major obstacle why HM (or other appropriate techniques) are introduced only slowly and for few index items. Progress in QA methods is still achieved by relatively independent national research and decisions by individual EU countries. Single European markets and resource constraints are further reasons for a strong co-ordination and co-operation to develop better quality adjustment practices. Practical contributions of Eurostat to the QA development, such as the HICP QA database shared between Member States and Eurostat, or the role of the European Hedonic Centre, should be more integrated into the production of price statistics by national index compilers.

Finally, while it is welcome that first priority is given by Eurostat and national agencies to developing QA in HICP, which is the primary indicator for the ECB, QA methods for other price indicators used in the assessment of price developments by the ECB are also important. Very little is

¹ For the US, the BLS has played an important role in seeking to ensure that such documentation is publicly available. See, for example, the set of papers constructing hedonic models for a wide class of items available at <http://www.bls.gov>.

know about QA in EU output, export, import price indices, as well as national accounts deflators, but the available results indicate a large potential for harmonisation across countries.

Abstract:

In this paper, we review the well-known problem of how to measure price developments when the quality of the underlying goods and services is changing over time. The importance of appropriate methods to take account of quality change is highlighted from the perspective of monetary policy. In particular, we highlight the need for credible and transparent price indicators. In this context, we review the hedonic approach to calculating quality-adjusted price indices and assess the available information on their effects as well as their potential for improving credibility and comparability. Current practices as regards quality adjustment in the European Union are also discussed, with particular emphasis on the Harmonised Index of Consumer Prices (HICP). Overall, we give a qualified endorsement of hedonics for specific product categories and make some practical suggestions for how to progress the work on quality adjustment in Europe, focusing in particular on the role of hedonics.

Résumé

Cet article examine le problème bien connu de la mesure de l'évolution des prix lorsque la qualité des biens et des services considérés varie au cours du temps. Il souligne l'importance de recourir à des méthodes appropriées pour prendre en compte ces évolutions qualitatives dans la perspective de la politique monétaire. Nous soulignons, en particulier, la nécessité de s'appuyer sur des indicateurs fiables et transparents. Dans ce contexte, nous examinons la méthode hédonique de calcul des indices de prix, qui prend en compte les ajustements qualitatifs, et nous présentons une évaluation de l'information disponible sur leurs effets ainsi que sur les possibilités d'amélioration qu'ils génèrent en termes de fiabilité et de comparaison. Nous débattons également des méthodes actuelles d'ajustement qualitatif au sein de l'Union Européenne, en particulier en ce qui concerne l'Indice des Prix à la Consommation Harmonisé (IPCH). Globalement, outre quelques réserves, nous estimons que la méthode hédonique de calcul des prix est appropriée. Enfin, nous proposons un certain nombre de suggestions pratiques en vue de faire progresser les travaux sur les ajustements qualitatifs en Europe, soulignant, en particulier, le rôle de la méthode hédonique.

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Annex: Overview of selected quality adjustment methods

Method	Description	Main assumption
Implicit methods		
Direct price comparison	New and old offer directly compared over two adjacent periods	No quality change
Link to show no price change	New and old offer linked across two adjacent periods	Price change equals quality change
Simple overlap	New offer replaces old offer in overlap period	Price difference between new and old variety equals quality difference
Bridged overlap	New offer replaces old offer, but price change is inferred from ongoing offers	Price changes of ongoing product-offers equal to those of changing offer
Monthly chaining and re-sampling	Only matched models of two adjacent periods are compared, but samples are updated monthly and results linked	Price change of the matched models is equal to the true, but unknown price change on unmatched models.
Explicit methods		
Hedonics	Regression analysis of product characteristics and price differentials	Competitive markets, chosen characteristics correctly reflect consumer valuation, no rapid changes in taste
Option costs	New offer incorporates features formerly available as option at additional cost	Chosen fraction of option cost reflect implicit price in new offer, no rapid changes in consumer taste
Price collector adjustment	Decentralised judgmental adjustment	Price collector valuation correctly reflects product features
Expert adjustment	Centralised judgmental adjustment	Expert valuation correctly reflects product features

Comparison of hedonic functions for PCs across EU countries¹

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1. Introduction

Hedonic methods are increasingly being accepted as being the appropriate method for constructing price indices for fast-changing goods such as personal computers. Apart from the US, that has used these methods for many years now, also at least Canada, France, the United Kingdom, Sweden and Germany have adopted hedonic methods in either producer, import or consumer price indices (for two recent adoptions see references). While one would expect that the use of the same method would increase the comparability of the resulting price indices, this is not necessarily the case since each country has adopted different ways of implementation.

One particular issue is the use of different data sources. There can be many reasons why different data sources cause incomparable results: they can have different price bases (e.g. consumer versus producer prices), different coverage of the market, different sample sizes, different characteristics observed, etc. In this paper, an attempt is made to estimate hedonic functions for Germany, the UK and France from one and the same data source.

The hedonic function is a regression equation explaining differences in prices of PCs (in the case treated in this paper) by differences in characteristics of PCs. The regression coefficients are an indication of the contribution of each characteristic (for example the processor speed or the size of the hard disk) to the price, and thus an indication of the importance consumers attach to the individual characteristics. If PC markets and consumer preferences were similar across countries, the hedonic functions for these countries could be expected to be similar as well. If that's the case, it could perhaps suffice in practice to construct only one hedonic function covering several countries.

This research is part of a wider project (the "European Hedonic Centre") investigating the feasibility of co-ordinated hedonic modelling that would assist countries in constructing more harmonised price indices for PCs.

2. Data source

This paper uses data from the European PC Pricing Database purchased from the International Data Corporation (IDC). The database covers PC prices and a broad range of 24 PC characteristics for six European countries: Germany, France, the United Kingdom, Italy, Spain and the Netherlands. Unfortunately, for the last three countries not enough observations were obtained to carry out meaningful regression analysis, so the results presented here are confined to the first three countries.

The data set covers the period May 1999 to May 2001. The price basis is "reseller buy" prices, i.e. the price a retailer pays to a wholesaler/importer. IDC includes major vendors but not non-branded items. The vendors included are Acer, Apple, Compaq, Dell, Fujitsu Siemens, HP, IBM and Toshiba. (Apple was excluded subsequently for the regression analysis.) The sample covers desktops and workstations, but not laptops. For reasons of space, we concentrate here on the results for desktops only.

There are unfortunately no data on sales volumes available.

¹ This is a preliminary version of this paper. A version with full results will be available at the conference.

3. First results

Stepwise regression and choice of functional form¹

The first step in the analysis consisted of a stepwise regression to determine the specification of the hedonic functions. In stepwise regression, variables are added to the hedonic function one by one until the best fit is obtained. The procedure was carried out for each country separately, so that a comparison could be made of the variables included.

Table 1 – Results of double-log hedonic regression with time dummy variables

	Germany		UK		France	
	coefficient	t-value	coefficient	t-value	coefficient	t-value
processor speed (lnmhz)	0.646	20.40	0.389	12.98	0.604	25.70
ram memory size (lnmb)	0.168	12.16	0.031	2.25	0.154	14.30
cache size (lnmb)	0.109	5.08	0.043	3.61	0.111	9.07
video ram size (lnmb)	0.051	4.18	0.090	12.96	0.051	6.68
number of bays (ln)	0.000	0.01	0.438	13.60	0.068	2.15
number of slots (ln)	0.040	2.54	-0.185	-9.76	0.027	1.84
maximum ram size (lnmb)	0.043	3.33	0.135	11.18	0.036	3.67
hard disk size (lnmb)	0.153	8.33	0.180	13.09	0.066	4.98
fast video memory type	0.031	3.72	0.060	6.98	0.067	10.19
scsi controller included	0.011	0.47	0.194	3.73	0.046	2.08
xeon type processor			0.037	1.46	-0.021	-0.87
celeron type processor	-0.059	-1.87	-0.142	-9.30	-0.059	-3.48
network card included	0.075	7.92	0.027	3.02	0.022	2.87
more than one cpu			0.124	4.39	0.016	0.80
professional windows	0.012	1.40	0.048	5.98	0.061	9.29
guarantee 3 years on site	0.063	7.23	0.014	1.65	0.108	16.99
brand 1	-0.252	-22.28	-0.279	-20.60	-0.174	-20.01
brand 2	-0.319	-16.54	-0.323	-27.18	-0.181	-13.47
brand 3	-0.121	-4.10	0.057	2.24	0.165	2.25
cdrom included	-0.022	-2.31	0.083	10.71	0.039	5.62
dvd included	0.030	1.28	0.082	4.22	0.100	7.17
intercept	0.272	0.91	1.548	6.80	1.367	7.20
Number of observations	1907		2296		2278	
R-squared	0.807		0.792		0.839	

In all countries processor speed, hard disk capacity and main memory size were selected. Also processor type, cache memory and variables on graphics capacity turned out to be important in all countries. Furthermore, a dummy variable indicating a high level of guarantee (3 years of guarantee including on site service) was significant in all countries. Dummy variables for modems and sound cards were not selected. Some brand variables were also selected (but not all). A brand variable can be interpreted as a proxy variable for producer specific characteristics not included in any of the other characteristics.

Subsequently, the Box-Cox approach was used to determine the most appropriate functional form (linear, log-linear or double-log) for the hedonic functions. This resulted in a preference for

¹ *The regression techniques used in this paper are very similar to the techniques used by Moch and Triplett (2003).*

the double-log form, which is the most common form chosen in existing research on hedonic indices.

Regression results

Table 1 shows the results of the double-log hedonic regression. In this regression, all observations are pooled together (per country) with time dummy variables added. Table 1 does not include the time dummy variables; they are shown graphically in Figure 1.

Generally speaking, the results show the expected strong correlation between price and performance variables. The regressions show a good fit in all three countries, as indicated by high R² values. We notice a very strong coefficient for processor speed, which are of similar size in Germany and France but quite a lot lower in the UK. Second most important variable is probably hard disk size: the size of the corresponding coefficient is similar in Germany and the UK but much lower in France. Striking are the differences in the intercept: much lower in Germany than in the UK and France.

Given these similarities and differences, the question rises how to evaluate the “similarity” of the hedonic functions across countries. It’s difficult to compare individual coefficients. What is more important than the individual coefficients is how the hedonic functions predicts prices. One way of analysing this is the following. We have calculated the average PC model in each of the three countries over the period of two years. We have subsequently entered the average characteristics into the three hedonic functions and calculated the hedonic (i.e. quality-adjusted) prices of these average PCs. This is shown in table 2. For example: the element on row “UK” in column “Germany” gives the hedonic price of the average UK model according to the hedonic function calculated for Germany.

Table 2 – Hedonic prices of average PC models according to the different hedonic functions (euros)

		hedonic function from			
		Germany	UK	France	average
average	Germany	1456.4	1417.4	1501.8	1458.6
PC model from	UK	1345.8	1370.7	1436.9	1384.5
	France	1407.1	1377.3	1442.0	1408.8
	average	1403.1	1388.5	1460.3	

This table tell us that the highest quality adjusted prices are found in France and the lowest in the UK. In other words, for the same computer, French consumers pay most and UK consumers pay least. At the same time, UK consumers buy the least advanced PCs and German consumers the most advanced. The levels are however very close, indicating similarity of the hedonic functions.

Time trends

Figure 1 – Hedonic price indices for desktop PCs

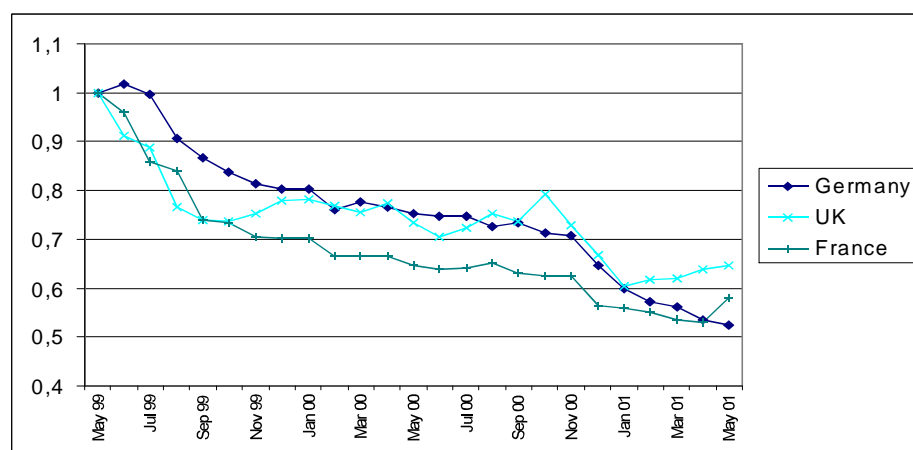


Figure 1 shows the results of the time dummy variables in the regression, in other words the resulting hedonic price indices. Quality-adjusted prices decrease quite rapidly in 1999, but then stay rather stable for a large part of 2000. At the end of 2000, further price decreases take place. The indices are fairly similar across countries, with Germany and France ending up at about the same level and the UK slightly above (due to unexpected small price increases in the beginning of 2001).

4. Preliminary conclusions

The conclusions that can be drawn from this preliminary analysis are that choice of variables and functional form of the hedonic function are quite similar across the three countries investigated, but that individual coefficients may differ significantly. Thus there is certainly some similarity in PC markets and consumer preferences across countries, but there are also significant differences.

This conclusion supports the idea of estimating the hedonic functions for (groups of) individual countries in a co-ordinated way, i.e. from the same data source using the same hedonic techniques. It would enhance the comparability of individual countries' price indices for PCs.

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Résumé

Les fonctions hédoniques pour PCs des différents pays sont difficiles à se comparer puisque différents pays utilisent différentes sources de données. Dans ce document, les fonctions hédoniques pour trois pays de l'UE sont compilées d'un et de la même source de données. Cela permet une comparaison directe de ces fonctions et ainsi d'une analyse des similitudes et des différences de préférences du consommateur. Si la similitude des préférences du consommateur peut être montrée, il y a une raison forte pour estimer la fonction hédonique au niveau de l'UE. Les résultats provisoires montrent que la même forme fonctionnelle avec les mêmes variables incluses donne un bon ajustage (autour de 0,8) dans les fonctions hédoniques pour les pays étudiés, mais que certains coefficients de régression sont très différents.

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A Different approach to changes in product quality and price

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Summary

The concepts underlying the Price Index Numbers of Laspeyres and Paasche originated in the small and stable economies of past centuries. They are poorly suited to convey today's very dynamic price reality. To cope with this reality a different approach, the **Price Level Indicator, PLI**, is proposed. It differs from existing Index Numbers: Price is understood as a characteristic of the business transaction, exists only briefly, and is the total monetary and non-monetary value of the actual sale. The loss of detail in Price aggregates obviates the need for strict comparability of products. The proposed PLI uses unmatched samples and does not need weights. Price Level changes are observed through ratios between the "average price-per-transaction" and ratios between the "average price-per-unit-sold," for a flexible variety of vertical and horizontal comparisons of Price Levels. Hedonic adjustments remain of interest for small-scale research.

1. The Historical Context of Index Numbers

Efforts to follow the posted prices-per-unit of basic staples began centuries ago. These products hardly changed over time. Representative products were selected and changes in their unit prices recorded. At that time the economies were much simpler. Laspeyres developed his Price Index Number for the economy of one of the small principalities and kingdoms of the 39 mini-states in the region of today's Germany. There may not have been more than 10,000 different products, which remained unchanged for years. Laspeyre's and Paasche's fixed schemes to capture price changes, may have been reasonably close to that economic reality. The desire to summarize these prices-per-unit lead to Price Index Numbers.

Early index makers relied on a series of assumptions: that 'Price' was 'Price-per-unit,' that the prices of all items, not included in their "market basket," behaved in the same way, that Price was a characteristic of the merchandise or service and could be obtained from the price-tags in popular stores. These assumptions still are prevalent today. In contrast to the historic situation, today's dynamic markets offer billions of products and services. Established products disappear, existing products can change characteristics in a short time, and new products appear continuously. While the formal-mathematical properties of Price Index Numbers have been widely discussed, no attention was paid to the conceptual issues of 'Price' It has become important to re-think these concepts and take a different approach to surveying this price reality.

2. The Nature of Price

It is common knowledge that a great variety of discounts of listed 'prices' are offered under all kinds of pretexts. That should persuade one, that 'price' is neither a characteristic of the merchandise, nor is it the posted or 'sticker price' It may have been the careless manner of talking about 'Price' as "the Price of a given merchandise" that lead to the misconception that Price was a feature of the merchandise or service.

'Price-per-unit' was accepted as the appropriate definition of Price. Although it facilitated price comparisons, it created problems when aggregating individual Price-per-Unit ratios for groups of products. The originally simple idea, to follow changes in the price level of the price-per-unit of basic consumer items, over the decades spiraled into an arcane discussion of changes in the cost of living, of changes in consumer utility, even of changes in the welfare of the population. Instead of clarifying the true nature of Price, the search was on for an optimal, even a superlative Price Index Number. We need to refocus on the task of reporting the price situation "as

is” without the assumptions that burden today’s price statistics resulting in data of “what might be, if....”.

‘Price’ is to be recognized as *the dominant characteristic of the business transaction* of products, of real estate, and services. Price is *not a characteristic of the merchandise or service*. The frequent ‘special sales’ of most products, in no way affect the physical facts of the merchandise. ‘Price’ is the total value of the transaction, regardless of how complex or simple, repetitive or routine such a transaction may be. *Price* includes the monetary and non-monetary parts of the transaction, converted to currency, such as packaging, transportation, insurance, etc. *Price* exists only during a transaction, neither before nor after. It is, statistically speaking, a point in time and place, without continuity. Price of a product, therefore, is not a continuous fact. Although price quotes on price tags seem to have a continuing existence, they become ‘Price’ only at the moment when that merchandise is sold at the value of the price tag. Given the loose nexus between the Price at which a merchandise is sold, and its technical specifications, statistics of price levels ought to report faithfully only what actually exists price-wise in the economy. Hedonic Price adjustments for changes in the characteristics of the products are not to be made in reports on the general price level.

3. The Nature of Price Aggregates

These price-points are to be summarized in large statistical price aggregates. Two things are bound to happen to individual prices in an aggregate: (A) Detail that was previously available in the individual transaction, or even in a smaller aggregate, is lost and no longer available in the large aggregate. (B) The detail in the large, new aggregate is less defined, less specific and less tangible. Therefore the data of the larger aggregate should be printed in a paler hue than the data in smaller aggregates. Although users have intuitively understood these two properties of statistical aggregates, this loss of detail and of meaning is not recognized today by statistical theory. The large price aggregates of Index Numbers are totals that are far removed from the detailed, daily price reality, and therefore have a limited informative value. The point-like nature of individual Prices, combined with the vagueness of large Price aggregates has the important implication that strict comparability over time of the priced items is neither possible, necessary or relevant. Maintaining an unchanged ‘market basket’ of products over time, let alone with fixed quantities, is an illusion that has not been recognized as such. The vivid image of a market basket containing milk, bread, meat, fruit, etc., items selected for a Price Index, is deceptive. In contrast, the statistical aggregate creates a new something that, if at all, could be imagined as resembling a puré of the items in that ‘market basket.’ Although the prices included in the aggregate have features in common, they can no longer be identified or recognized as to when, where and what they were originally. It therefore makes no sense, for the various reasons given above, to insist on strict comparability of the items in successive aggregates of prices.

4. A Realistic Approach to Report on Price Changes

The foregoing discussion showed that price statistics ‘is in a box’ of outdated concepts and assumptions. There is a need to ‘think outside of that box,’ leading to a different approach of capturing changes in Prices levels.

Implied in every Index formula is the assumption, that the prices actually observed and used in the calculations, would be those that would happen if the fixed quantities used as weights had really been held constant by government intervention. This assumption is a modern-day myth. All price indexes measure, to some extent, the fiction: Assuming that the quantities and qualities of the products, used as weights in the index, really could be held constant and people were kept from switching to substitute products, then the price development would look like e.g. the data of a Laspeyre’s Price Index. It is a fiction because the prices used in the index are the result of the real quantities sold on the market. They are not the Prices that would occur if the quantities used in the Price Index had effectively been frozen at the indicated levels. All price indexes have difficulties to take into consideration the reality of the market where people substitute products for cheaper or more attractive ones, and where the quality of most products eventually is improved, or at least changed. Instead of the “what if...” kind of price reporting of Index Numbers, Price statistics should deal with “what actually is.”

Based on the aforesaid I propose a simple, flexible manner of reporting price developments. First, determine the sum of the Prices of all transactions that happened in the chosen time span, group of products, industry, and geographic region. Then divide that total by the number of the corresponding transactions. In symbols:

$$(1) \quad (\sum p_{i,t})/n_t$$

The subscript i identifies the transaction prices p that are to be aggregated, and t the time period within which the aggregation takes place. The result is the average price paid/received per transaction, recorded in the target group-region-timespan. Such an “average price-per-transaction” computed for each price aggregate can be determined for selected groups, as well as for the entire economy. Then the ratio of “average-price-per-transaction” of any two groupings can be compared as a double ratio. These double-ratios (ratios of ratios) can elucidate the price situation for the ‘price per transaction’ for product groups, for regions, or for the entire economy.

The proposed measure of changes in the price level, the **Price Level Indicator, PLI** is the ratio of each two of these “average price-per-transaction” figures, one of which serves as the base of comparison. These price level comparisons can be made for any of the mentioned possible groupings.

$$(2) \quad PLI = \frac{(\sum p_{i,t+1})/n_{t+1}}{(\sum p_{i,t})/n_t}$$

In this Price Level Indicator, PLI, p is the monetary price of the i th transaction, t and $t+1$ can be time periods or regions for which transaction prices are compared, e.g. months for the same region and product group, or different regions for the same time period. Because large, independent, *non-matched random samples* of transactions should be taken in each time period for the intended groups, n_t need not be of same size as n_{t+1} . In addition to these ‘price-per-transaction’ ratios also ‘price-per-unit’ ratios of these sales are of interest and can be computed, although the larger aggregates of ‘units transacted’ can become questionable. These PLI ratios of the “average-monetary-price-per-transaction” or of the “average-price-per-unit” for the same groups of products can then be compared over time or regions (formula 2). This captures the actual market situation, including changes in the shopping habits of consumers, and their shift to new or cheaper products. These PLI ratios reflect the price reality of the market, not the fiction of the price tags of a fixed ‘market basket’ that invariably becomes obsolete. It also eliminates the need for ‘hedonic adjustments’ of the traded products. Measures of the cost of living, of the standard of living, or of consumer utilities are to be kept out of an objective reporting of actual Price levels. They can be pursued in separate, specialized studies.

Today’s situation is in a transition. On one hand, statisticians face the astronomically large number of different transaction prices all over the geographic landscape, for an exponentially growing number of goods and services. On the other hand, an ever growing number of businesses is using bar codes to record electronically the price and other important features of every transaction. This available wealth of information should make the change to the proposed PLI possible.

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Résumé

Les concepts de les Indices des Prix de Laspeyres et Paasche ont leur origine dans les économies stables des siècles passés. Ces Indices ne sont plus bien adaptés à la réalité très dynamique des prix aujourd'hui. Pour venir a bout de cette réalité nous proposons une nouvelle approche, L'Indicateur des Niveaux des Prix, PLI. Il diffère des Indices de Prix existants comme suit: Le prix est une caractéristique de la vente, pas de la marchandise. Le prix est la valeur totale, monétaire et non-monétaire de la transaction commerciale, et a, une existence brève. La perte de détail dans les agrégats des prix rends la comparabilité précise des transactions non nécessaire, y compris dans les Indices de Prix. Les échantillons successives ne sont pas de même grandeur. Il ne faut pas de poids. On va observer les changements des niveaux des prix par des proportions entre les "prix moyens par transaction" et aussi par des proportions entre "prix moyen par unité vendue" par une variété des comparaisons horizontales et verticales des niveaux des prix. Les ajustements hédoniques seront relégués par des recherches spéciaux.

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Use of statistics in developing monetary policy

INVITED PAPERS

Development and use of statistics for monetary policy in Cambodia

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1. Introduction

Following the Khmer Rouge regime that ended in 1979, Cambodia adopted a centrally-planned economy and the banking system was reestablished in the context of a mono-banking system. In the mid 1980s, the government embarked on economic reforms and in 1989 Cambodia reached a point of no return, when private property rights were restored. Banking reforms commenced in 1989 and, as a result, a two-tier banking system was established. However, the monetary policy framework remained undeveloped and development of statistics based on international standards did not commence until Cambodia reactivated its membership in the IMF in 1991.

Currently, the scope of monetary policy remains limited by the widespread use of cash, a high degree of dollarization, low confidence in domestic currency and banking system, and by the absence of market-based monetary instruments. Despite remarkable macroeconomic stability for the last four years, dollarization in Cambodia shows no sign of slowdown and most bank intermediation is still effected in the US dollar. The government adopted Vision and Financial Sector Development Plan for 2001-2010 with the aim of addressing the above issues and establishing a sound, market-based financial system.

This paper starts with examining the monetary policy framework for Cambodia in the context of the IMF-supported program, followed by discussions on development and use of statistics for monetary policy, dedollarization as a long-term goal, and future developments that will influence the conduct of monetary policy. As regards the development of statistics, the focus is on monetary statistics, which are most important for monetary policy in Cambodia at this stage.

2. Monetary Policy Framework

Monetary policy in Cambodia is formulated and implemented in the context of the IMF-supported program, which is drawn up in the face of a large number of macroeconomic and structural problems. However, dollarization has not influenced the design of the program. The responsibility for formulation and implementation of monetary policy rests with the National Bank of Cambodia (NBC). Price stability is the main policy objective; other objectives include exchange rate stability, promoting the use of domestic currency, and strengthening the international reserves.

The IMF program for Cambodia in the context of the dollarized economy has adopted quarterly program targets – performance criteria on net international reserves (NIR) and net domestic assets of the central bank, and a limit on net credit to government from the banking system, in addition to performance criteria for fiscal outcomes and external borrowing.

The NBC has based its monetary program on a measure of broad money including residents' foreign currency deposit, which accounted for 94% of the total deposits as of December 2002, as there is ample evidence of currency substitution. In this respect, the measure of reserve money (RM) also includes banks' foreign currency reserves. The money multiplier that is the ratio of broad money to RM has been relatively stable for the last four years. In the absence of money/inter-bank markets, interest rates are not a meaningful monetary indicator. In Cambodia, the amount of foreign currencies in circulation is not known and not captured in monetary statistics, therefore the effective money supply is underestimated and money velocity is overestimated. In these circumstances, the interpretation of the program outcomes is essentially an empirical matter.

Cambodia is still at a very early stage in the development of instruments of monetary control. Both domestic and foreign currency reserve requirements for banks have been used, but refinancing facilities and open market operations are nonexistent because of the lack of eligible tradable papers, such as treasury bills. Until 1998, the US dollar auction was used to regulate money supply and smooth the trend of exchange rate. The government's refraining from using bank financing has contributed to controlling money supply.

3. Development of Statistics for Monetary Policy

The development of macroeconomic statistics did not receive due attention until the early 1990s. Before that period, the statistics were designed to guide the formulation and implementation of the state plan and did not conform to the international standards. From the outset, Cambodia was provided with technical assistance in the development of statistical systems that meet the international standards, in particular the assistance by the IMF in collection and compilation of the statistics that were needed for the assessment of Cambodia's economic conditions.

The NBC is in charge of collecting and compiling monetary and balance of payments (BoP) statistics. Data collection for monetary statistics has been relatively smooth because the banks' regular data reporting is governed by the banking law, while the development of BoP as well as other macroeconomic statistics has encountered difficulties because of weak coordination and cooperation among the relevant agencies, poor data sources, lack of understanding of the international methodology, lack of financing and the absence of a statistics law. In this respect, significant efforts have been made to build human capacity, apply the international methodology, and improve the coordination among the agencies that produce economic statistics. A statistics law has been drafted and is expected to be passed by the National Assembly this year. The law will provide the statistics compiling agencies with the legal authority to collect a wide range of data for statistics purposes, and will improve the accountability, transparency, independence, and effectiveness of the statistical activities and outputs.

Monetary statistics are key indicators for monetary policy. In Cambodia, development of monetary statistics can be divided into three phases. The first phase involved development of procedures for data collection and compilation of monetary statistics based on *A Guide to Money and Banking Statistics in International Financial Statistics* (IMF, December 1984) with the IMF's technical assistance during 1992-1993. During this period, a call report form and related instructions were prepared to collect data from banks. The call report form contains details that were needed to produce the analytical accounts of deposit money banks (DMBs). As regards data on central bank, the analytical accounts of monetary authorities (MA) were derived directly from the NBC's trial balance, which was the final product of the accounting system at that time. A Monetary survey was produced by consolidating the analytical accounts of MA and DMBs. Also during this period, a weekly flash reporting system was developed to monitor key NBC balance sheet aggregates in the form of factors affecting reserve money.

The second phase focusing on improvement in the compilation procedures started in 1995 with another technical assistance from IMF. The process involved reviewing and resolving methodological issues, strengthening data review system to enhance data accuracy, and staff training in this area. Compilation of key data for daily monitoring also started during this phase. Taking advantage of another IMF technical assistance in 2002, the NBC has taken a further step to develop its monetary statistics based on the methodology recommended in the IMF's *Monetary and Financial Statistics Manual* (MFSM). The monetary statistics compiled based on MFSM facilitates a wide range of analysis and is more useful for policy analysis. Currently, the NBC compiles a sectoral balance sheet for the central bank and a central bank survey as stock data on a monthly basis and plans to produce data on other depository corporations this year after the introduction of a uniform chart of accounts for banks.

4. Use of Statistics for Monetary Policy

Because of the limited scope of monetary policy, the absence of money/interbank markets, low financial intermediation etc., a limited range of data is available and needed for monetary policy purposes. Basically, the monetary program is designed based on the projection of GDP growth, inflation rate, bank financing of the government's budget, and change in NIR. The interpretation of the relationship seen in terms of "equation of exchange" ($M.V=P.Y$) in the context of this dollarized economy is an empirical matter. For the last four years, the inflation rate has been low and GDP grew at about the projected rate, while broad money always far exceeded the program targets. This reflects the decline in money velocity.

The change in data on currency in circulation and market exchange rate is monitored on a daily basis because oversupply of domestic currency tends to have an immediate impact on market exchange rate, which is a driving force of inflation in this economy. For program monitoring, data on currency in circulation and the estimates of the NBC's deposit liabilities are used to derive data on RM, which in turn are used to estimate data on broad money using a projected money multiplier. Daily data on NIR are used to estimate the NBC's net foreign assets (NFA), while the NBC's net domestic assets (NDA) can be derived as a residual using the equation: $RM=NFA+NDA$. All these key aggregates are available on a weekly basis from the flash reporting system and on a monthly basis from the monetary survey and the analytical accounts of MA and DMBs.

A sudden depreciation normally receives an immediate attention and a US dollar auction was used until 1998 to smooth the trend of the exchange rate. Only the excess amount of NIR over the benchmark was used for auction. Besides, the change in key monetary aggregates is reviewed in relation to their program targets and benchmarks. In many cases, monetary liability targets are allowed to miss if there is strong evidence that the exchange rate stability would not be affected. Since the benchmark ceiling on net credit to government must be met, the monetary growth beyond the target would be accompanied by the increase in private sector credit and/or NFA or NIR, which is a welcome trend in the case of Cambodia.

5. Dedollarization – a long-term goal

The degree of dollarization in Cambodia as measured by the ratio of residents' foreign currency deposits to broad money has been around 70%. The amount of US dollar currency in circulation can be estimated with the assumption that the ratio of US dollar currency in circulation to US dollar deposits is similar to the ratio of domestic currency in circulation to domestic-currency deposits. The result is that US dollar in circulation amounted to US\$ 2.6 billion in December 2001 and US\$ 3 billion in December 2002, very close to the result of the study conducted by Mario de Zamaroczy (2002). This high degree of dollarization limits the ability of the central bank to effectively implement the monetary policy. With dollarization, Cambodia has sacrificed the seigniorage, the profits accruing to the monetary authority from its right to issue currency.

Dedollarization is a long-term goal of the government. The government believes that the process should not be compulsory and should be conducted gradually. Steps toward dedollarization include maintaining macroeconomic stability, a leading role of the government in promoting the use of domestic currency, creation of interest-bearing investment instruments, such as treasury bills, denominated in domestic currency, ensuring good quality of domestic currency bank notes in circulation etc.

6. Future Development

The government adopted Vision and Financial Sector Development Plan for 2001-2010 as an official long-term plan for the financial sector development. The document envisages the development of a sound, market-based banking system; non-bank financial institutions that will increase the depth of the financial sector; money/inter-bank and capital markets. With these developments, it will be necessary and possible to adopt a market-based monetary policy framework with the introduction of an open-market operation system. The issue of government securities will be needed for this market-based operation and will also help to determine market-based interest rate, which can be used as a key policy indicator.

Statistical requirements for implementing this market-based monetary policy will have to be met. This will involve development of more accurate daily indicators that are necessary to conduct the open-market operation, whereas the use of reserve requirements will become less important. Despite of these developments, however, the NBC will continue to face challenges to implement

its monetary policy if the degree of dollarization continues to be high and bank intermediation continues to be effected in US dollar. In such circumstances, the whole process will remain an empirical matter and the statistics will be used along with circumstantial evidence.

Reference

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Résumé

Le développement des statistiques, basé sur standard international n'avait reçu juste attention que lorsque le Cambodge reprend son statut de membre du FMI en 1991. Dans l'établissement de son système de statistique, le Cambodge bénéficie des assistances techniques du FMI et des autres organisations internationales. Malgré les difficultés rencontrées dans le développement des statistiques des autres domaines, les statistiques monétaires ont été réalisés doucement. Un encadrement de la politique monétaire a été créé au début des années 1990, dans le contexte du Programme d'Assistance du FMI avec l'adoption des repères quantitatives à suivre. Les statistiques monétaires sont des indicateurs fondamentaux utilisés pour le choix de la politique monétaire. Etant donné le montant dominant du Dollar des Etats Unis en circulation n'est pas disponible et n'est pas inclu pour mesurer la base monétaire, le procès de la politique monétaire est une question empirique. Dans la plupart des cas, l'objectif monétaire est à négliger pourvu que la stabilité du taux de change soit maintenue.

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The role of statistics in the conduct of monetary policy in Albania

Shelquim Cani and Gramos Kolasi (Bank of Albania)

Albania, like many other transition countries, started the huge detachment from the centralized economy at the beginning of the '90s. The start of the difficult transition did not save anything comprising statistics, contributing to a fast and deep degeneration in the process of data collection, data processing and data dissemination. During 1990-1993, the statistical output was very poor, reflecting a total incapability of authorities to monitor, measure and publish the main macroeconomic statistics categories. The initial serious efforts to install and use an up-to-date output system of macroeconomic statistics in Albania date back to year-end 1992. For the first time, thanks to the assistance provided by the IMF Statistics Department, such statistical outputs as the balance of payments, money and banking statistics, consumer price index, etc., were conceived and presented. From that time onwards, the overall statistics compilation process in general has progressed continuously, peaking up with the publication of the monetary statistics in IFS in September 1996 followed up by the country's membership of the International Monetary Fund's General Data Dissemination System (GDDS) on May 22, 2000 and more recently the publication of national account statistics in March 2003.

Despite the achievements and the good will of the authorities, the state of macroeconomic statistics is still far from developed standards. The data coverage is not complete. With the exception of monetary statistics and consumer price indices (which are produced on a monthly basis), all statistics have a relatively longer periodicity. The timeliness of data availability is also of serious concern. In most cases, data are disseminated with a lag of three to four months after the end of the reporting period.

On the other hand, it should be mentioned that the decision-taking process in Albania has not been an easy process. Considering a significant degree of the absence of the statistical information, particularly national accounts data, the decision-taking process basically has been relied on the usage of monetary statistics.

Starting from 1992 and up to the present day, the monetary policy regime has remained unchanged, where money is still the intermediate objective, with price stability as a clear final target. However, the operational framework has been modified a lot following the developments in domestic markets. During the whole period of the '90s, the operational framework consisted of the employment of direct monetary control instruments, such as credit ceilings, administrative interest rates, reserve requirement, etc. This simple policy framework enabled the money and banking statistics to be a sufficient statistical feedback for an effective decision-making. The publication of such statistical documents as the monetary survey and monetary authority accounts, along with other data on financial markets and inflation, used to be sufficient for considering any possible change in the interest rate¹.

In the beginning of a new century, a kind of ineffectiveness of the above-mentioned policy instruments was evidenced. Therefore, after removing the credit ceilings in 1999, a year later in the autumn of 2000 the monetary control used to be ensured based merely on market instruments. To this end, the weekly repo auction was introduced, the market rate of which won the attribution of the basic rate in the economy. Since that time, the Bank of Albania (BoA), started to announce a quantitative final target on price stability, fixing an interval of 2-4 per cent.

Unfortunately, these policy changes did not happen together with an enrichment of statistics. There is still a vacuum in the field of real economy indicators, despite the revision of the CPI basket. Currently we have a new CPI basket, updated and enriched with additional articles, but, nevertheless, that means too little, as it remains the only qualitative development of the last three years. We have not yet any reliable statistical set of national accounts, which gives us difficulties in evaluating GDP growth, national incomes, etc.

¹ *During the 90's the administrative interest rates on deposits in home currency, placed in state owned banks, played a key role in the economy, some times the 3-month deposits rate and some times the 12-months maturity deposits rates.*

Even though it is claimed that the unemployment rate is measured in conformity with international standards, yet there exists a general idea that it deviates from reality and its utility is low. The large migration movements from rural to urban areas or abroad make the measurement of employment indicators more difficult, damaging in this way the overall decision-making process.

Concerning fiscal statistics it's important to stress that the periodicity of data is still once a quarter, while the release period takes three other months after the end of the reference period. However, considering the fact that BoA and the banking system in general are having Government accounts, it is much easier for monetary policy to identify with a relatively high degree of accuracy the liquidity needs of Government (naturally in the very short-terms).

Undoubtedly, two more mature statistical categories are those that have to do with financial statistics and those that have to do with the balance of payments. Both categories are produced since 1992 and in fact they constitute the basic information for the policy decision-making process at the Bank of Albania.

Balance of payments statistics are produced on a quarterly basis, with a lag of three months after the end of the reference period. However, some important parts of the balance of payments, like foreign trade, services, remittances etc., are prepared on a monthly basis making it easy for us to have a strong feeling for the developments on the current account.

Currently, the Bank of Albania produces in parallel the complete financial statistics in compliance with the old and new statistical manuals compiled by the IMF. In fact, the statistical input for the Bank of Albania decision-making consists of the statistical input produced pursuant to the previous IMF manual on money and banking statistics. More concretely, this statistical input includes: monetary authority accounts, the Bank of Albania NFA, the deposit money banks' consolidated balance sheet, the monetary survey, performance criteria, interest rates and the volume of transactions in financial markets (repo rates, interbank rates, treasury bills yields, lending and deposit rate), foreign exchange records, etc.

The combination of the above information¹ with the CPI data and with other data from the liquidity situation in the banking system forms the basic statistical input, on which the decision on the stance regarding interest rates is drawn.

However, in practice there are some uncertainties that are hurting the BoA decision taking process. Among other things, mention should be made of the current state of macro statistics, which is believed to be a serious impediment on having a better picture of economic activity. Actually, there is a common understanding amongst policy makers and experts that low quality, structural breaks and shortness of macroeconomic statistical series are hampering the effective usage of macro models.

The explanations given above as well as the logic of this activity raise an important question: Which is the Bank of Albania's vision of the future, especially of the more distant one? Will the monetary policy of the Bank of Albania continue to rest on the existing framework, where, as aforementioned, there are many uncertainties, or will there be attempts to complete its efficacy on the economy and, why not, even to measure it? Answering these questions, we would emphasize that at present the Bank of Albania has taken a decision that above all implies the adoption of a monetary policy regime which will focus again on price stability. The new regime will however differ from the present one by the fact that its intermediary objective and its final objective will be the same macroeconomic variable, inflation. We believe you already understand that we are talking about an Inflation Targeting regime.

It can be said that Inflation Targeting can be a successful strategy if, on the one hand, it operates in a sound macroeconomic and institutional environment and, on the other, it finds an audience (economic agents, individuals, general public) that understands and welcomes this strategy as well as a rich and well-ordered set of macroeconomics statistics. Considering only this last condition as an important prerequisite for a successful IT adoption, we would like to list the work priorities as follows:

- *First, we would mention the necessity of building a clear and unambiguous policy-making body.* Although, according to the existing law, the highest authority is the Council of Statistics, it should be noted that de facto it plays only an advisory role. It remains unclear who is responsible for the decision making process with regard to statistics in Albania. Although this problem was identified a long time ago, unfortunately, no solution has yet been found to this legal vacuum.

¹ The statistical information is available monthly on the 25th of the following month.

- *Second, we would point out that in spite of the progress made in increased data coverage, unfortunately, the monitoring of the private sector is still at low levels.* It is very important that an increasing data coverage be associated with an increasing information reliability as well as with strengthening the private sector's belief that information gathered by the state agencies will not be used for purposes other than those related to developing statistics. There are various reasons that encourage private enterprises and agencies to decline providing or to distort information to the state agencies. The reasons, for example, are lack of knowledge with respect to the extent to which the information provided by the private sector is used by the state agencies, distrust in these agencies, sensitivity about information confidentiality, competition in the market, etc. However, we think the most problematic issue in this connection has to do with the existence of the informal market, which recently by domestic agencies was estimated to constitute more than 30 % of total output.
- *Third, probably, valuable pieces of information can be extracted by conducting surveys even if we must accept their problematic quality.* For reliable macroeconomic statistics, estimates should be made based on data collected from well-designed surveys using appropriate samples, which are representative of the population. Inadequate coverage or data obtained from low-response-rate surveys will affect the quality of data. In Albania, basic data sources, particularly those for capturing private sector and informal market activities and for estimating illegal transactions, are seriously inadequate. In addition, statistical surveys face sampling and representation problems and certain estimation procedures need to be revised. These concerns particularly affect the real sector and the balance of payments statistics.
- *Fourth, we would point out the improvement of national accounts statistics.* Recently, INSTAT has released the national accounts data for the period 1995-2000. However, the greatest challenge will be the concern over the quality of the figures to be published. To a significant extent, the data quality will be assessed based on how the consumers of this information will react as well as on how the international institutions will judge the data quality.
- *Fifth, we would consider as a very important priority improving the dissemination process of the statistical information from the producer to the user.* Although the authorities are committed to increasing the quality and transparency of statistical data, overall attempts are needed with regard to outlining a publication calendar and shortening the time between the processing of final data and their release. Perhaps, from this point of view, the greatest challenge relates to the usage of Internet and the design of functional websites so that anyone interested in statistics can access the desirable statistical information. Although the Bank of Albania and INSTAT have already launched their web pages, it should be noted that it is hard to access them. Additionally, websites are utilized to a level that is less than satisfactory, especially because statistics presented in these sites are not selected on a professional basis. Anyhow, the increasing number of users should be considered as a good incentive for increasing further the quality and dissemination of national statistics.
- *Last, but not the least, we would like to emphasize as a priority, better use of the information technology available today.* The level of knowledge on Internet use in Albania is low. In addition, many problems in the respective infrastructure do not allow us to take advantage of the rapid advancements in technology that the information world is experiencing today. Naturally we are bearing in mind that the enlargement of the Internet usage in regard to the data collection process means more exposure and as a consequence more prudential measures in providing confidentiality.

Shelquim Cani and Gramos Kolasi (Bank of Albania)

The use of statistics in the monetary policy of the Czech National Bank: the case of a country in transition

*Ivan Matalik (Czech National Bank) and Josef Arlt (Czech National Bank and
University of Economics, Prague)*

1. Introduction

Timely and accurate statistical information, structured in compliance with economic standards, is a basic prerequisite for successful monetary policy-making by the Czech National Bank (CNB). Fulfilling these key conditions in a rapidly changing economic environment is getting more difficult than ever before. New demands are being placed on central bank monetary policy, especially with regard to flexibility and the ability to respond to the rapidly changing economic and monetary situation. And this in turn is being reflected in the demands being placed by monetary policy with regard to statistical information.

In the case of transition economies, the monetary-policy statistical requirements moreover include the collection of completely new information that was not available in the past. These requirements have been continuously changing and expanding during the course of the economic transition. And it is on the CNB's increasing monetary-policy statistical needs during the Czech Republic's economic transformation that the following text concentrates. The main focus is on central bank statistics. However, the requirements for statistical information collected outside the central bank are also mentioned.

The text is split into several main sections covering the entire period of the Czech Republic's economic transition from 1990 up to the present. After the introduction, we turn our attention to the general importance of statistics in the context of the central bank's primary monetary-policy objective. Section 3 addresses the nature of the CNB's monetary policy during the economic transformation, focusing on the switch from monetary targeting to inflation targeting. In Section 4 we deal with the impact on data collection of changes in the CNB's monetary policy and in the Czech economy. In Section 5, we investigate the scope and limits for using statistical information for economic analysis at the CNB.

The analysis of the importance of statistics to monetary policy is based primarily on the authors' practical experience with statistical data, statistical analysis and monetary policy-making at the Czech National Bank.

2. The General Importance of Statistics for the Monetary Policy-Making of the Central Bank

The importance of statistics as a separate scientific discipline is indisputable in today's world. Its standing reflects the ever-growing need for information, which has become an everyday commodity. The collection, processing and evaluation of statistical information has become an important condition for acquiring knowledge in many fields of human endeavour.

Statistical information is a vital input into the decision-making of all economic sectors, for example the government, financial market participants and, last but by no means least, the central bank. The central bank, with its specific function as the "monetary authority", has an unusually broad and diverse set of statistical requirements. These requirements primarily reflect the primary objective of the central bank and the means used to achieve that objective. Clearly, different information will have priority depending on whether direct or indirect monetary instruments are used to achieve the primary objective. Also important are other factors such as the monetary-policy regime chosen and the level of development of the financial markets and the overall liberalisation of the economic environment.

The general importance of statistics to the central bank's monetary policy-making therefore derives from the specific objective of the central bank. Achieving this objective requires a wide spectrum of statistical information. Without this information, it would be very difficult for the cen-

tral bank to assess economic processes. The collection and processing of statistical information constitutes *the first level of importance of statistics to the central bank's monetary policy-making*.

For the central bank, however, it is vital not just to collect and process information, but also to apply various statistical and econometric methods allowing effective analysis of the information acquired. For instance, time-series analysis methods to find and test linkages between various macroeconomic indicators are absolutely essential for central bank monetary policy. Monetary policy-making is founded on a host of theoretical assumptions and models which need to be verified using concrete data. And it is in this area that the *second level of importance of statistics to monetary policy-making and the achievement of the central bank's primary objective* lies.

As regards the collection and processing of statistical information, the central bank needs information covering the behaviour of all economic sectors. This usually concerns data on bank and non-bank financial institutions, the balance of payments, the government sector and the real economy. This information should meet the standard statistical requirements, namely timeliness, accuracy and appropriate structure. Numerous institutions are involved in collecting the information that the central bank needs to achieve its primary objective. Central banks themselves mostly concentrate on information on monetary financial institutions, the balance of payments and the financial market. They also very frequently provide certain information on segments of the government sector. This reflects the central bank's role as a fiscal agent of the state.

The importance of statistics to monetary policy-making as regards the use of statistical and economic methods reflects the dynamic development of computer technology. This has facilitated not only the development of new statistical and econometric data-analysis methods, but also the routine practical application of those methods. From the perspective of the central bank, quantitative statistical information in the form of time series is of unquestionable importance, as it allows the exploration of key linkages between economic processes and the construction of forecasts.

The central bank's monetary policy is based on a particular economic theory, and that theory is in turn used as the basis for an economic model. For practical use, it is important to have an econometric model whose parameters can be estimated using concrete time series. Clearly it is essential that the link between the economic model and the econometric model be as close as possible. But because statistics provide only a fraction of the information on economic processes, the econometric model clearly differs from the economic model. Correct interpretation is therefore vital when it comes to applying the results of the econometric model. Great progress has been made in the econometrics of time series in recent years. This has been motivated to a large extent by the nature of the data available. On the other side of the coin, though, these steps forward allow us to modify our view of the statistical data. It is therefore useful not only to obtain the most accurate possible picture of economic reality from that data, but also to create economic and organisational conditions and methodological measures that enable us to obtain the most accurate possible picture of economic reality from the statistical data.

In the following text we concentrate on the statistical requirements of the CNB's monetary policy during the economic transformation, i.e. the gradual liberalisation of the economic environment, and in making monetary policy under two different monetary policy regimes, i.e. monetary targeting and inflation targeting. For this reason, in the following section we first give a brief description of the monetary policy regimes operated by the CNB since 1990. We then turn our attention to the impact of the CNB's monetary policy in various periods on the collection and processing of statistical information and to the application of statistical and econometric methods to the analysis of that information.

3. CNB Monetary Policy During the Economic Transformation

The CNB's monetary policy has undergone sizeable changes over the course of the economic transformation process. In the early 1990s, these changes reflected the specific transformation steps, but later, as the economic environment was gradually liberalised and the foundations of a market economy were laid, they were also influenced by changes at the global economic level.

3.1. General Scheme of Monetary Policy

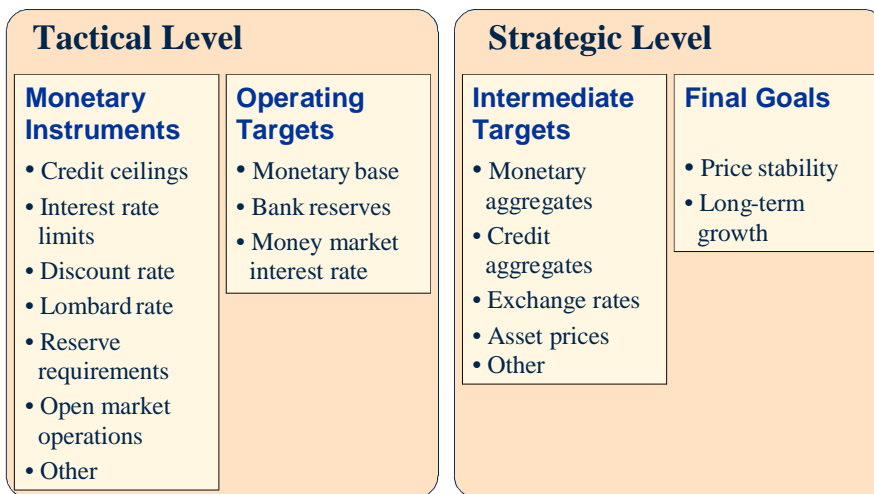
Throughout the period under review, monetary policy-making in the Czech Republic moved within a standard general framework. This can be described as the action of monetary policy instruments on an operational target. The operational target is usually a variable that the central bank is able to control directly and that has a direct or indirect linkage to an "intermediate" target or to the primary objective of the central bank's monetary policy. This framework can be generalised as follows:

General Scheme of Monetary Policy



The general monetary policy scheme of the central bank, and this includes CNB monetary policy, can alternatively be expressed in terms of two basic levels: tactical and strategic. The tactical level comprises the monetary instruments and the operational target, and the strategic level consists of the intermediate target and the primary, or final, goal of monetary policy. The following diagram illustrates the general specification of the tactical and strategic levels of the central bank's monetary policy in more detail.

Tactical and Strategic Level of Monetary Policy



3.2. The CNB's Monetary Policy in 1990–1997

The CNB's monetary policy in the period 1990–1997¹ was based primarily on the targeting of monetary aggregates (“monetary targeting”). This was founded on the assumption that there is a long-term relationship between inflation, real economic activity and the stock of money in the economy. Throughout this period, the Czech National Bank endeavoured to influence the money supply in line with the demand for money so as to reflect the desired inflation level and its assumptions regarding real GDP and the velocity of money.

Under the monetary targeting scheme in the period under review, monetary policy-making in the Czech Republic had the following features. First, *direct monetary policy instruments were used in the very early phase of the economic transformation*. The need to use direct instruments stemmed from the almost non-existence of a financial market in the Czech Republic, which precluded the use of market instruments. Consequently, in 1990–1992 direct credit ceilings and interest rate limits were applied. Only gradually, as the core segments of the Czech financial market developed (in particular the money market and, within it, the interbank deposit – or PRIBOR² – market), did indirect monetary instruments come to be used.

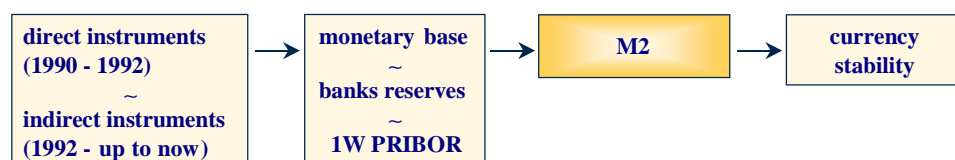
Linked with this process was *the development of the operational targets of monetary policy*, which, from management of the monetary base through management of commercial banks' reserves, ultimately resulted in the use of standard open market operations to influence the short-term money market interest rate. In the case of the Czech Republic, the interest rate concerned was the 1W PRIBOR. The gradual transition from monetary base management was a logical outcome of the increasing role of PRIBOR rates on the money market. Influencing the monetary base came increasingly into conflict with the price-of-money (i.e. interest-rate) target.

1 The use of the term CNB monetary policy in the text also refers to the period 1990–1992, when the former Czechoslovakia still existed and monetary policy was the responsibility of the State Bank of Czechoslovakia.

2 PRIBOR = Prague Inter Bank Offered Rate

Throughout this period, the CNB's intermediate monetary policy target was defined by the M2 monetary aggregate. M2 is a broad measure of the stock of money in the Czech Republic, comprising currency in circulation and time and demand deposits in both koruna and foreign currency. The primary objective of monetary policy was defined as stability of the currency – both internal (price stability) and external (nominal exchange rate stability). The evolution of the monetary policy scheme in 1990–1997 can be expressed as follows:

Monetary Policy Scheme between 1990 and 1997 (*Monetary Targeting*)



Another important feature of the CNB's monetary targeting period was a growing *conflict between the money stock as an intermediate target and the objective of a stable exchange rate*, i.e. the fixed exchange rate regime. This conflict grew as the current account and financial account were liberalised, culminating in 1994–1997 in massive inflows of mostly short-term capital into the Czech Republic. The CNB's efforts to sterilise this inflow and mitigate the negative consequences of the increasing money stock were only partially successful. In the mid-1990s, the current account deficit also peaked. In May 1997, this situation culminated in currency turbulence, resulting in the outflow of much of the short-term capital from the Czech Republic, a large depreciation of the exchange rate of the koruna, and a switch to a more flexible exchange rate system (a “managed float”). The basic monetary policy regime simultaneously underwent a fundamental change.

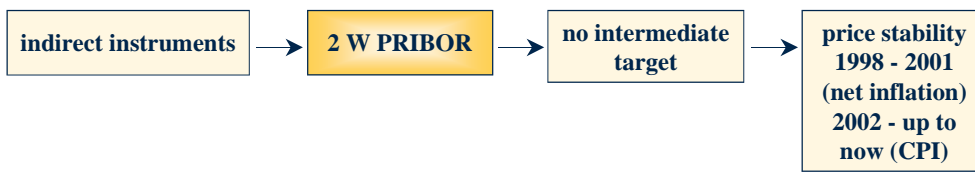
3.3. *The CNB's Monetary Policy from 1998 to Date*

The loss of the nominal monetary-policy anchor (in the form of the exchange rate) during the currency crisis in May 1997, combined with rising inflation and a related increase in inflation expectations and the need to enhance the overall transparency and consistency of the CNB's monetary policy, were the key factors underlying the CNB's decision to switch from monetary targeting to inflation targeting.

At this time, alternative monetary policy regimes – such as continuing with monetary targeting or changing to a fixed exchange rate – were also considered. Both these options were rejected, owing to the instability of money demand and the loss of the nominal anchor in the form of the fixed exchange rate. In December 1997, a decision was made to switch to a standard inflation targeting regime. The announcement of a medium-run inflation target and a target for the period immediately ahead became the new nominal anchor for the economy.

As the figure below shows, the monetary policy scheme was little changed at the tactical, i.e. *operational, level of monetary policy*. The effectively functioning money market enabled the CNB to continue using indirect monetary policy instruments, specifically open market operations. Unlike in the preceding period, however, the two-week PRIBOR rate became the target for the day-to-day implementation of monetary policy. This was less volatile than the 1W PRIBOR. No intermediate target was defined in the new scheme, as it was assumed that the CNB would influence inflation via the 2W repo rate. In order to analyse the individual stages of the monetary transmission mechanism, a whole range of analytical tools were developed. The construction of these tools had a large bearing on the requirements for statistical information. *The primary monetary policy objective* was defined in the form of inflation targets, the essence of which was to achieve internal price stability.

Monetary Policy Scheme from 1998 to date (*Inflation Targeting*)



Since 1997, when the Czech Republic became the first transition economy to introduce inflation targeting, this monetary policy system has undergone considerable development. In particular, the target itself was changed in 2002 from “net inflation”¹ to the overall index of consumer prices. Other important changes have included a switch from defining targets for each year to a target taking the form of a continuous band; a change from a conditional forecast to an unconditional forecast; and greater transparency of the CNB’s monetary policy through the publication of future inflation factors and the ratios of the votes cast by members of the Bank Board. Significant progress has also been made with the analytical tools that enable the CNB to predict inflation. Besides partial expert and model analyses, an aggregate macroeconomic model has been constructed. This gives consistent medium-run macroeconomic predictions of inflation. The progress made with monetary and economic analysis has had a substantial impact on the monetary-policy statistical requirements in this period.

4. The Evolution of the CNB’s Monetary-Policy Statistical Needs During the Transformation

The CNB’s monetary-policy statistical needs have evolved in step with the changes to its basic monetary scheme. The changes in monetary policy regime have in turn reflected the ongoing economic transformation and the related development of the financial markets, the liberalisation of the financial account, changes to the exchange rate system and so on. Right from the start of the economic transformation, CNB monetary policy has always required a basic set of macroeconomic data. With just a few exceptions², this data has always been successfully collected.

The priority level of particular information, and the ensuing needs regarding the degree of detail of that information, have been determined by the main changes in the economy. In addition to changes in the priority of the information, requirements for the collection of new information have arisen as the financial markets have developed and the CNB has been able to conduct monetary policy using indirect monetary instruments. In this respect we can summarise the evolution of the CNB’s monetary-policy statistical needs during the transformation period into the following phases:

4.1. From Monetary Plan to Monetary Survey (1990)

Up until 1990, under the planned system of management of the national economy, the monetary plan was the basic macroeconomic balance sheet of the former State Bank of Czechoslovakia. This was essentially the counterpart to the creation of national income in each sector of the economy, with regard to the financing of that income. Needless to say, the statistical needs of the new, market-oriented monetary policy of the CNB altered radically following the political and economic changes.

In this period, the CNB’s monetary-policy statistical requirements derived primarily from the requirements to compile a “monetary survey”. These surveys did not just monitor the basic monetary aggregates and their main counterparts (bank lending, the influence of state fiscal policy and the balance of payments). As the economic transformation was at a very early stage, characterised by basic reform measures, the monetary survey also played a key role in, for instance, assessments of the criteria for obtaining loans from the IMF. At this time, the monthly statements for the deposit, loan and interest rate statistics, along with numerous operational statements for the continuous daily and ten-day monitoring thereof, were redefined. The basic role of the banking statistics in

1 Net inflation = the overall consumer price index adjusted for changes to regulated prices and indirect taxes (around 20% of the overall index)

2 In particular, information on the central bank’s balance sheet during 1990. The regular monthly reporting of this information was interrupted by the split of the former “monobank” into the central bank and commercial banks on 1 January 1990. This operation had been prepared as part of the economic reforms in 1987–1989 and was implemented after the political changes in 1989.

this period was therefore based on the need for regular collection of information on commercial bank loans and deposits and interest rates.

4.2. From the Foreign Exchange Part of the Monetary Plan to the Balance-of-Payments Methodology (1990)

With regard to monetary policy needs, the second area which the CNB statistics had to respond to immediately after the political and economic changes in 1989 was the balance-of-payments area. Up until 1990, the focus had been on foreign exchange, not on transactions between residents and non-residents. After 1990, there was a changeover from the foreign exchange part of the monetary plan to the methodology of the fifth edition of the IMF's Balance of Payments Manual. This provided for the basic requirements of monetary policy with regard to analysis of the balance of payments in the new environment. The subsequent development of the balance-of-payments statistics reflected not only the methodological changes in this area, but in particular the ongoing liberalisation of the current and financial accounts.

4.3. From Direct to Indirect Monetary Instruments (1990–1992)

The successful implementation of the economic reforms in the early 1990s and the gradual development of particular segments of the financial market implied a growing need to switch from direct monetary instruments to indirect ones. To undertake this change, more modifications had to be made to particular segments of the CNB's statistics. In particular, the CNB balance sheet had to be redefined and regular monthly and daily monitoring introduced. The switch to the "CNB analytical balance sheet", which is still used for daily open market operations, was another important factor as regards meeting the monetary-policy statistical needs in this period.

The period 1991–1992 likewise saw the emergence of new information from the money market, due to the establishment of the interbank deposit market (PRIBOR rates). This in turn meant the emergence of interest rate statistics that included statistics from the financial markets in addition to the standard statistics on interest rates on loans and deposits. In this period, however, information was still being collected not only within the CNB's statistics section, but also often in sections whose core role was not the collection of statistics (e.g. the monetary policy section and the banking transactions section). This situation changed in subsequent years, but it was not only characteristic of this period, but also understandable. The monetary policy-makers, or, more specifically, the sections responsible for implementing monetary policy, could not fulfil their objectives without adequate statistical information. Consequently, when defining their statistical requirements they frequently took on certain statistical functions (in order to speed up the collection and processing of data as much as possible). However, this situation was only typical of the initial period of the economic transformation in the Czech Republic.

4.4. From Monitoring of Only Some Financial Market Segments to Global Coverage (1992–1997)

The evolution of the monetary-policy statistical needs in the financial markets area reflected the changes in the focus of monetary policy and its development in the first half of the 1990s. At the start of the 1990s, a standard financial market was practically non-existent. One of the first segments to start developing dynamically was the money market, and in particular the interbank deposit market (the PRIBOR market). This money market segment has been systematically monitored on a daily basis since 1992. Owing to the fairly rapid liberalisation of current and financial account flows, another segment soon started to develop – the IRS and FRA market, including the foreign exchange market. Information from foreign financial markets also gradually gained in significance. Only in the second half of the 1990s – in connection with widening state budget deficits – did the government securities market become properly established. To sum up, the financial market statistics have steadily progressed from the monitoring of only some segments to the regular monitoring of the market as a whole (including foreign markets).

As for the structure of the financial market, the monitoring focuses on liquid segments of the money market (e.g. the PRIBOR market, T-bill market, foreign exchange market and FRA market) and of the capital market (e.g. the government bond market, IRS market and stock market). Foreign financial markets are monitored in a similar structure. The financial market is monitored on a daily, weekly and monthly basis, and the information is incorporated into regular operational

and analytical reports. These reports serve the CNB's monetary policy needs with regard to analysis of the transmission of monetary policy decisions into particular segments of the financial market, analysis of inflation expectations, and so on.

4.5. From Priority of Monetary Data to Priority of Data on the Real Economy (1998–2000)

If the period from the early 1990s up to 1997 can be described as a period of high priority for information on monetary developments, the situation changed drastically at the start of 1998 with the switch to the new monetary policy regime (inflation targeting). Owing to the central role of inflation forecasting in the new system, the statistical needs were focused on information on inflation and the factors affecting it. Information from the real economy was of paramount importance.

For instance, monetary policy defined entirely new requirements for the Czech Statistical Office. These were linked with the calculation and publication of "net inflation", this being the price indicator which the CNB concentrated on when it introduced inflation targeting. The CNB's statistics were also focused on the monitoring of new indicators, such as the inflation expectations of the financial market and developments in the household and enterprise sectors. In addition to the definition of new indicators, attention was directed at indicators that had not previously been utilised very much, such as import price indicators, national accounts statistics in the household sector and certain indicators of external economic trends and raw materials prices.

The dominant role of inflation forecasting in the inflation targeting regime required the use of both simple and more sophisticated modelling techniques. In this connection, the CNB faced problems with the fact that time series were too short and key macroeconomic variables were subject to frequent revisions (often for only part of the historical time period). Enhancing data quality remains one of the Czech Statistical Office's major challenges to this day.

4.6. From Priority of Monetary Data to Priority of Data on Public Budgets (2000 to Date)

One of the CNB's current monetary-policy statistical needs is for data on public finances in the Czech Republic. This data is collected by the Czech Statistical Office in collaboration with the Czech Ministry of Finance. From the CNB's perspective, this area still has insufficient coverage. Although very detailed information is available on public finances in the Czech Republic, it is not structured in SNA format. Owing to the widening public budget deficits in the Czech Republic since the late 1990s and the associated rise in public debt, the monetary and economic influence of fiscal policy is growing too. Optimum co-ordination of monetary and fiscal policy hence requires a deeper analytical perspective on the role of fiscal developments in the overall development of the economy (analysis of the fiscal position, fiscal impulse, etc.), so it is essential to have information on the public sector of commensurate quality and structure. The monetary-policy statistical needs for monitoring of the public budgets under the SNA methodology are not fully covered at present.

4.7. From Priority of Data for Partial Economic Analyses to Priority of Data for Macroeconomic Modelling (2000 to Date)

A precondition for successful monetary policy-making in the inflation targeting regime is knowledge of the monetary transmission mechanism. One of the approaches to simulating the effect of changes in key interest rates on demand and subsequently on inflation involves macroeconomic modelling. During 2000, work was completed on the CNB's macroeconomic model for short-run and medium-run inflation forecasting. Among other things, the construction of this model involved certain data requirements. A key problem was the fragmented data base and inconsistent time series, especially with regard to information from the real economy and for the government sector. Information falling within the purview of the central bank (the monetary statistics and balance-of-payments statistics) was obtained from the CNB's internal data bases.

The issue of the collection of statistical information for macroeconomic modelling has yet to be fully resolved. The workers responsible for drawing up macroeconomic forecasts still have to devote considerable time and resources to updating data bases, which moreover are maintained locally by the creators of the model. In this respect, there is quite a lot of room for further streamlining of the data collection process, for instance by maintaining a central statistical data base. The CNB's macroeconomic model is not only important to the needs of monetary policy itself. It is also used to simulate economic trends in the Czech Republic within the pre-accession economic programmes, in communications with the ECB and EC, and so on.

* * *

As mentioned in the subsections above, the monetary-policy requirements as regards the collection of statistical information have undergone fundamental changes since the start of the economic transformation process in the Czech Republic. In addition to these fundamental changes, the CNB's statistics – as well as those of, for instance, the Czech Statistical Office – have been faced with a series of extraordinary events. In 1993, for example, there was the split-up of the former Czechoslovakia, which in many cases led to the loss of what were already short time series from the period 1990–1993. Another major factor was the financial problems experienced by Czech banks in the late 1990s, when a series of bankruptcies seriously disrupted the collection of information on banking financial institutions. This period also saw the emergence of entirely new statistical requirements with respect to banking supervision at the CNB, in particular the collection of information on loan classification, capital adequacy, securities portfolios and suchlike. An entirely separate paper could be written on the history of data collection for supervisory needs. Given the specific status of banking supervision within the central bank and the focus of this paper on the statistical needs of monetary policy, we shall merely state that the banking supervisor's statistical requirements have led to the establishment of special statistics to meet its needs. In the Czech Republic's case, this is evidenced, for example, by the establishment of a separate commercial banks balance sheet (in 2002) for banking supervision at the CNB.

The collection of statistical information for the CNB's monetary policy needs has covered the basic requirements fairly adequately. But that certainly does not mean monetary policy has always had the necessary information at its disposal. Much of the information has been collected for a relatively short period, historically speaking, and this creates limits from the analytical point of view.

5. The Scope and Limits for Using Statistical Information for Econometric Analysis

At the start of the 1990s, in connection with new and expanding contacts with foreign experts, with the inflow of foreign literature and with the opportunities for Czech students to study at prestigious foreign universities, there arose a need to seek answers to important economic questions by applying econometric methods of data analysis. At this time, people began to ask for the first time whether it might be feasible to create practicable econometric models. Theoretical knowledge in the fields of statistics and econometrics had always been at a high level in the Czech Republic, especially in academia, but the new social and, in particular, economic order naturally opened up far greater opportunities for the practical application of these scientific disciplines.

5.1 Initial Considerations Regarding the Practical Use of Statistical and Econometric Methods (1990–1993)

From the very outset, the most important institution to show an interest in the analysis of concrete statistical data using sophisticated statistical and econometric methods was the State Bank of Czechoslovakia. But getting started with econometric analysis at that time was no easy matter – there were very few experts in the field, there was practically no experience in the analysis of the statistical data emerging in the new environment, and to cap it all the statistical data characterising fundamental economic processes was not of high quality. Some methodological progress was made in the first years of the transformation, but with regard to the quality and continuity of the data base a serious problem arose in 1993 when the Czech and Slovak Federal Republic was split to form the Czech Republic and Slovakia. The “cultivation” of the statistical data base for further analytical activity in the Czech Republic consequently did not start until 1993. But because the economic transformation was then in full flow, the need to analyse concrete data was intensifying. This need conflicted with the economic possibilities. Statistical and econometric methods are founded on the accumulation principle, and the data base at the time was very limited. The time series were so short and unstable that they virtually precluded any analysis. Some economists began to adopt a sceptical attitude towards such methods. Within the Czech National Bank, however, these views never held much sway. Quite the reverse, right from the outset the CNB encouraged and utilised empirical economic analysis, even though it had to be mindful of its limited informative value. This was without doubt the right approach, for in the years that followed, the expanding data base and the lengthening time series led to significant progress being made in the practical application of statistical and econometric methods.

5.2 *The Process of Enhancing the Data Base and the Switch to More Sophisticated Data Analysis (1994–2002)*

The following examples illustrate the problems experienced with using statistical data for standard econometric analysis in the period of transformation of the Czech economy:

In 2001, for example, a study entitled *An Analysis of the Consumption Function in the Czech Republic* (Arlt, Radkovský and ěutková) was undertaken at the CNB. This analysed the consumption behaviour of households in the 1990s, testing econometrically the hypothesis of permanent income. In the paper's introduction, the authors wrote: "*The analysis of consumer demand in the Czech Republic has several specific features. First of all, the period under review is very short. For the evaluation of the consumption behaviour of households in other countries, time series of twenty years or more are routinely used. Moreover, this period is inconsistent with the previous one, both methodologically and substantively. In the command economy period, the consumption behaviour of households was formed in a climate of minimal insecurity with respect to changes in income, and of practically zero unemployment. Consequently, consumers derived their consumption chiefly from current disposable income. The market economy, which has diametrically changed both the status of the individual and the role of the state in the economy, has totally disrupted the previous linkage between income, consumption and saving.*"

"The decade under review is itself highly inhomogeneous from the analytical viewpoint. This was a period in which the foundations of a market economy were established and when the consumption and monetary behaviour of households was formed against the background of a series of one-time transformation measures (price liberalisation, tax reforms, privatisations) and moreover in conditions of a splitting of the state and its currency. The adjustment to the market environment proceeded in climate of considerable uncertainty (a change in economic policy regime, the absence of a blueprint for transforming the social system), which bolstered the effect of psychological factors on the consumption behaviour of households."

"An ultimately independent problem is the lack of empirical evidence in this area – starting with the definition of the consumption indicator itself as a comprehensive indicator with no detailed analysis, through insufficient information on households' income and asset levels, to the virtual absence of much significant information regarding the consumption behaviour of households, for instance information from voucher privatisation."

Clearly, then, for the reasons given above, i.e. the marked instability of the economic environment and the shortcomings in the data, the results of the study, whatever they are, need to be put into perspective. The typical dilemma in the mid-1990s was as follows: whether to perform an analysis despite the instability and data deficiencies, or whether to not bother trying, for the reasons given above. In the end, analyses were performed in full knowledge of the data limitations, something that was necessarily reflected in the interpretation of the results. However, in some cases the analyses were conducted more than once in different time periods, and in this connection it is interesting to compare the changes that occurred.

One example of such an approach is the analysis of money demand, which has been conducted a total of three times. A paper entitled *The Influence of Selected Factors on Money Demand in 1993–1996* (Arlt, Guba and Stiller) was issued in 1997. The quarterly time series employed (M1, M2, 1Y PRIBOR and GDP) were very short – running from 1993 Q1 to 1996 Q4, i.e. four years in all. For this reason, only single-equation ADL models were used, and within them co-integration was tested. The conclusions section of this paper states: "*The results of the analysis are only orientational in nature. They are qualified by the small number of observations and the short time period to which the analysis relates. One should bear in mind that the conditions in which the economy developed in 1993–1994 were largely different from the present reality and probably also from the future.*"

There followed in 2001 a paper called *The Influence of Selected Factors on Money Demand in 1994–2000* (Arlt, Guba, Radkovský, Sojka and Stiller). This is more sophisticated than the previous study in several respects. It contains a theoretical economic explanation of the issue and a clarification of the econometric view of money demand, and the empirical part is more thorough. The analysis is based on a VAR model, within which co-integration is tested using a Johansen test. The result characterises the long-term relationships between real M2, the 1Y PRIBOR and real GDP with the aid of a VEC model. This analysis is more extensive and thorough than its predecessor, but its conclusions section states similarly: "*One should bear in mind, however, that the results of the*

analysis presented here are only orientational in nature. They are qualified by the short time period to which the analysis relates". The data again did not allow any testing of the hypotheses in long-term relationships or of the hypothesis of weak exogeneity.

In 2003 a third paper was published: *A Model of Money Demand in the Czech Republic and its Use for Constructing Forecasts* (Arlt, Guba, Radkovský and Sojka). This paper, which uses time series running from 1994 Q1 to 2002 Q2, takes us further forward. The data allow a VAR model to be used as the basis for the analysis. In a system containing four logged time series (real M2, the rate of inflation, real GDP and the 1Y PRIBOR) a Johansen test proved the hypothesis that the system is co-integrated and contains two co-integration vectors and two common trends. In a VEC model, the data also allow testing of the weak exogeneity of the time series with respect to parameters characterising long-term relationships. Because the restrictions representing the weak exogeneity of the time series analysed are not identifying restrictions for the estimates of the co-integration vector parameters, it is very important also to consider the restrictions on the co-integration relationships. These restrictions are simultaneously of key material importance, as they allow empirical testing of specific economic hypotheses. In the first co-integration relationship, one can consider the restriction leading to the *long-run money demand function*. In this connection, one can also consider the restriction representing the existence of a co-integration relationship between the velocity of money and the rate of inflation or the nominal interest rate. In the second co-integration relationship it is possible to consider the restriction representing the co-integration between the nominal interest rate and the rate of inflation. If the parameters of this co-integration vector are the same and have opposite sign, the real interest rate is a stationary time series. This study also analyses the possibilities for using the money demand model for predictive purposes, something that was not possible in the previous studies.

The money demand example illustrates a process of learning and refinement, facilitated by the lengthening time series and growing experience of analysts. The current state of the data base is still not satisfactory of course, but since 1993 we have attained a qualitatively different level.

The expanding data base and the lengthening time series have led, over the last few years, to further significant progress in the area of modelling of the Czech economy. The CNB has also started to devote considerable attention to the creation of large aggregate macroeconomic models. Although there are still many unresolved methodological problems in this area, the fact that experts at the CNB are addressing this issue is, for many reasons, positive and beneficial.

5.3. Analysis of Financial Time Series

The importance of quantitative information on the financial market is currently on the increase. Much of this information is provided in the form of financial time series. These time series are specific, and, compared to other types of economic time series, have certain features that in many situations require novel analytical approaches. The basic difference is in the time frequency with which they are monitored. Normal time series are usually monitored at yearly, quarterly and monthly intervals, whereas financial time series are monitored daily or hourly. Clearly, when analysing such time series the problem of data deficiency evaporates. The sufficiency of the data creates room generally for qualitatively different methods, for it allows us to better reveal the properties of generating stochastic processes. When we model financial time series, it turns out, for example, that the assumption of normality and linearity is too "coarse". This is leading to efforts to apply non-linear models. It can be said generally that we in the Czech Republic are faced with similar problems as analysts in relatively stable economies, as the basic features of our financial time series and those in developed economies are much the same. The econometric analysis of financial time series is a relatively new scientific discipline. We believe we have summed up the basic trends in its development.

6. Conclusions

The economic transformation in the Czech Republic has fundamentally affected not only the CNB's monetary policy-making, but also the collection, processing and analysis of statistical information. The monetary goals of currency and price stability could hardly have been achieved without a corresponding response to monetary policy needs in the statistical area in this period.

The evolution of the CNB's monetary-policy statistical needs can be broken down into two basic periods. In the first period, i.e. the early stage of the economic transition in the first half of the 1990s, the focus was on collecting basic data on the monetary area, the balance of payments, the real economy and the government sector. For the CNB's monetary policy, information on loans, deposits, interest rates and the balance of payments played the dominant role. In the second period

(from the mid-1990s up to the present), which can be characterised as a period of a standard market economy, the role of data on the real economy, the financial markets and the government sector has grown considerably in importance. Particularly significant has been the shift towards high-frequency data from the financial markets and towards data for macroeconomic modelling.

In addition to the collection of information for monetary policy needs, much progress has been made since the mid-1990s in the use of statistical and econometric methods for analysing data. This is due to the growing knowledge and experience of analysts, better software, and an improved data base. More sophisticated linear time-series models are being developed, and increasing attention is also being devoted to non-linear models.

The statistics in the Czech Republic at present cover the CNB's standard monetary-policy requirements and are on a par with those in the advanced countries. Henceforth, the developments and trends in the Czech statistics will reflect the standard changes proceeding in the advanced nations.

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Use of statistics in developing UK monetary policy

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1. Introduction

This paper looks at economic statistics, in particular National Accounts and labour market statistics, in the UK, their significance to monetary policy, and their use in macro-economic modelling. In doing this, the paper will set out the context in which UK monetary policy is set, both political and theoretical. The use of economic data in modelling by the Bank of England will be briefly described. Finally, the paper will outline the implications of monetary policy for statistical priorities, and areas for future statistical development.

2. The UK Monetary Policy Framework

The current Monetary Policy Framework in the UK was established in 1997. The Bank of England has operational responsibility for setting the level of short-term interest rates necessary to meet the Government's stated inflation target – currently, 2.5 per cent. However, while the main focus is on maintaining price stability, the Bank is required to take wider economic considerations into account. Specifically, the overall monetary policy objective is of delivering price stability and, “without prejudice to this objective, supporting the Government's economic policy, including its objectives for growth and employment”.

In terms of the actual setting of interest rates, operational decisions on interest rate policy are made by the Monetary Policy Committee. This comprises 5 bank officials (namely the Governor, the 2 Deputy Governors, the Bank's Chief Economist, the Executive Director of Financial Market Operations) and 4 external members appointed directly by the Chancellor. Decisions of the MPC are made on a one-person one-vote basis, with the Governor having the casting vote if there is no majority.

The aim is that the process should be as transparent as possible. Minutes of the MPC meetings, including voting records, are published no later than six weeks after the meeting. The Bank is required to publish a quarterly Inflation Report in which it accounts for its monetary policy actions, sets out and justifies its analysis of the economy, and explains how it intends to meet the Government's inflation target and support the Government's economic policy. In the event of inflation missing the target by more than 1 per cent, either above or below target, the Governor of the Bank is required to write an open letter to the Chancellor of the Exchequer setting out the reasons.

3. Monetary Policy Management

In preparing the Inflation Report and deciding on interest rates, the Bank and the MPC look at a range of domestic and international economic and monetary factors, which have a bearing on inflation over the future. The policy decision also takes account of developments affecting business and commerce throughout the UK. Information on such developments comes from a number of sources including official government statistics, business surveys, and the Bank's own regional agents.

Much of the Bank's decision-making is informed by econometric modelling and official data provides the cornerstone of that modelling work. To appreciate the importance of economic data, one needs to understand the assumptions underlying the Bank's modelling. The Bank operates a pluralistic modelling approach, using different types of macroeconomic and VAR model. However, the main model is known as the MM, and incorporates some basic propositions which illustrate how the Bank thinks the economy works, and the transmission mechanism for monetary policy.

The first assumption is that long-run economic performance depends on the supply side factors, such as technical progress, capital accumulation, and the size and quality of the labour force. Monetary policy has little effect on these supply-side factors as the long-run equilibrium path for real variables such as output and employment is independent of the level of prices in money terms.

Second, there is no long-run trade-off between inflation and unemployment, or between inflation and output. Thus the Phillips curve is vertical in the long run, and it is impossible to achieve persistently higher output, or lower unemployment, by tolerating higher inflation.

Third, it takes time for the economy to respond to shocks that move it away from equilibrium. As a result, there is a *short-run* trade-off between inflation and output – inflation tends to rise or fall as the pressure of demand on capacity in the economy varies.

Beyond this, the model also assumes that the level of prices in money terms, and the rate of inflation, depend on monetary policy; and that, since the UK is an open economy, domestic output and inflation are strongly influenced by developments abroad.

From all of this, one can see that inflation tends to rise or fall as the pressure of demand on capacity in the economy varies, specifically according to the degree of disequilibrium between demand and supply capacity. This pressure can be indicated by number of economic indicators. On the labour market side, inflation will occur if the demand for labour exceeds available supply. Other things being equal, there will tend to be upward pressure on earnings growth, and hence on unit wage costs and ultimately on retail price inflation.

4. The Labour Market

Signs of excess demand within the labour market may appear in different data, however the most carefully watched areas tend to be earnings and unemployment.

Earnings growth is probably the most important indicator within the labour market, from a monetary policy perspective. Rapidly increasing employment, or falling unemployment, may give a signal of possible pressures ahead, but the key mechanism for transmitting inflationary pressure from the labour market into prices is earnings. Within the UK, the rough guide is that annual earnings growth of around 4.5 per cent is compatible with the inflation target; this is based on 2.5 per cent inflation plus around 2 per cent productivity gain. However, it is only a guide and recent years have seen earnings growth reaching as much as 5.x per cent, with little discernible impact on prices. In part, this appears to be due to the inability of employers to pass on their increased costs due to competition. Whatever, as a result, profit margins in some sectors have been squeezed in recent years.

Unemployment is also a key indicator of potential inflationary pressure in the labour market. As unemployment falls, inflationary pressure will, on the whole, increase as the availability of labour, and in particular skilled labour, decreases. The non-accelerating inflation rate of unemployment (NAIRU) implies that there is a particular rate of unemployment which is compatible with an inflation target of 2.5 per cent. In watching the labour market for inflationary warnings signs, analysts will keep its proximity to the NAIRU in mind. However, it is an inexact science. First, estimating the NAIRU is difficult enough but the rate is not fixed – structural change in the labour market will alter the NAIRU over time. For example, most estimates for the UK put the NAIRU at around 7 per cent in the mid-1990s, whereas more recent estimates tend to be around 5 per cent as the UK has had a period of sustained lower unemployment, without any signs of inflationary earnings pressure. Second, the pace of growth may also matter: faster falls in unemployment will allow less time for the market to adjust – for people to reskill or relocate – and hence, increase the likelihood of wage inflation. The slow, gradual changes seen in recent years may be one reason why UK unemployment has been able to edge down to its lowest level since the 1970s without triggering high wage inflation.

Earnings and unemployment tend to receive most attention, particularly from private sector City forecasters; however, they are not the only indicators. On the demand side, employment and vacancies also matter. For example, the MM model defines employment both in terms of hours and headcount. The introduction of hours reflects the fact that hours worked tend to be more responsive to the economic cycle than simple employment. In the event of a slowdown, employers will reduce hours but continue to hoard labour on the basis that the slowdown may be temporary. It is only when it becomes clear that the downturn is entrenched that they will begin to shed labour. Similarly, in an upturn, firms will tend to increase overtime rather than employment until they are confident it is not a temporary upswing. As such, employment and hours worked provide a good indication of activity within the economy.

However, employment only provides part of the demand picture, namely met demand. Official data on vacancies are also available, though only on an experimental basis at this stage. This pro-

vides an added angle – as demand for labour increases and it becomes more difficult to recruit, the number of unfilled vacancies will rise. Facing recruitment problems, firms may increase wages leading back into earnings inflation.

Connected to this, another signal of possible future wage inflation is the level of skills shortages in the economy. Official data is lacking in this area. Instead, the Bank monitors reports of skill shortages via reports from its regional agents. In addition, business bodies such as the Confederation of British Industry produce figures on skills shortages. Increasing shortages may be indicative of future inflationary pressure. However, one has to be aware of the fact that the effects may differ, for example if shortages are specific to an industry or a locality, and not a general problem in the economy.

Finally, in terms of demand and supply, an area of increasing interest is that of inactivity. Over the last few decades there have been a number of changes in the characteristics of the inactive, most notably the decline in the rate of female inactivity and the increase in male inactivity. It seems probable that there are groups of inactive who are more closely connected to the labour market than in previous years, and who, may more readily move to active participation, for example, as labour market conditions change. As such, it seems likely that one reason why falling unemployment in recent years hasn't triggered inflationary pressure is that there is a degree of additional slack in the market due to the inactive.

5. Briefing and Feedback

The MPC meets monthly to decide if a change in interest rates is necessary. Before each meeting a team of Bank of England economists brief the Committee on different aspects of world and UK economic developments. This process generates a need for economic statistics which are timely and reliable indicators of later more firmly-based measures. The briefing is conducted in the spirit of openness and transparency that characterises other aspects of the Committee's decision-making process. For example, the national accounts director of the office for national statistics attends the briefings, and learns at first hand the views of the economists and the Committee members on the timeliness, relevance and reliability of the official statistics being used.

This direct and immediate feedback is generated by an open process for a clear purpose, and so is of great value in helping the official statisticians determine relative priorities for both the short and long term, in allocation of resources to improve the quality of the statistics. Immediate concerns are relayed back to the office and either explanatory notes are submitted to the economists providing the briefing, or for more serious concerns, a statistical note will be produced suitable for circulation to Committee members. Areas such as international trade deflators, household expenditure and public sector output are areas that were the subject of extended briefing in 2002. These notes ensure a continuing and constructive dialogue between users and providers of official statistics to a uniquely short timetable and with great relevance to immediate user needs.

One aspect of the monthly decision-making cycle which official statistics must note, is the pervasive use of attitude business and household surveys. Measures such as the change in confidence of householders are obviously key inputs to economic modelling. At present, these surveys are conducted by non-government bodies in the United Kingdom, and therefore do not have the quality hallmark of independence that a national statistical office provides. In the United Kingdom, policy making has suffered from the existence of two sometimes contradictory measures of movements in house prices, compiled by private institutions. A comprehensive official statistic is under development. Should national statistical offices also look to provide official estimates of business and consumer attitude measures?

6. Future Developments

The Office is looking at a number of ways of improving the data it provides to the Bank of England. In some areas, the aim is to improve the timeliness of data. For example, at the moment Labour Force Survey estimates are available approximately 6 weeks after the end of the reference period e.g. figures for the January-March period are available in mid-May. Work is under way looking at the possibility of producing estimates for key figures a month earlier than this. In addition, currently LFS data are published as rolling quarterly estimates; the possibility of producing monthly data is being examined. Another improvement is the development of a Labour Cost Index which will give a fuller picture of the costs borne by employers than the existing Average Earnings Index.

The services sector is an important part of business in the economy which is being measured in a more comprehensive and timely manner. An experimental monthly Index of Services Output is

under development with a view to introducing it as an official statistic in 2005. This has also meant extension of price measurement into the corporate services sector, and compilation of a new measure of inflation called the Corporate Services Price Index is under way. The Bank of England and the Monetary Policy Committee have enthusiastically welcomed these new statistics.

In addition to timeliness, the ONS is looking at ways of improving the coherence of existing statistics. For example, improving reconciliation between different data sources, in particular the different measures of employment and jobs, and improving our understanding of different sources of data on hours worked. The industrial analysis of output and labour generates measures of productivity which are key in understanding the performance of the economy through measures of productivity, and work is under way to examine the coherence of the measures through a framework of national and labour accounts.

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Statistics on euro-area banks' deposit and lending rates: analytical use, concept and implementation at the Bundesbank

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In order to prepare reliable euro-area aggregates for the banking statistics, the European Central Bank (ECB) needs methodologically consistent country data, which are compiled by the national central banks (NCBs). Quite logically, the lead role in the harmonisation of the national reporting concepts in the field of banking statistics has been assigned to the ECB at the level of primary law.¹ As early as July 1996, all the measures required for this purpose were outlined in an "Implementation Package"² by the European Monetary Institute – the predecessor of the ECB. One of the items at the very top of the agenda was the development of banks' harmonised interest rate statistics. This project was tackled in spring 2000 following the initial installation of transitional statistics based on available, non-harmonised data to meet the most urgent user requirements.³ Following almost two years of discussions on the statistical fora of the European System of Central Banks, the harmonised interest rate statistics concept was adopted by the ECB Governing Council in December 2001. The reporting requirements are enshrined in a legally binding ECB regulation and have been implemented in the national reporting systems. Production of the new data started in February 2003. Owing to the unfamiliarity and complexity of the new statistics, however, the first results are unlikely to be published before autumn 2003.

1. Basic features of the concept and implementation at the Bundesbank

Object of reporting

The new statistics cover interest rates for euro deposits and euro loans agreed by MFIs⁴ with households and non-financial corporations.⁵ In order to minimise the reporting burden on banks, business with financial corporations and government as well as foreign currency positions are not included. This minor restrictive qualification is reasonable from a user vantage point, especially as the share of deposits included in the monetary aggregates which are not covered tends to be rather small. The MFIs transmit the data to the NCBs every month. The NCBs then submit the aggregated country results to the ECB.

User requirements mean that the interest rates are to be stated separately for the total outstanding amounts of deposits and loans *and* for the newly concluded contracts.⁶ Formerly, most of the national interest rate statistics did not make this dual requirement (for the German banks the rates on outstanding amounts are uncharted territory). The new business rates are calculated as a monthly average: in addition to the newly concluded deposits and loans during the month, all renegotiations of the terms and conditions of existing contracts between a bank and its customers are incorporated so that interest rate adjustments are captured. The analysis as a monthly average means that any end-of-month effects do not have an impact on the figures. On grounds of consistency with the MFI balance sheet statistics, the rates on outstanding amounts have to be based on the state of the books at the end of the month. Alternatively, implied interest rates may also be re-

1 Article 5.3 of the Statute of the European System of Central Banks and of the ECB read in conjunction with the Memorandum of Understanding on Economic and Financial Statistics between the ECB and Eurostat of 10 March 2003.

2 Statistical requirements for Stage Three of Monetary Union, European Monetary Institute, July 1996.

3 Published in the Bundesbank Monthly Report (Statistical Section, Table VI.6) and in the ECB Monthly Bulletin (Table 3.4).

4 Monetary Financial Institutions (MFIs) include credit institutions as defined in Community law and all other financial institutions whose business is to receive (close substitutes for) deposits and/or grant credit in economic terms.

5 Owing to their specialised business, money market funds and NCBs are exempted from the reporting requirement.

6 In the case of overnight deposits, deposits redeemable at notice and overdrafts, the new business rates are calculated in the same way as rates on outstanding amounts owing to the high frequency of cash-flows on those schemes.

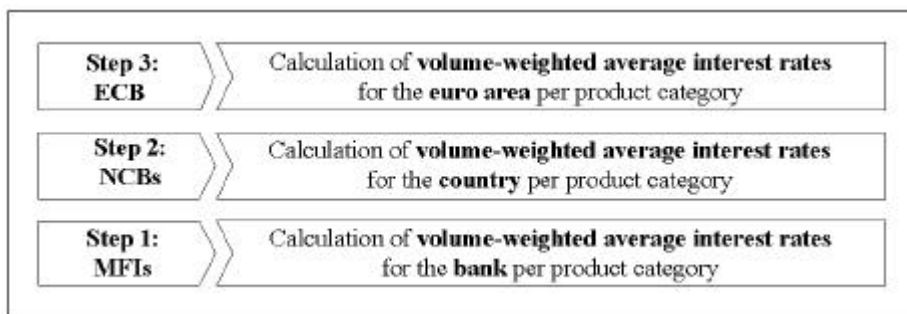
ported, which are derived by relating the banks' interest income and expenses to the monthly average stock of the product category concerned. The Bundesbank does not use this option.

The interest rates are to be broken down by product category, maturity, economic sector, amounts¹ and – in the case of loans – by purpose, with the number of reporting items for the rates on outstanding amounts being less extensive than for the new business rates (14 compared with 31, respectively). Generally, the definitions applying to the breakdown criteria for the harmonised MFI balance sheet statistics have been used: this applies, above all, to the definition of product categories in line with the requirements of the European System of Accounts.² A further analogy with the balance sheet statistics is that *all* the relevant deposits and loans of a single product category are now to be included in determining interest rates and not – as used to be the case – only the standard products. Consequently, the results are more representative. The close conceptual link between both sets of statistics has the advantage that the price variables in the interest rate statistics – above all, the rates on outstanding amounts – can be related to the volume variables in the balance sheet statistics for analytical purposes.

Methodology

Volume weighting of the interest rates: The euro-area indicators for volume statistics, such as the MFI balance sheet statistics, are determined by aggregating the country figures. By contrast, the MFI interest rate statistics, which are designed as price statistics, require a *weighted average* of the national rates to be formed so that representative “community interest rates” are obtained. For this purpose, the ECB calculates volume-weighted average interest rates for the euro area on the basis of aggregate national business in the respective product categories. While the weights for the rates on outstanding amounts may be taken virtually in their entirety from the MFI balance sheet statistics, the volumes of new business have to be reported separately by the reporting agents. As Figure 1 illustrates, the principle of volume weighting applies to all states of aggregation in calculating the rates, i.e. to the preparation of the individual MFI's rates and the national “components” as well.

Figure 1 – Step-by-step calculation of the volume-weighted euro-area interest rate indicators



The earlier Bundesbank interest rate statistics made no provision for volume weighting. Instead, the banks reported the rate of interest agreed most frequently within a given reporting period. Even though this method supplied usable results for analysis at national level, the new volume-weighted interest rates have a higher coverage.

Type of interest rate: Using effective interest rates rather than nominal interest rates means that the timing and amounts of the relevant product-specific payment flows – and, optionally, the additional fee components in the case of loans – can be covered in the correct actuarial manner. However, since providing effective interest rates causes the banks considerably greater costs, the ECB fundamentally leaves it to the NCBs to decide whether the interest rates should be reported as *narrowly defined effective rate* (NDER, formula in line with ISMA, see (1); masking out of additional cost components)³ or as an *annualised agreed rate* (AAR; annualisation of the agreed nominal rate of interest, see (2)). The Bundesbank has transferred the right to use this option to the banks.⁴ The

1 Only for the new business rates in the case of loans (excluding overdrafts) to non-financial corporations.

2 Eurostat, *European System of Accounts – ESA 1995*, Luxembourg, 1995.

3 International Securities Markets Association; the formula provides for exponential interest calculation also below 12 months.

4 Nevertheless, the use of the NDER is also recommended for products with irregular cash flows.

new business rates for loans for consumption and house purchases to households are, however, obligatory to be provided also on the basis of the *annualised percentage rate of charge* (APRC; formula in line with ISMA, see (1); inclusion of additional cost components) pursuant to the requirements of the Consumer Credit Directive.¹

$$(1) \sum_{K=1}^{K=m} \frac{A_K}{(1+i)^{t_K}} = \sum_{K'=1}^{K'=m'} \frac{A'_{K'}}{(1+i)^{t'_{K'}}$$

with i = NDER (excl. fees) or APRC (incl. fees)

A_K = loan drawdown or deposit

$A'_{K'}$ = interest, redemption and (only for APRC) fee payments

t_K = time elapsed between first and following loan drawdown/deposit

$t'_{K'}$ = time elapsed between first loan drawdown/deposit and interest, redemption and (only APRC) fee payments

$$(2) AAR = \left(1 + \frac{r_{ag}}{n}\right)^n - 1$$

with r_{ag} = agreed interest rate; n = number of interest capitalisations/year.

Actual reporting population: In the case of price statistics, stable overall results can be generated from the reports of a sub-population of MFIs. Provision is therefore made for sampling. This means that the reporting burden on the institutions and the processing input at the NCBs can be reduced. So that the national samples are representative in respect of interest rates and new business volumes, minimum requirements are to be observed with respect to the sample size (maximum random error for interest rates in new business over all product categories, given a 90% confidence level, smaller than 10 basis points²), the procedure (stratifying the institutions into homogeneous classes³ in order to reduce the sampling error) and the drawing (random principle or selection of the biggest institutions). The sample should be updated at least every two years. In Germany, 199 of the existing total of 2,400 institutions belong to the sample, which has been drawn from 15 strata by selecting the biggest institutions, respectively.

2. Analytical use

Monetary policy transmission mechanism: With the harmonised statistical interest rate indicators, it is now possible to analyse the way in which the monetary policy transmission mechanism operates in the euro area as a whole and in the individual member states using a single methodology. The intensity and timing of the institutions' interest rate adjustments in response to changes in official and market interest rates (pass-through) can be ascertained on the basis of developments in the new business rates. Enterprises' and households' decisions on investment, saving and consumption are determined, above all, by interest rates at the current end, which are indirectly influenced by monetary policy (interest rate channel). The quite in-depth breakdown of the reporting framework means that it is also possible to determine systemic differences in transmission for various products and economic sectors among the customers. The separately reported volumes of new business extend the range of possibilities with the analysis of banks' quantity reactions, which is likewise important for understanding the way in which the transmission mechanism works. At the micro level, the NCBs can analyse whether a given bank's market share – measured by the volume of new business – has a significant influence on its price and quantity response pattern. Using the rates on outstanding amounts, it is possible to derive the income effects of transmission on non-financial corporations and households created by the change in the cost of loans and/or in interest income.

Monetary analysis: The interest rate statistics provide the price-related information on the monetary indicators of the MFI balance sheet statistics and are thus helpful in interpreting monetary developments and their potential implications for future risks to price stability. The interest rate differentials of the monetary and non-monetary items provide information on the substitutability relationships between these product categories and on the opportunity costs of

1 Directive 98/7EC of the European Parliament and the European Council amending Directive 87/102/EEC for the approximation of laws, regulations and administrative provisions of the Member States concerning consumer credit.

2 If the required data are not available, the sample is deemed to be sufficiently large if it contains at least 30% of the potential reporters (but no more than 100 institutions) or if it covers at least 75% of the relevant deposits and loans.

3 The strata are to be defined so that the variance of the institutions' interest rates within one stratum is smaller than the variance vis-à-vis the interest rates of the institutions of other strata (Huygens theorem).

holding money. This plays a major role in the analysis of portfolio shifts. The interest rate indicators, eg the average remuneration of the monetary aggregates' components, provide, as explanatory variables, a major input for the money and credit demand models underlying the monetary analysis. This makes it possible to calculate the interest rate elasticity of the money demand for the monetary components. Last but not least, the interest rate variables are also useful in estimating supply functions.

Structural analyses of the banking sector – financial market stability: The interest rate indicators may also be employed for structural analyses of the European banking sector from the point of view of monetary policy and financial market stability. The *interest income situation* may be calculated by combining interest rates with the quantity variables; the indicators based on outstanding amounts model the current situation, while the new business indicators are forward-looking and can be used for interest income forecasts. The development of the interest rate margin between selected deposit and lending rates can not only be analysed from an earnings perspective but also be used as a rough indicator of the *intensity of price competition* on the markets. Conclusions on the competitive situation may also be drawn from the shifts in banks' product policy, measured by the volumes of new business; substitution effects from the supply side are of interest for users. Finally, it is also possible, with some qualifications, to make a rough estimate of the banks' *interest rate risks*.

Market integration: Interest rate convergence indicators for the euro-area retail markets may be calculated on a consistent basis from the country rates, using variation coefficients. Furthermore, there are a number of starting points for approaching quantity analyses based on volumes of new business; an interesting point, for example, is whether and to what extent the national and/or regional anchoring of the retail markets or the "house bank" principle change over time.

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Résumé

En février dernier a démarré, au sein des banques centrales nationales de la zone euro, la production de données pour l'élaboration de la nouvelle statistique harmonisée des taux des banques (taux débiteurs et créditeurs). Ceci permet de donner à la statistique des taux de la zone euro – qui est établie par la Banque centrale européenne – une base cohérente sur le plan méthodique. Les nouveaux indicateurs de la statistique des taux constitueront une aide précieuse pour l'analyse du mécanisme de transmission de la politique monétaire et faciliteront l'interprétation de l'évolution de la masse monétaire effectuée dans le cadre de l'analyse monétaire. Grâce aux données recueillies côté offre, on disposera d'éléments permettant d'analyser la situation bénéficiaire et concurrentielle ainsi que l'intégration des marchés dans le secteur bancaire de la zone euro, dans l'optique de la politique monétaire et de la stabilité des marchés financiers.

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The sectoral and geographical allocation of holdership of negotiable instruments

CONTRIBUTED PAPERS

Impact of securities transactions on the statistical presentation of money stock developments in the euro area

Stefano Borgioli (European Central Bank) ¹

The euro area broad monetary aggregate

The broad monetary aggregate M3 for the euro area includes negotiable instruments, namely money market fund shares/units and debt securities with an initial maturity of up to two years. M3 aims to measure the money holdings of euro area residents, since these holdings are deemed to be particularly relevant when assessing the monetary developments for price stability. Therefore, from a conceptual point of view, holdings of negotiable instruments by non-euro area residents should be excluded from M3. In practice, however, it can be difficult to identify the residency of the holders of negotiable instruments.

Prior to the start of Stage Three of Economic and Monetary Union (EMU) in January 1999, the amounts outstanding of these negotiable instruments were rather small and were subject to only moderate growth over time. Furthermore, there was little evidence of any significant non-euro area resident holdings of negotiable instruments issued by euro area monetary financial institutions (MFIs). In view of this fact, it was decided that the calculation of M3 should include all negotiable instruments issued by euro area MFIs, excluding those held by the euro area MFIs themselves, and that, for the time being, no attempt would be made to measure and deduct holdings by non-euro area residents.

However, since the start of Stage Three of EMU there has been a marked increase in the amount of negotiable instruments being issued. The annual rate of growth of negotiable instruments has risen significantly since the final quarter of 1999, temporarily exceeding 20%. As a percentage of the stock of M3, negotiable instruments rose from below 10% prior to the start of Stage Three to 12-13% by mid-2001. For debt securities alone, the temporary inclusion of non-resident holdings distorted the growth rate of M3 in 2001 by some 0.6-0.9 percentage points.

As from the April 2001 publication of monetary developments in the euro area, the ECB has adjusted M3 to take account of the effects of holdings of money market fund shares/units by non-euro area residents. Subsequently, with the publication of the monetary developments for October 2001, this adjustment was extended to holdings of debt securities with a maturity of up to two years (or short-term debt securities).² As a result of these adjustments, the measurement of M3 was brought significantly closer to the conceptual definition of this aggregate.

¹ *My thanks to Michele Manna for helpful comments and to Nagore Alvarez Ampurua for excellent assistance.*

Sources of data on non-resident holdings of short-term debt securities

As at end-September 2001, the holdings by non-euro area residents of short-term debt securities issued by euro area MFIs amounted to approximately EUR 135 billion, of which close to EUR 120 billion-worth were issued by French, German, Irish, Luxembourg and Dutch MFIs. The remaining securities were issued by MFIs located in the other seven euro area countries. Currently, statistics on the non-resident holdings under examination are derived either directly by the ECB, using the methodology outlined in F. Mayerlen's contribution to this conference, or are indirectly compiled via the national central banks, which use their own national data collection systems.

From the standpoint of statistical production methods, it may be interesting to compare the quality of the statistics obtained using the direct and the indirect approaches. In particular, we will focus here on the five aforementioned countries, using the statistics on the deposits held by non-euro area residents with euro area MFIs as a benchmark. The assumption is that for this balance sheet item the geographical breakdown of counterparties should be highly accurate (or in any case more accurate than can ever be achieved for negotiable instruments).

Based on monthly stock data from December 1998 to January 2003, the following main conclusions can be reached:

- The degree of smoothness of the statistics for non-resident holdings of short-term debt securities is lower than, but close to that of deposits.¹ In particular, the difference in smoothness vis-à-vis deposits is more marked in the case of the "direct" approach. The difference is however clustered in the data for 1999 and the first half of 2000. Thereafter, no significant differences arise. The degree of inertia, measured using autocorrelation coefficients, point to similar conclusions.
- The statistics on non-resident holdings of short-term debt securities are virtually not subject to revisions. By contrast, revisions amount to approximately 0.2% in the case of the corresponding "indirect" statistics and 0.1% for deposits.

Overall, this evidence suggests that the statistics for non-resident holdings of debt securities are of a high quality, comparing favourably with those for deposits.

The external position of euro area MFIs

Following the implementation of the adjustments, non-euro area residents' holdings of short-term debt securities are now included under the MFI balance sheet item "external liabilities" instead of the "debt securities" item as was previously the case. This adjustment of M3 has thus brought about a parallel enhancement of the statistics for the (net) external positions.

As a result of the adjustment, the external liabilities as at September 2001 grew by EUR 136 billion, or 5.5% (from EUR 2,475 billion to EUR 2,611 billion). This wedge had therefore increased markedly since December 1999, when the corresponding figures were EUR 72 billion and 4.0%.

Table 1 – External liabilities of euro area MFIs, excluding the Eurosystem
(EUR billions (not seasonally adjusted; end of period))

	Before M3 adjustment	After M3 adjustment	Difference
Dec. 1999	1,797.7	1,870.1	72.4
Dec. 2000	2,186.8	2,299.3	112.5
Mar. 2001	2,512.7	2,636.0	123.3
June 2001	2,570.5	2,710.4	139.9
Sep. 2001	2,474.6	2,610.7	136.1

2 At the time, two balance sheet items were identified: money market paper and debt securities issued with a maturity of up to two years. Subsequently, with the entry into force of ECB Regulation No 2001/13, the former category has been merged into the latter.

1 The smoothness is measured by the R^2 of the fit of the series on a polynomial function of second order. In principle, a "good" series does not need to be smooth. At the same time, lack of smoothness is a sign of noise, which in turn may reflect some dirtiness in the underlying raw data.

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Résumé

Les statistiques monétaires de l'Eurosystème sont établies à partir du bilan consolidé, totalement harmonisé, du secteur des IFM de la zone euro et sont fondées, en particulier, sur des définitions homogènes des secteurs émetteur et détenteur de monnaie. Dans le cadre conceptuel sous-tendant le calcul des agrégats monétaires, le secteur détenteur de monnaie n'englobe pas les non-résidents de la zone euro. En conséquence, la qualité, déjà élevée, des statistiques monétaires pour la zone euro a été encore améliorée grâce à l'identification de la détention par les non-résidents d'instruments négociables et leur exclusion du calcul de M3. Cette correction a contribué également à affiner sensiblement la description statistique de la position extérieure nette du système bancaire de la zone euro. Il a ensuite été procédé à une analyse statistique afin de comparer la qualité des données et les différentes approches mises en œuvre pour exclure les encours détenus par les non-résidents du calcul de M3. Globalement, les données disponibles mettent en évidence la qualité élevée des statistiques relatives à la détention par les non-résidents de titres de créance.

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Reliable statistical recording of negotiable instrument holdership as a pre-condition for the compilation of the money stock and its counterparts

Stefan Brunken (*Deutsche Bundesbank*)

1. Role and definition of the broad euro area monetary aggregate M3 and its counterparts

The first pillar of the monetary policy strategy of the European Central Bank (ECB) is a prominent role for money, which is signalled by the announcement of a reference value for the growth of the broad monetary aggregate M3, currently set at 4.5%. The main theoretical underpinning of this approach lies in the monetary origins of inflation over the medium to longer term, reflecting the stable long-run relationship between the price level and the (broad) money stock.¹ M3 comprises ‘currency in circulation’, ‘overnight deposits’, ‘deposits with agreed maturity of up to 2 years’, ‘deposits redeemable at notice up to 3 months’, ‘repurchase agreements’, ‘money market fund shares’ and ‘debt securities of up to 2 years maturity’ of euro area MFIs² being held by euro area non-MFIs (excluding central governments). Short-term deposits held by euro area non-MFIs with euro area central government agencies are also added to M3, as these are considered close substitutes for bank deposits.

Figure 1 – Derivation of M3 from the consolidated balance sheet of euro area MFIs

Consolidated balance sheet of euro area MFIs	
Assets	Liabilities
I. Loans and securities to/of euro area non-MFIs	M3
II. Net assets outside the euro area	III. Monetary capital formation (longer-term deposits and securities held by euro area non-MFIs, capital & reserves
	IV. De posits and Securities of Central Government
	V. Other factors
$M3 = I + II + III + IV + V$	

* As coin and short-term deposits with euro area central governments are part of M3 they are included here (with their counterparts in “other factors”) although they are external to the MFI balance sheets as central government liabilities.

As shown in Figure 1, M3 and its changes, measured as “flows”,³ are derived from the consolidated balance sheet of euro area MFIs. The latter is drawn up by netting out the inter-MFI balances within the aggregated balance sheet return of MFIs.⁴ Given the linear balance sheet constraints highlighted in the bottom equation in Figure 1 – asset counterparts minus liability counterparts must equal M3— it follows that the M3 developments can also be related to the counterpart

1 See European Central Bank “The monetary policy of the ECB”, Frankfurt, 2001.

2 Monetary Financial Institutions (MFIs) comprise credit institutions under Community law; and all other financial institutions whose business is to receive (close substitutes for) deposits from entities other than MFIs, and, for their own account (at least in economic terms), to grant credit and/or make investments in securities.

3 Flows are compiled by adjusting the arithmetical changes in stocks for non-transactions, such as exchange rate changes.

4 Coin and short-term deposits with euro area central governments are subsequently added, see footnote * of Figure 1.

changes for monetary analysis purposes. This makes it possible to identify which (positive or negative) contribution each counterpart item, taken in isolation, has made to monetary growth.¹

2. Measurement issues with respect to negotiable instruments (debt securities)

Given the important role of M3 and the counterparts, it is crucial to calculate these in a statistically sound fashion. The individual MFI balance sheet returns, which form the basis for compiling the consolidated balance sheet, are therefore designed to provide, in general, sufficient detail for this purpose. However, whilst this is true as regards instrument and maturity information, data on the residency area and economic sector of the holder are generally only available for deposits and registered money market fund shares from the MFIs' internal records. This is normally not the case for debt securities issued by MFIs, as these are usually traded on secondary markets potentially involving a frequent holdership change.² The only holder-related information available for these instruments relates to the MFIs' own holdings that can be derived from the asset side of their balance sheets. These balances are netted against the total outstanding amounts within the consolidated balance sheet,³ with the resulting net figure representing the holdings by *euro area non-MFIs and residents outside the euro area combined*. As Table 1 illustrates, however, it is necessary to *separately identify* these amounts for the correct measurement of M3 and its counterparts: While holdings by euro area non-MFIs (excluding central governments) are to be assigned either to M3 (if the original maturity is up to 2 years) or to the counterpart item 'monetary capital formation' (if over 2 years), non-residents holdings as external liabilities need to be allocated to 'net external assets'. Holdings by euro area central governments are part of the counterpart item 'deposits and securities of central government'.⁴

Table 1 – Allocation of the item 'debt securities issued by MFIs' to M3 and its counterparts

Residency	Debt securities ≤ 2 years maturity	Debt securities over 2 years maturity
Held by euro area non-MFIs (excluding central governments)	Included in M3	Included in 'monetary capital formation'
Held by euro area central governments	Included in 'Deposits and securities of central government'	
Held outside the euro area	As an external liability included in 'net assets outside the euro area'	

Though information on the holders' economic sector would be desirable, the lack of such information is of secondary importance, as it would be needed only for a deeper sectoral analysis of M3 and its counterparts ~~but~~ and not for the derivation of the respective total numbers.

3. Solution: Approximating the holdership structure of debt securities

Given the dynamic growth of the national short-term markets for MFI debt over the recent years, the highest priority of the ECB and the national central banks was to seek alternative data sources that would allow the holders' residency to be estimated. The estimation techniques can be designed according to a direct (estimation of holdings by euro area non-MFIs) or indirect approach (estimation of non-resident holdings) as well as a combination of both. The ECB has finalised a method on the basis of the indirect approach in autumn 2001; it is partly complemented with national estimations, where data are available. The next speakers will be introducing some of these concepts.

1 Deutsche Bundesbank, "Monetary analysis for the euro area", *Monthly Report*, March 1999, pp 15-28.

2 A similar identification problem also arises for "currency in circulation" but is not discussed in this note. Data on the holdership structure of money market fund shares issued in bearer form can be derived from alternative sources.

3 The use of different valuation practices on either balance sheet side might cause a minor mismatch in the netting of MFI holdings against MFI issues of debt securities, but this impact is considered rather insignificant.

4 Currently only relevant in Finland; the amounts in all other participating countries are considered to be zero.

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Résumé

L'agrégat monétaire large M3 de la zone euro comprend, entre autres, les obligations à court terme émises par les Institutions financières monétaires (IFM). Etant donné que M3 se réfère exclusivement aux encours des non-IFM de la zone euro, il est nécessaire, pour évaluer correctement la masse monétaire M3 et ses contreparties, d'indiquer ces encours séparément. En général, les IFM ne sont cependant pas en mesure de fournir une telle information du fait que ces instruments financiers sont négociés habituellement sur le second marché et qu'ils peuvent donc changer fréquemment de détenteur. C'est pourquoi la Banque centrale européenne et certaines banques centrales nationales ont développé des méthodes grâce auxquelles les chiffres relatifs aux détenteurs peuvent être estimés.

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Deriving geographical and sectoral holdership structures for negotiable instruments from periodical reports of security settlement systems

Frank Mayerlen (European Central Bank)

The issue

The broad euro area monetary aggregate M3 includes negotiable instruments in the form of money market fund shares/units and debt securities with an original maturity of up to two years issued by euro area monetary financial institutions (MFIs). In accordance with the monetary framework, M3 should include the amounts of these instruments held by the euro area money holding sector. However, because these are tradable instruments, holdings by the money holding sector cannot usually be determined accurately by the issuing MFI, and an *indirect compilation method* therefore has to be applied. In practice, this sector's holdings are calculated as a residual: "total amounts issued by euro area MFIs *minus* the holdings by euro area MFIs (money issuing sector) and central government (money neutral sector) *minus* the holdings by non-residents of the euro area (external sector)". Data on holdings of negotiable instruments by MFIs and central government are in general collected as aggregated information using traditional collection systems, and the same applies to non-euro area resident holdings of money market funds shares/units. However, in the case of short-term debt securities, reliable data on non-euro area resident holdings are in general not available from traditional collection systems. Particular problems arise in those countries where the issuing MFIs (also) target an international investor base by setting up Euro Commercial Paper (ECP) programmes. The main dealers for these programmes are located outside the euro area (in the United Kingdom) and the *investor base is international*, including a strong proportion of non-European investors. This makes the direct collection of reliable data from both issuers and investors very difficult.

The need for a stable, reliable and timely method for deriving data on euro area resident holdings of these instruments became very apparent in 2000 and 2001 when strong growth in issuance activity was observed in some euro area countries. At the same time, there was evidence to suggest that non-euro area resident holdings of these securities were also growing constantly and may have reached a significant level.

The approach

Data for the compilation of euro area monetary statistics are usually collected *as aggregated information* for statistical categories consistent with the European System of Accounts 1995 (comparable to the SNA93). In order to gain a more detailed picture of the category "short-term debt securities issued by euro area MFIs", it was decided as a first step to "mirror" the aggregated data on outstanding issues of these instruments provided by the reporting agents with the respective *security-by-security data* obtained from commercial data providers. This security-by-security data mirroring confirmed the increased relevance of ECP programmes in several euro area countries. A more detailed study of the issuance programmes and discussions with the institutions involved in the issuance, trading and settlement of this paper revealed that these securities are mainly settled via the two international securities settlement systems located in the euro area. It also revealed a strong demand for this kind of paper from outside the euro area, in particular when it is denominated in non-euro currencies.

On the basis of this information, the two international securities settlement systems were consulted on the feasibility of providing data to the ECB. The idea was to match, on a security-by-security basis, the relevant securities ("*issuer side*") to the residency information (euro area or non-euro area) of the account holders in the international securities settlement systems ("*holder*").

side”). The testing proved to be successful from both a statistical and a technical point of view. Where the statistics are concerned, the results fully confirmed the qualitative information received from the institutions involved in issuing and dealing in these securities, namely that there were considerable holdings outside the euro area of non-euro denominated paper, and much more limited holdings of securities denominated in euro by non-euro area residents. Technically, the security-by-security approach made it possible to check, for each security, the match between holder information and the total amount issued. This check delivered very promising results in terms of accuracy. In light of these findings, October 2001 saw the final implementation of the approach to derive data on non-euro area resident holdings of short-term debt securities issued by euro area MFIs. This approach ensures that the measurement of negotiable instruments in the euro area monetary aggregates is fully in line with the conceptual definition.

The potential shortcomings of the approach

One potential shortcoming of this approach is the possible existence of extended *custodian chains*, meaning that the account holder in the security settlement system may be a global custodian holding the security on behalf of another investor. Another potential shortcoming is the fact that, at present, the approach concentrates only on the two international securities settlement systems, covering mainly the international market. Securities held by non-euro area residents via *domestic settlement systems* or via non-euro area settlement systems are therefore not covered. Furthermore, although not strictly required for this indirect approach, euro area resident holdings with domestic securities settlement systems are also not collected. The approach described may not work for long-term debt instruments which are actively traded and have potentially longer custodian chains. Another approach may have to be envisaged for these instruments, which are not included in M3 by definition.

How are these shortcomings addressed at present?

At present these shortcomings are addressed by *supplementing the quantitative security-by-security data with qualitative information on the market structure*. With regard to the potential impact of custodian chains, it would appear that this problem is very likely not relevant for short-term debt securities since they are not traded very actively but are usually bought and held until redemption. Furthermore, only a custodian chain that crosses the euro area borders would pose a problem for this approach, since only the breakdown into euro area investors and non-euro area investors is relevant. Where the second potential shortcoming is concerned, regarding domestic securities settlement systems, detailed quantitative checks on a one-off basis have confirmed their relatively limited relevance for holdings by non-euro area residents. This assessment is further supported by the current process of concentration of international securities settlement systems and the information provided by the institutions themselves. The development of a method to determine the geographical holder structure of longer-term debt securities will require further research work.

What are the next steps envisaged?

The next step is to *increase the amount of quantitative security-by-security data used*. In reality this means aiming for 100% coverage of the relevant securities and the respective holdings. This can be achieved by including national securities settlement systems in the approach, although they are expected to provide only limited additional information on non-euro area resident holdings. However, the actual coverage achieved could give an indication of whether there are securities that are settled in third settlement systems – and therefore not covered at all by the current approach. As a second step, global custodians could be contacted in order to check in more detail the relevance of potentially longer custodian chains crossing the euro area borders. A shift towards the increased use of quantitative information does not, of course, replace the continuous collection and monitoring of qualitative information which is crucial for justifying and monitoring the approach described.

Reference

European Central Bank, Monthly Bulletin, November 2001, pages 11-13.

Résumé

Les titres de créance à court terme émis par les institutions financières monétaires (IFM) de la zone euro et détenus par le secteur détenteur de monnaie de la zone euro sont une composante de l'agrégat monétaire large M3 de la zone euro. Les encours détenus par les non-résidents de la zone euro ne sont pas considérés comme un engagement monétaire, mais comme un engagement envers l'extérieur du secteur des IFM de la zone euro. Dès lors, une répartition géographique correcte de ces encours à l'intérieur ou à l'extérieur de la zone euro est une condition préalable au calcul exact de M3, de ses contreparties et des taux de croissance respectifs. - Ces titres étant négociables et pouvant être négociés par l'intermédiaire de pays tiers, les IFM émettrices ne sont habituellement pas en mesure de déterminer la répartition géographique des investisseurs. Au contraire, les données relatives aux détenteurs, fournies par les systèmes internationaux de règlement de titres et traitées titre par titre, constituent une source d'information fiable et rapide pour établir la ventilation par résidence des détenteurs.

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Recording cross-border holdings of securities in the balance of payments and international investment position statistics – the role envisaged for the ECB’s Centralised Securities Database (CSDB)

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1. Introduction

In the context of balance of payments (b.o.p.) and international investment position (i.i.p.) statistics the holdership of negotiable instruments focus on the residency, i.e. on the holdings by residents of the reporting economy of negotiable instruments issued by debtors resident of other countries/zones (assets), and on the holding by non-residents of instruments issued by residents (liabilities). To enhance the value for analysis, both the assets and liabilities of portfolio investment statistics may be broken down by counterpart countries/zones, i.e. by debtor/creditor counterparts. International standards (IMF, October 1993) also recommend a breakdown by resident sectors (monetary authorities, other “monetary financial institutions” (MFIs), general government, other sectors).

In recent years several initiatives of the ECB’s Balance of Payments Statistics and External Reserves Division, assisted by the Working Group on Balance of Payments and External Reserves Statistics, have aimed at enhancing the data quality in the field of b.o.p./i.i.p. portfolio investment. Several Task Forces have elaborated on various aspects of cross-border portfolio investment flows, stocks and income (see in particular ECB, June 2002).

The first section of the paper recapitulates the state-of-the-art in compiling portfolio investment liabilities. The second part explains how the Centralised Securities Database (CSDB) will become a pivotal tool for the quality of the information on outstanding (and recently redeemed) negotiable instruments for compiling consistent breakdowns across monetary and financial statistics, e.g. on the residency and sector classification, or the maturity or type of instruments. The third and final section discusses the availability of information on actual holdership of negotiable instruments through specific surveys based on security-by-security reporting and its potential storage in the CSDB.

2. Compiling b.o.p./i.i.p. portfolio investment liabilities statistics

While data are generally accurate and reliable on portfolio assets, liabilities are more difficult to compile, owing to the (rather long) chain of financial intermediaries through which end-investors buy, hold or sell securities. A national compiler can basically follow three approaches to calculate a country’s liabilities of the b.o.p./i.i.p. portfolio investment:

1. According to the *residual approach*, liabilities are calculated as difference between the total amounts outstanding of all securities issued by residents and the holdings of these securities by residents, both domestically and abroad.

In principle, the first (amounts outstanding) may be derived from central securities depositories (CSDs), though a comprehensive picture can only be reached from the actual issuers. The alternative to the latter is the maintenance of a Securities Database (SDB), which could (in)directly retrieve and combine information from various (commercial) sources.

The holdings of residents’ securities can be directly reported by the resident end-investors, which in theory ensures a complete coverage of positions, including self-custody or holdings abroad. In practice, however, part of the theoretical reporting population, in particular the

¹ The paper has benefited from valuable comments by Jean-Marc Israël and Rodrigo Oliveira-Soares.

households, is costly to address. While indirect reporting methods, i.e. collecting data from custodians, may help to avoid these gaps, it may create some other gaps, e.g. holdings in self-custody and with non-resident custodians.

2. Instead of registering the total amount of resident issues outstanding or the holdings of resident issues by residents respectively the so-called *mixed approach*, which also requires data collection from all types of reporters, focuses on information directly relevant to non-resident holdings, primarily received from custodians (for further details see ECB, June 2002).
3. Finally, in some countries the compilation of portfolio investment liabilities is based on information available in specific securities registers. More precisely legal ownership of equity is constituted by entries in a *share-register* maintained by the issuing company or by a registrar. These registers are used to determine the non-resident holdership of domestic shares. The existence of non-registered securities (bearer bonds), the use of nominee accounts (by resident and/or non-resident investors) or the lack of comparable securities registers is, however, limiting the importance of this approach.

An additional complexity appears when compiling analogous statistics for the euro area. As the reporting economy cannot make the accurate identification of the residency of the creditors, owing to the (often long) chain of brokers/custodians, the split between intra and extra euro area holders is not directly available. Thus the ECB compiles the outstanding liabilities vis-à-vis non-residents indirectly. Member States provide (i) asset data on securities split between issuers resident, or not, of the euro area, and (ii) liability data (without any identification of residency of creditors). The euro area liabilities are then compiled as the difference between the overall national liabilities and the intra-euro area holdings as above reported by Member States. (In an analogous way it is planned to produce the sector breakdown of the euro area issuers of instruments, which are in the hands of non-euro area residents.)

Beside possible incomplete coverage of reporting populations and inaccuracies in the reporting, b.o.p./i.i.p. compilers are usually not in the position to identify the country of residence or institutional sector of the holders of the securities issued by residents of the reporting economy. At least the prevailing position within the ESCB is that any efforts to close this gap would be rather costly and the results may not be fully meaningful.

Thus b.o.p./i.i.p. compilers can, in practice, only fill this gap with mirror statistics produced or published by compiling agencies of counterpart countries. The outstanding amounts of securities issued by residents and shown as held in third countries' statistics would provide a reliable approximation for the geographical (and sector) composition of creditors.

The Co-ordinated Portfolio Investment Survey (CPIS) of the IMF is a concrete example for such an approach (IMF February 2003). Recently the end 2001 positions and the respective geographical structure of investors in euro area debt and equity securities have been produced (see table 1). In theory the holdings by non-euro area countries as reported in the CPIS would be equal to the total euro area liabilities as given in the euro area i.i.p. However, some countries did not participate in the 2001 survey, which may explain part of the inconsistencies. (In particular with respect of euro area debt instruments held as international reserves.) Besides, the significant mismatch of equity securities may point out to asymmetrical recording of direct and portfolio investment holdings. Despite these remaining shortcomings, the results of the CPIS indicate that the geographical breakdown of euro area portfolio investment liabilities can already be appropriately assessed.

3. The CSDB and compilation of portfolio investment statistics

In recent years Securities Databases (SDBs) are becoming important tools in the compilation of portfolio investment flows, stocks and income. In short a SDB is a set of reference data on individual negotiable instruments and may both cover issues by residents and non-residents. In case it includes a comprehensive and up-to-date picture of the resident side (i.e. comprising all issues made by residents on domestic as well as foreign markets) such a database represents a reliable source for the residual approach (see point [1] above), namely the outstanding amount of securities issued by residents.

Moreover, SDBs can serve as the backbone for security-by-security (s-b-s) reporting systems, in which the reporting agent is only providing a minimum of information on securities transactions and/or positions – an identifier for the instrument and the amount traded/held. The classification by instruments, sectors and residency of the issuer is performed by the compiler combining the re-

Table 1 – IMF CPIS euro area portfolio investment liabilities by instrument and non-resident holder*Year-end 2001, Billions of EUR*

	Total				
	1	Equity 2	Debt instruments		
			Total 3	Bonds and notes / Long term debt 4	Money market instrumen ts / Short term debt 5
Euro area liabilities	3,182	1,578	1,605	1,506	99
<i>Holder</i>					
Denmark	22	12	10	10	0
Sweden	40	27	13	12	0
United Kingdom	480	213	267	227	39
Candidate countries *	15	2	13	11	2
Switzerland	182	103	79	71	8
Canada	34	32	3	2	0
United States	564	440	124	108	16
Japan	287	36	252	240	12
Off-shore centres **	147	46	101	90	10
SEFER+SSIO ***	151	1	150	107	42
Other countries ****	720	197	523	462	61
<i>Not allocated</i>	539	469	71	163	-92

* *Not included Latvia and Slovenia.*** *Netherlands Antilles, Bahrain, Bermuda, Bahamas, Hong Kong, Cayman Islands, Lebanon, Panama, Singapore and Vanuatu.**** *Securities held as reserve assets (incl. all the 55 economies considered in the CPIS) and international organisations' holdings.***** *Not included above.*

ports on volumes traded or held with the reference data on individual securities retrieved from the SDB. In combination with any approaches (see points [1], [2] or [3] above) s-b-s reporting provides the option of extensive quality checks.

The CSDB can be seen as a central hub for collecting and disseminating reference data on single securities from or among ESCB members (Israel, September 2002). Once the information will become accessible by all national compilers operating s-b-s reporting systems in b.o.p./i.i.p. statistics the (masterfile) information would de facto become consistent. Consequently the CSDB will become a pivotal tool for the quality of the information on outstanding (and recently redeemed) negotiable instruments for compiling consistent breakdowns across monetary and financial statistics and across statistical agencies. All agencies using the CSDB will base their statistics on the same view on a specific issuer's residency or institutional sector. Equally the classification of securities for instance with respect to the maturity, type of instrument, date of initial payment, outstanding amount, etc. will be identical.

On securities issues and redemption, much information is readily available. In fact, various commercial and institutional data sources will be used to maintain the reference data in the CSDB. The design of the CSDB system will include Data Quality Management (DQM) procedures to derive from various sources a consistent view on those attributes of individual portfolio instruments, which are of importance in the context of the production of a complete set of monetary and financial statistics, including the b.o.p./i.i.p. It is important to note that the DQM during the first two phases only refer to the debtor side, i.e. the update and maintenance of attributes related to the issuers and securities.

Although the CSDB focuses on data on individual securities, the system will also allow processing and storing aggregated information on e.g. outstanding amounts of set of specific short-term instruments issued by a specific group of debtors.

4. Reconciliation of holding's information in the CSDB

With respect to information related to the debtor side (attributes describing the individual securities and issuers), a broad range of sources is offering timely and rather accurate information in a somewhat standard format. This is not the case on the creditor side. Major discrepancies between the two sides are summarised in table 2:

- Information on the *debtor* side may be characterised as *stable* (an individual security is in general connected with a single issuer for its life-cycle), broadly *available* (the ruling of financial markets have increased transparency and fostered the establishment of a number of reliable sources) and *highly standardised* (international codes for securities). Thus several (commercial) compiling agencies were indeed able to gather an accurate and consistent set of information on individual securities (at least for selected market segments);
- In contrast, the situation on *creditor* side is rather *unstable* (due to the frequent change of ownership in liquid markets). The available information is *scarce* and *specific* (e.g. on the holding of sovereign debt, or on portfolio holdings by institutional investors) and so far not much *standardised* (for instance the identification of ultimate holders of securities in custody).

Table 2 – Characteristics of debtor and creditor side information on negotiable instruments (in the CSDB)

	Debtor (issuer) related information	Creditor (holder) related information
General features		
Available data on the level of individual security	rich (e.g. directly from issuer, commercial or institutional data providers)	scarce (e.g. end-investor surveys, CSDs or a few commercial data providers)
Stability of information	stable (majority of attributes unchanged during the life-cycle)	unstable (frequent change in ownership or custodian chains)
Degree of standardisation	Standardised	Lack of standardisation
Envisaged representation in CSDB		
Granularity of stored information	predominantly on the level of individual securities; only in exceptional cases supplemented by aggregates	recording of holdings (per individual security) mainly in form of aggregates, e.g. per country and institutional sector; few data on individual investors
DQM procedures to ensure consistency	single responsibility for data quality management	complex multilateral cross-border checking

When launching so called phase 3, the CSDB is envisaged to offer (at least for selected areas) information on the outstanding amounts of negotiable instruments with respect to (i) holding of securities by the relevant euro area resident sectors and (ii) holding by non-resident investors of securities issued by euro area residents. The remaining part of this section is dedicated to the prerequisites in terms of data collection and DQM.

Data sources for holdership information

The question how to retrieve comprehensive information about ownership of individual securities to feed into the CSDB relates back to the possible methods of retrieving data on the assets of (individual) investors. In principle two channels of information on holdership of individual securities for the CSDB could be employed:

(A) Holder information related to individual instruments

This channel represents investigations on the ownership of an individual instrument (or a list of them), i.e. the data collection is more or less directly connected to the issuer. It would comprise the following sources:

- *Registers* (book entry systems of CSDs) for dematerialised and demobilised securities (see the discussion of potential limitations under point [3] above);
- *Commercial data providers* that offer information on individual specific holders of specific securities. (The coverage may not much differ from with the above source, in practice);
- *Global custodians* could in theory provide a broad range of information on holdership in a security-by-security format. However, the sometimes long “custodian chains”, i.e. the fact that global custodians are able to identify only for a limited part of their clients the residency of the beneficial owner, is in practice limiting the feasibility of this approach. A number of clients of a global custodian are financial intermediaries and sub-custodians through which the global custodian cannot look. The matching process to address only end-investors in the custodian chains is difficult to manage (at least on a large scale).

All approaches above may be at least tested in phase 3 of the CSDB, although it is clear that holdership information retrieved via this channel is by definition fragmented. Only in the optimal case it may represent a reliable and comprehensive source on creditors of issues of specific debtors (e.g. public debt securities). However, the retrievable information may meet specific user needs on specific segments of negotiable instruments (e.g. debt securities issued by Monetary Financial Institutions).

(B) Holder information derived from specific reporting populations

In contrast to investigations starting with an individual security, data collection on portfolio investment usually address specific reporting (sub) populations, either directly (i.e. employing direct reporting schemas) or indirectly (i.e. retrieving the information via custodians), as above mentioned. The scope of these data collection exercises (e.g. the size of the reporting population) is determined by the final information that is going to be targeted and the methods of compilation chosen. Various approaches based on s-b-s reporting can be employed (see ECB, June 2002). Most rely on a specific combination of custodian/end-investor surveys, often depending on the size and openness of the financial market in the reporting economy.

The feasibility of covering a significant part of the holdings, the frequency of providing information and any prospective timetable for any harmonised data collection for the EU/euro area (on a s-b-s level) are still under discussion. (Obviously this would require a significant co-ordinated effort among within the ESCB; present s-b-s systems of some countries would have to be harmonised and synchronised or in other member states new reporting schemas would have to be introduced.) Although such an endeavour may not produce data on individual investors it would be feasible to generate aggregated information on the residency and (possibly) sector of holders of individual securities. In any case a survey of this type could only be implemented in a stepwise manner:

- [a] At the beginning such a survey could focus on holdings of non-resident issues only. Based on single securities information and combined with the CSDB this would allow an accurate intra/extra euro area split of issuers and thus the compilation of the euro area rest of the world sector.

Note: In principle the CPIS is already a model of such an internationally co-ordinated data collection of holdership of negotiable instruments per country (and possibly institutional sector) of creditor. However, the participants in the survey presently follow either aggregated or s-b-s approaches which hampers the direct connection with the CSDB.

- [b] Next the survey could be extended to comprehensively cover the holdings of securities issued by residents (at home and abroad). As a variant this approach could be applied to selected reporting populations, such as investors of specific institutional sectors (e.g. pension funds). Consequently these results could be integrated in the Financial Accounts statistics of the Monetary Union.

Note: Compilers in several countries that are following the residual approach for compiling the external PI liabilities (see [1]) would already cover this request.

[c] Finally to close potential gaps due to of securities held at non-resident custodians it would in theory be possible to integrate in the custodian surveys adequate questions on holdings of residents of other EU/euro area Member States, including their institutional sector (see ECB, June 2002). This concept of “third party reporting” can however only apply once some prerequisites, in particular legal problems, are overcome. Alternatively to reach a comprehensive coverage of all domestic sectors, the “end-investor” part of the approach would have to be as comprehensive as possible, at least for establishing periodic benchmarks.

DQM issues in connection to holder data

As above pointed out, the CSDB system will comprise functionalities to match and clean data referring to the *debtor* side of a security. This is on the one hand supported by the numerous and presumably comprehensive sources as well as facilitated by the fact that all DQM efforts are focused on information on a single entity, the issuer. Responsibilities for clarification of conflicting or incorrect information may therefore be assigning to single quality managers (e.g. a NCB taking over DQM tasks for a specific market).

On the *creditor* side the information would reach the CSDB from various reports on holdings of (a potentially very large number of) investors, allocated to different institutional sectors and residing in different countries. Thus huge problems may arise from the difficulties of quality checking and correction of the inputs with respect of overlaps, time lags and other inconsistencies. Above all potential inconsistencies of creditor information provided by various sources and compiling agencies would require remote and parallel investigations on potential inaccuracies, possibly at the origin of the data. The necessary investigations for errors may not be assigned to a single institution. (For instance the sum of holdings of a specific individual issue as reported by various sources may be considered implausible or proof to be incorrect when compared to the respective amount outstanding.)

Presently only the experience of national compilers on how to deal with these types of inconsistencies in domestic data is available. An operational (multilateral) set-up to ensure the quality of creditor information in the CSDB will need in-depth consideration. The quality of information on holdership will heavily depend on the agreement on preliminary quality checking at the sources and co-ordination among compiling agencies, i.e. on their active participation in a joint data quality management in this area. Only empirical test to integrate holdership information in the CSDB – at the earliest after the Pre-production at the end of Phase 1 – may allow a first quantification of the necessary effort.

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Abstract

B.o.p. compilers are aware that information on holdership of negotiable instruments is difficult or frequently impossible to retrieve as available sources for creditor data are uncoordinated, fragmented and incomplete. The CSDB – once being a source for consistent issue data – would represent an adequate platform for integrating debtor and creditor information on single securities. However, so far only limited national experience for matching creditor data from various sources is available. Although the CSDB offers technology for matching information from multiple sources, the achievable quality level of holder data will be depending on the effort of contributors to and operators of the CSDB to monitor the quality of the information.

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Possibilities of and limits to identifying final holders of negotiable instruments by reporting institution within the monthly balance sheet statistics framework

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1. Importance of securities statistics.

The growing importance of financing via the issuance of securities, the significance of securities markets for monetary transmission mechanisms and the high volume of international securities transactions mean that compilers of financial statistics, particularly of the Financial Accounts and the Balance of Payments (including the International Investment Position), must strive correctly to measure the financing transactions, revaluation operations, other changes in the volume of assets and outstanding balances of these financial instruments and to determine the holding agents thereof. This latter aspect is all the more important in the case of a country or specific monetary area (e.g. the euro area) that has assigned to a monetary aggregate the role of main indicator, and in which said aggregate includes short-term negotiable instruments.

2. Procedures for compiling statistics securities.

In compiling the various securities statistics, the integration and final consistency of which comes about in their incorporation into the Financial Account, two approaches can be followed: an aggregate approach and a security-by-security approach. Under the aggregate approach, where security-by-security information is not available, the statistics are compiled drawing on various sources that only allow issues and holdings of securities to be estimated for more or less homogeneous sets of securities. In some cases a mixed approach is followed; for instance, security-by-security information is available for issues and aggregate information for portfolios. To improve the quality of securities statistics, the current trend is to bolster security-by-security approaches as far as negotiable securities are concerned, to identify both securities issues and holders.

3. Information from reporting institutions.

One of the basic sources of information for compiling the securities statistics is that provided by the reporting institutions. The information on securities sent by these institutions to central banks and to supervisory authorities for supervisory and/or statistical purposes, via their – generally monthly – balance sheets, includes data on their securities portfolios with a breakdown (varying in detail) of the counterpart sectors (including the Rest of the World) and of the type of security (shares, securities other than shares, short-/long-term), as well as the amount of their share issues (in their capital captions) and their fixed-income securities without a breakdown of counterparts. Generally, however, the reporting institutions have internal security-by-security data on their issues and on their negotiable securities portfolios. Consequently, the growing need to compile securities statistics with an extensive breakdown and with a high degree of quality has meant that, progressively, statements complementary to the balance sheet have been requested of these institutions, making it possible to obtain this greater breakdown of information. Likewise, many reporting institutions carry out securities depository functions; as a result, central banks and supervisory authorities often request of them the breakdown of securities deposited with them as complementary information.

In these complementary statements, reporting institutions offer information on their security-by-security portfolios, identifying the negotiable securities by their ISIN code and including a set of variables relative to each security, most notably the sector and the country relating to the is-

Negotiable securities: current availability of Spanish reporting institutions' security-by-security data

Sector	Reporting Institutions	Type of security	Breakdown	Periodicity	Supervisory agency
Monetary Financial Institutions	Credit Institutions	Portfolio: shares and other equity	<ul style="list-style-type: none"> •ISIN code •Fair value •Issuer •Country of issuer •Currency of issue 	Quarterly	Banco de España
		Issues: shares and other equity (registered shares)	<ul style="list-style-type: none"> •Holders (share in capital) 	Quarterly	
		Issues: fixed-income (bearer securities)	<ul style="list-style-type: none"> •ISIN code •Characteristics of the issue 	Monthly	
	Money Market Funds	Portfolio: fixed income (1)	<ul style="list-style-type: none"> •ISIN code •Realisable value •Issuer •Currency of issue 	Monthly	CNMV (National Securities Market Commission)
		Issues of equity holdings (registered securities)	<ul style="list-style-type: none"> •Holders: aggregated by sector 	Monthly	
	Other Financial Institutions	Collective investment institutions (except Money Market Funds)	Portfolio: fixed income and equity	<ul style="list-style-type: none"> •ISIN code •Realisable value •Issuer •Currency of issue 	Monthly
Issues of equity holdings (registered securities)			<ul style="list-style-type: none"> •Holders: aggregated by sector 	Monthly	
Insurance corporations and pension funds		Portfolio: fixed income and equity	<ul style="list-style-type: none"> •ISIN code •Realisable value •Issuer's sector 	Quarterly	Ministry of Finance. Directorate General for Insurance
		Issues: shares of insurance corporations (registered securities)	<ul style="list-style-type: none"> •Holders (share in capital) 		

suer and the market-price valuation of the securities. It should be noted that, for this sectorisation and country-identification to be correct, the reporting institutions (or the supervisory body with access to their data) must have a list of ISIN codes associated with the issuer's country and sector. This function can be performed by a centralised securities database. Likewise, the reporting institutions can report on their bond and equity issues, security by security, although in this case the potential breakdowns that the reporting institutions themselves can offer about the holders of their securities is confined exclusively to registered shares, since it is not possible for them to offer this information for bearer securities in view of their negotiable nature. However, the correct sector-

isation and identification of the country of residence of the holder of the registered securities must be done by the reporting institution itself, without the assistance of the centralised securities database referred to¹.

The table above illustrates the availability of reporting institutions' security-by-security data in Spain.

4. Limitations of the information

Apart from the limitation relating to issues of bearer securities, the data obtained from the reporting institutions pose other problems, such as those arising from the measurement of their different valuations (nominal, fair value, market value), the possible non-existence of ISIN codes for certain securities, and the incorrect identification of final holders.

On incorporating these data into the information on securities within the framework of the Financial Accounts, statisticians should also bear in mind the problems derived from the correct identification of the various types of transactions with securities (outright, repo and short sales), which may affect the quality of the statistics.

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¹ *Nonetheless, the ECB has published a Guideline on Sectorisation and periodically updates a list of Monetary Financial Institutions that can be used by the reporting institutions.*

Recording of Cross-border Transactions in money market paper and other negotiable instruments by sector within the b.o.p. statistics framework and derived geographical holdership structure

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1. Estimating cross-border portfolio stocks in the framework of German balance of payments statistics

Cross-border transactions in money market paper and other negotiable instruments are recorded in the German balance of payments (b.o.p.) on the basis of sales and purchases of these instruments to and from non-residents as reported by resident financial institutions involved in the transactions. If resident investors carry out such purchases or sales without involving a resident financial institution, these transactions, in principle, have to be reported directly by the resident investor.

Cross-border holdings of these instruments for the German international investment position (i.i.p.) are measured indirectly by accumulating net purchases recorded by the b.o.p. since the founding of the Federal Republic of Germany when the stock is assumed to be zero. Since b.o.p. flows are recorded at transaction prices at the time of purchase, calculating an end-of-period position requires adjustments for price changes and exchange rate changes, where applicable, occurring between the time of purchase and the end of the reference period. To this end, b.o.p. flows are first converted into nominal transactions by using appropriate indices of average market prices for the period concerned and then added to the nominal stock as of the end of the previous reporting period. The cumulated nominal stock is then converted using end-of-period market prices and exchange rates.

This calculation is done separately for public and private bonds and notes, money market papers, investment fund certificates and shares. Nominal flows are accumulated in each case on a country-by-country basis (for liabilities this is the country of the first known counterpart, for assets the country of issuer) and in case of instruments denominated in foreign currency by individual currencies.

Assuming that the b.o.p. data collection system accurately captures all resident-nonresident transactions in negotiable instruments, the derived end-of-period stocks at market price values can be considered as fairly accurate. Further improvements in the accuracy of the portfolio stock estimates may be achieved by applying the method with a higher level of detail, such as on a security-by-security basis. In the absence of adequate benchmark information on stocks, however, errors in the collection of flow data are likely to accrue over the years in the overall assessment of portfolio stocks. Estimates for closing such gaps that are also introduced in the German b.o.p. and i.i.p. statistics are still subject to significant margins of uncertainty.

2. Deriving a sectoral and geographical holdership structure of stocks

The geographical breakdown of portfolio assets follows the country of residence of the issuer of the security and is derived from the reported flow data that include this information. Deriving the geographical holdership structure of portfolio liabilities from flow information, however, produces implausible results due to the allocation to the country of the first known counterpart of the transaction. This is particularly the case for countries that play a specific role in the globalised securities business. For example, for the United Kingdom implausibly high stocks regularly result from the described method which are counterbalanced by negative stocks for Belgium and Luxembourg. Only for larger regional aggregates such as the EU15 (e.g., holdings of German papers by

EU15 and by third countries) can a fairly good approximation to the regional holdership structure be assumed.

A correction of the geographical bias for i.i.p. statistics is made on the assumption that the inflated stocks initially allocated to the United Kingdom should be reallocated predominantly to other EU countries, thereby adjusting any negative stock figures obtained from the initial calculation. The stocks are redistributed according to the importance of certain financial centres for German negotiable instruments and any other evidence that might be at hand. More recently, data on the 2001 Coordinated Portfolio Investment Survey (CPIS) of the IMF has become available providing information on the geographical allocation of portfolio assets of the countries participating in the survey and will allow a cross-check with the estimated data.

As regards the sectoral breakdown of portfolio stocks, information is either available from the b.o.p. reporting system or has to be derived from balance sheet or other source data. For portfolio assets, the resident holder sector is derived from MFI's balance sheet information on holdings of foreign negotiable instruments and balance sheet information of money market funds. The non-financial corporations' and private households' holdings of such instruments are then calculated as a residual.

For liabilities, the issuing sector is known for money market papers from b.o.p. sources. B.o.p. reports also make a distinction for private and public issues of bonds and notes. The calculated stock of German private bonds and notes held by non-residents are allocated to the resident MFI's or the non-financial corporations' sectors according to the ratio of MFI's and corporate bonds held by non-residents with German custodians (custody statistics of the Deutsche Bundesbank). Stocks of investment fund certificates are allocated to the MFI sector in case of money market funds and to the non-financial sector in case of other investment funds. Finally, for the largest German banks, information on their share capital held by non-residents is available with some geographical detail. This information is used to derive the non-financial corporations' shares held by non-residents as a residual.

It is evident that the estimation of cross-border stocks of portfolio investment assets and liabilities by sector and by counterpart country within the b.o.p. framework is done under rather strong assumptions. Improvements in the accuracy of the data are desirable in various respects. Because of the rather high margin of uncertainty, the Deutsche Bundesbank does not regularly publish data on cross-border portfolio holdings with geographical detail. The use of partner country data such as provided by the CPIS is a way of circumventing a number of problems raised in this note. Regular benchmark surveys on portfolio stocks are certainly another promising venture. However, from the perspective of German b.o.p. and international investment position statistics, an exchange of partner country information is urgently needed on third party holdings, that are up to now not included in CPIS data, in order to close the data gaps in b.o.p. collection systems.

Résumé

Les données de la balance des paiements relatives aux transactions extérieures sur les instruments financiers négociables peuvent être utilisées pour évaluer l'encours de ces instruments, ventilé par secteurs et répartition géographique, à l'aide de la méthode de l'inventaire perpétuel. Dans le cadre de l'élaboration de la statistique de la balance des paiements et de l'évaluation de la situation des avoirs et engagements extérieurs, la Deutsche Bundesbank applique cette méthode – combinée à des informations provenant d'autres sources de données – pour estimer l'encours global des dettes et créances extérieures, ventilées par secteurs des résidents ainsi que par répartition géographique. Le document met l'accent sur certaines lacunes de la méthode et indique les possibilités qui existent pour améliorer la qualité des estimations.

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Calculation of holders of marketable securities: UK approach

Richard Walton (Bank of England)

1. Introduction

This paper reviews the use made in the UK of quarterly data collected for financial accounts purposes as part of the exercise to estimate the sectoral breakdown of holdings of marketable securities issued by monetary financial institutions (MFIs). In this context, we mean holdings of securities (other than shares or other equity) which are negotiable and which do not grant the holder any ownership rights over the issuing institution. Quarterly data used in the calculation of the UK financial accounts provide a consistent framework between money and the national accounts, including the balance of payments. This note shows how this consistency works in practice and provides a contrast with the methodology of the European Central Bank which allocates issues of marketable short-term debt instruments on a security-by-security basis to the residency (euro area or non-euro area) of the holders¹.

2. Allocation of sterling denominated instruments within broad money

The UK measure of broad money (M4) comprises the UK private sector's holdings of financial assets in the form of UK sterling notes and coin; holdings of sterling deposits with UK MFIs; and holdings of sterling debt securities issued by MFIs of up to and including 5 years' original maturity. Short-term debt securities account for 4.5% of the stock of UK M4². In the stock of M3 in the euro area, the respective proportion is around 2%. In their monthly statistical returns, MFIs report a detailed sectoral breakdown of their deposits. In contrast, however, they are unable to report the ownership of their marketable securities, such as certificates of deposit (CDs) and commercial paper (CP), because these instruments are traded in the secondary markets. They only report the stock of outstanding issues of these securities. But, a full sectoral breakdown of UK holdings of these instruments is needed for the compilation of broad money and its sectoral components. Therefore, the sectoral breakdown of holdings of these instruments has to be estimated. This exercise uses a mixture of identified holdings by the UK private sector and estimates to allocate from the residual of unidentified holdings.

In addition to aggregated data on the stock of their marketable instruments outstanding, MFIs report also to the Bank aggregated data of their own holdings of marketable instruments and also custody holdings on behalf of non-residents. The issues outstanding and the holdings by MFIs are from balance sheet returns and should be precise. The data for custody holdings on behalf of non-residents are likely to be less robust, something that is taken into account in the allocation of residual (unidentified) holdings. The UK also has estimates (financial accounts' sources from ONS surveys of UK corporations) on instruments issued by UK MFIs that are other financial corporations' and private non-financial corporations' holdings. And, holdings by Central Government and by local government and public corporations are reported directly to the Office for National Statistics (ONS).

Taking the case of sterling certificates of deposit within M4, data for 2002 Q3 show that of the £138bn issued by MFIs some £85bn were held by other MFIs. Directly identified holdings by the money-holding sector totalled £33bn, and the residual holdings was £20bn. Residual holdings are allocated using pre-determined proportions. These proportions were derived from the outcome of a joint study undertaken by the Bank of England and the Office for National Statistics in 1993. This project concluded that:

- 1 *Holdings for the security-by-security information reported by international securities settlement systems ('indirect approach') covers short term debt securities in the case of internationally oriented markets and holdings for aggregated information on money market funds shares/units is reported mainly by the issuers ('direct approach')*
- 2 *20% of the stock of Other Financial Corporations' M4.*

- UK public sector holdings were unlikely to be understated.
- There was evidence to suggest that non-bank UK residents including Fund Managers could be holding CDs in the UK and that the reported custody business could be understated.
- There was evidence of gaps in coverage of holdings by Other Financial Corporations from a reconciliation of bank deposits as reported by banks with available data from the Other Financial Corporations collected by surveys.
- There was no data coverage on the personal sector, but research from surveys of households indicated that holdings were unlikely to be large.

Within the UK money-holding sector, the set sector proportions are 66.7% to OFCs, 16.6% to PNFCs and 16.7% to households. The proportions vary for the different types of marketable instrument. For example, in the case of non-sterling instruments a greater proportion of unidentified holdings are allocated to non-residents. This is in line with the ECB's findings in recognition of the fact that this sector is likely to have a greater demand for non-sterling paper, and also acknowledging the likely gap in the custody holdings reported by banks.

3. Conclusions

The UK's current system works well at present. The size of the residual of what we cannot identify but we know is out there in measuring M4 is kept under review by the Bank. The latest study indicated that by varying the allocation of certificates of deposit between the three money-holding sectors affected the annual growth rate of M4 by only 0.1pp. Within the ECB's work programme for financial accounts, the UK plans to develop further the links between short-term investment of the non-financial and financial sectors and the monetary aggregates.

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Bank of England, "Compilation methods of the components of broad money and its balance sheet counterparts", Monthly Statistics, October 2002.

Abstract

The broad monetary aggregate of the UK M4 comprises amongst other components marketable sterling debt securities issued by Monetary Financial Institutions (MFIs) of up to and including, five years' original maturity. M4 includes only the holdings by the UK private sector. To identify these holdings, the Bank of England uses data collected for financial accounts to estimate the sector breakdown.

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The means of estimating the negotiable instruments in the Japanese money stock statistics

Mayuko Yasui (Bank of Japan)

Among Japanese money stock statistics, aside from the representative indicator M2 + CDs, Broadly-defined Liquidity also attracts a great deal of attention. In addition to deposits and money trusts, Broadly-defined Liquidity includes negotiable instruments such as Government Bonds, Bank Debentures, Commercial Paper issued by Financial Institutions, and Foreign Bonds.

M2 + CDs: Cash Currency in Circulation, Deposit Money, Quasi-money, and CDs.

Broadly-defined Liquidity: M2 + CDs, Postal Savings, Other Savings and Deposits with Financial Institutions, Money Trusts, Pecuniary Trusts other than Money Trusts, Investment Trusts, Repurchase Agreements and Securities Lending with Cash Collateral, *Bank Debentures*, *Commercial Paper issued by Financial Institutions*, *Government Bonds*, and *Foreign Bonds*.

Ideally, the balances of negotiable instruments held by money holders should be specified based on the money holders' balance sheets, for example, using data from *the Financial Statements Statistics of Corporation by Industry* for corporations, from *the Income and Expenditure Survey* for individuals, and from *the Balance of Payments* for non-residents. It is possible to grasp the balance of "securities" overall using these data sources, but they do not break down this broad category by type of individual financial instruments.

Among the negotiable instruments, the balances held by money holders of items such as Bank Debentures and Commercial Paper issued by Financial Institutions can be specified utilizing the financial institutions' balance sheets, and estimates prepared using the formula "[total amount issued] – [amount held by financial institutions and the central government]." There is, however, a problem with this estimation method in that it categorizes certain financial institutions whose balance sheets and other basic data cannot be obtained as money holders rather than as money issuers.

Table 1 – Japanese Definition of Money Holders

	Organs other than the Central Government	Central Government
Financial institutions (= involved in loan businesses)	Banks, insurance companies, investment trusts, government financial institutions, etc.	—
Non-financial institutions (= not involved in loan businesses)	Money holders (corporations, individuals, local public entities, etc.)	Central Government

Meanwhile, the balances of Government Bonds held by money holders, for which there are established registration and book-entry systems, can be directly specified using the estimation method described below.

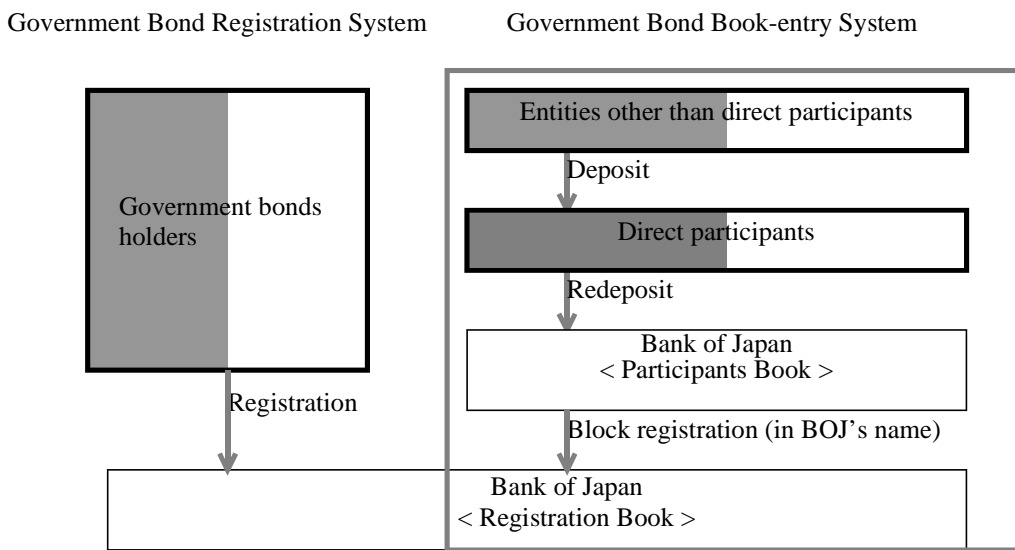
Aside from government bond certificates, Government Bonds¹ include registered government securities and book-entry government securities, and the balance of each type held by money holders can be specified as follows.

¹ Based on the IMF manual, the Japanese Money Stock Statistics view securities lending and bonds with repurchase agreements transactions as "funds management and procurement means using securities as collateral," and separate processing is conducted to make it appear as if the government bond rights are not transferred.

- 1 Government bond certificates: Since the amount held by financial institutions is apparently minimal, the entire balance is considered to be held by money holders.
- 2 Registered government securities: Since the amounts held by each individual bond holder can be grasped from the Registration Book, the balance held by money holders can be determined from the sum of the individual holdings.
- 3 Book-entry government securities: Since the Bank of Japan maintains individual account balances for all direct participants, and conducts regular surveys by holding sector on the amounts of bonds deposited by entities other than direct participants, the total amounts held by money holders can be determined from the sum of the amounts held by individual money holders.

The above-mentioned surveys on the amounts of book-entry government securities deposited by entities other than direct participants are conducted on a quarterly basis to mitigate the reporting burden. So the monthly balances for months that are not the ends of quarters are estimated by multiplying the quarterly account balances by the growth rates of those direct participants' accounts believed to contain a substantial amount of deposited bonds.

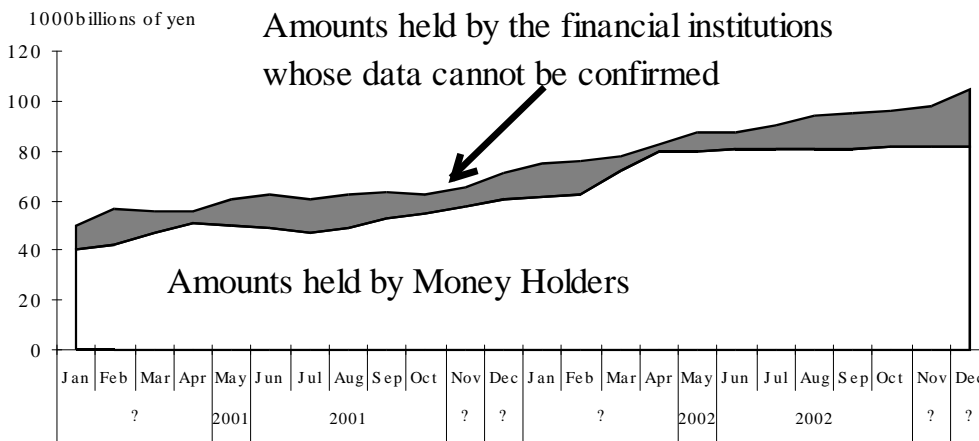
Table 2 – Basic Framework of Japan’s Government Bond Registration System and Government Bond Book-entry System



Note: Shadowed areas represent holdings of money holders.

The difference between the results using the above estimation method and those calculated using the formula “[total amount issued] – [amount held by financial institutions and the central government] are presented in Figure 1. The figure demonstrates that the estimation method of directly specifying the amounts held by money holders is more accurate.

Figure 1 – Comparison of Government Bonds Holdings Estimation Results



The balances of instruments included in Broadly-defined Liquidity aside from Government Bonds cannot be estimated in the above manner, since there is no registration or book-entry system data for these instruments. From this spring, however, an electronic payment and settlement system was launched for CP transactions, so in the future it should become possible to estimate the balances of CP following the same approach used for Government Bonds. Overall, the money stock negotiable instruments data is expected to become more accurate in the future as the data handling for the various instruments is expanded and improved.

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Trade in services – a challenge to statisticians

CONTRIBUTED PAPERS

Part I: The GATS-agreement and the four modes of supply

The GATS Agreement and the four modes of supply: a new ground for statisticians

Guy Karsenty (World Trade Organization)

1. The General Agreement on Trade in Services (GATS)

The GATS, which came into force on 1 January 1995, is the first set of multilaterally negotiated, and legally enforceable rules covering international trade in services. When it was designed during the Uruguay Round, negotiators recognized that an Agreement on services covering only the traditional notion of trade, i.e., products supplied across borders, would not reflect the different ways in which services can be supplied. For a service to be effectively produced or delivered, the proximity between the consumer and the supplier is often a necessary condition. Thus, in addition to cross-border supply (mode 1), GATS also covers cases where consumers move outside their home territory to consume services (mode 2 – consumption abroad), and cases where suppliers move to the territory of the consumers to provide their services, whether by establishing a commercial presence abroad (mode 3), or through the presence of natural persons (mode 4).

The pillars of the GATS are general obligations, which virtually apply to all services, and specific commitments resulting from negotiations, limited to sectors and modes of supply in which a member has chosen to undertake access obligations.

GATS calls for progressive liberalization through successive rounds of services trade negotiations. It also stipulates that, for each negotiating round, an assessment of trade in services in overall terms, and on a sectoral basis is to be carried out. Partly due to the lack of pertinent statistics, a collective and definitive assessment has not really taken place, and the assessment has become part of the WTO's ongoing activities in the field of services negotiations.

2. Statistical requirements

In merchandise trade negotiations, statistics on tariffs and trade have been extensively used to identify priorities, to formulate negotiating strategies, to evaluate and exchange commitments, and to assess the benefits of liberalisation. These types of statistical needs are, in principle, the same for

services negotiations. However, the challenge posed to statisticians is much more difficult to meet in the case of services, as systems to measure international trade in services are not as developed as for merchandise trade, and due to the broad definition of services trade and the complex architecture of countries' commitments under the GATS.

In front of this difficult challenge, a pragmatic approach is to distinguish between (i) basic requirements, that would allow to set up general negotiating objectives and strategies, and provide a substantive input into the assessment of trade in services, and (ii) further requirements, with a longer term priority, that would provide a sound basis for the exchange of commitments.

As regard *basic requirements*, Balance of Payments (BoP) statistics are of primary relevance. However, BoP only covers transactions between residents and non-residents, and disregards, for example, local trade by foreign affiliates covered by GATS' mode 3, which has been estimated to surpass the three other modes of supply together. Thus, BoP statistics alone are far from providing a full picture of trade as covered by GATS. They constitute at best a proxy for cross-border trade and consumption abroad. Foreign Affiliates Trade in Services (FATS) statistics, as defined in the Manual on Statistics of International Trade in Services (MSITS) have been precisely designed to complement BoP statistics in this respect.

MSTIS proposes a phased approach to the implementation, where the core recommended elements include compilation of BoP and FATS statistics by service categories and by origin and destination, according to the MSITS classifications. Such statistics would provide for relevant internationally comparable data, and would well reflect basic requirements.

It should be noted that the assessment of trade in services is more an economic than a statistical exercise. To assess the wide effects of service trade liberalization in the economy, there is a need to relate trade, domestic production, consumption, and employment. Thus, data availability in these statistical areas, and consistency with BoP and FATS data, would also be of primary importance. The revision of major international activity, product, and BoP classifications currently under way by international organizations is an opportunity to improve consistency.

The above remarks suggest that statisticians have started to meet the challenge with regard to basic requirements relatively well by developing relevant statistical concepts, definitions, and classifications in MSITS. The remaining task is now on developing compilation guidelines and support national implementation, especially for countries lacking expertise and resources.

Further requirements, with a longer term priority, would allow for a systematic use of statistics in the negotiating context, such as for the exchange of commitments. They relate to further improvements with regard to reliability, comparability across countries and across time, and disaggregation by service category, by origin and destination, and by modes of supply.

Under the GATS, country commitments are made at a very detailed classification level, often defined in terms of provisional CPC subclasses. Many of these detailed service categories are currently not under the reach of statistical systems.

Furthermore, for each of these service categories, commitments are specified separately for each mode of supply. Although MSITS proposes a simplified approach to approximate trade values by modes of supply from BoP and FATS statistical systems, there is a need for further work in this area. In addition, these statistical systems do not well cover the presence of natural persons mode of supply, and it would be necessary to draw on other types of statistics, such as on employment and migration.

However, there is a limit to the contribution of statistics to the exchange of commitments, which are of a qualitative nature, and thus hardly quantifiable in an objective way.

There is certainly a long way to go before the statistical challenge can be fully met. However, it is worth reminding that the current availability of detailed, reliable, and country-comparable statistics on trade in goods is largely due to the pressure from a long history of multilateral trade negotiations in goods, which started more than 50 years ago. Comparatively, multilateral services trade negotiations are quite recent. We may nevertheless note that they have already brought substantial improvements, including the development of relevant concepts, definitions and classifications in MSITS, and the starting of FATS data collection in a number of OECD countries.

Résumé

L'Accord Général sur le commerce des Services (AGCS) a posé un défi aux statisticiens. Ceux-ci ont bien relevé ce défi, notamment en ce qui concerne les concepts et classifications pour les besoins élémentaires, tels que

l'évaluation du commerce des services requise par l'AGCS. Cependant, il reste encore un grand chemin à parcourir en ce qui concerne la mise en place de ces concepts et classifications, ainsi que pour les besoins plus évolués faisant appel à des statistiques à un niveau de détail très fin, et décomposées par mode de prestation. On peut s'attendre une amélioration continue de ces statistiques suite à la pression exercée par les négociations, comme il en a été pour les marchandises.

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Cross-border transactions in the field of services: the example of Canada

Art Ridgeway (Statistics Canada)

1. Canadian context

Statistics Canada a central statistical agency operating under federal legislative authority, with obligatory reporting provisions produces Canadian statistics for trade in services. The period from the mid-80s saw much expansion in Canada's trade in services program, driven both by new reporting standards of the IMF and SNA, and by the needs of services trade negotiations.

Data on commercial service trade (other than travel, transportation and government services) are based chiefly on an annual enterprise survey program conducted by the Balance of Payments Division. The data are collected using a common questionnaire for most respondents. Specialized questionnaires exists for a limited number of commodities. The paper focuses on commercial services.

2. Commodity Detail

The latest international standards for compiling agencies (UN, 2003) appear in the *Manual on Statistics of International Trade in Services* (the Manual). This extends the IMF norms of 1993 and makes a number of recommendations to be phased in with some flexibility. Those recommendations relating to cross-border trade largely pose challenges with respect to additional data categories by type of service and classification of trade by mode of supply as requested by GATS. The Canadian focus has remained largely on the commodity presentation with little attention to modes of supply. Canada publishes three of five dozen commodity categories¹ set out by the Manual. The challenge is primarily one of obtaining sufficient detail from respondents as opposed to issues of definition or confidentiality.

In recent years new and redesigned surveys have permitted improvements in commodity detail. A survey redesign where the specialized language used in the accounts of the industry resulted in its increased coverage and response rates for insurance services. More recently, the travel data program has seen significant improvement, particularly the geographic distribution of air travel through an exit surveys of air passengers.

A project to identify trade in legal services focused on an initial phase of education and identification of some key respondents and use of taxation data to help expand the frame; just as valuable was data from our principal trading partner, the United States.

The Manual's recommendation to sub-divide cross-border trade between affiliate and unaffiliated parties has effectively been met in Canada by collection of both attributes on the main survey form for business and professional services. The high degree of foreign direct investment in Canada for many years and more recently by Canadians has fostered an interest in this information for some time.

3. Bilateral Data: Canada – United States Reconciliation

Canada and the United States have each of the last 30 years undertaken a reconciliation of the bilateral current account. This has been an important factor in the evolution of the trade in services programs of both countries. These comparisons have, in addition to providing data validation, led to the use of counterpart data to improve each country's estimates. In addition, they have fostered an ongoing exchange of best practices and innovative ideas between the two statistical agencies.

¹ Canadian data also goes beyond the standards with five types of royalties and separate categories for technical and scientific, environmental and commercial education services.

These comparisons have highlighted the fact that surveys of trade in services generally are better at measuring exports rather than imports. Firms generally maintain better records of their clients than their suppliers, particularly with respect to classifying them to a location. In addition, in Canada many of the production surveys provide data on exports, often with the exports to the U.S. separately identified due to user demand for these data. The same cannot be said for import data where attempts to collect more detailed data for inputs in general on production surveys have met with resistance from respondents.

4. The Modern World

The rapid advances in communications and transportation technology have opened up the world of international trade in services to a much larger population than was the case only a decade ago. The coverage or lack thereof, of smaller firms is a growing concern for the trade in services program in Canada. In addition, the use of the Internet by multinational enterprises can mask the true location of the supplier. The purchaser may not be able to determine if the supply is an import or a domestic product.

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Measuring tourism in the context of international trade in services

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1. Introduction

Services transactions are increasing in importance, the impact of international trade in services on growth is now an area of particular interest for economic and policy analysis. The statistical measurement of international trade in services is also of particular interest to trade policy analysts and international trade-in-services negotiators in the context of the General Agreement on Trade in Services (GATS). Among internationally traded services, "Tourism" is an area of special interest as there are many economies in which the expenditure of international "visitors and other travellers" is an important source of foreign exchange earnings and one that contributes substantially to employment and capital investment in the economy.

2. Tourism, the TSA and other analytical frameworks

The production accounts of the System of National Accounts provide a framework for the analysis of the production, use and final demand for the products of industries. The new Tourism Satellite Account (TSA) enables Tourism to be measured within the framework of the System of National Accounts. "Visitor" expenditure constitutes a sub-set of intermediate and final demand and international "visitor" expenditure is a sub-set of exports and imports. For purposes of international comparability and to measure the contribution of Tourism and visitor expenditure to the economy, the Tourism Satellite Account (TSA) has identified a set of Tourism characteristic products and a set of Tourism characteristic industries for whom, visitor expenditure accounts for a large proportion of their revenue.

The Balance of Payments (BoP) is the most important source of information about international trade in services and is used in the System of National Accounts (SNA). When international visitors and other travellers consume the domestic production of the economy to which they travel, the goods and services they consume are exports of that economy and are measured as part of the Balance of Payments. The fifth edition of the Balance of Payments Manual, contains a Classification of Service Transactions, now extended and called EBOPS in the new Manual on Statistics of International Trade in Services (MSITS), some components of which can be related to the expenditure of "visitors and other travellers". Given that the Balance of Payments is compiled world-wide, and it is expected that countries will start compiling EBOPS, it is useful to examine whether and how components of these data can be used in the analysis of Tourism.

3. Visitors and travellers

Tourism in the TSA is defined as "the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited." The persons referred to in the definition of tourism are termed "visitors". They may travel to destinations within the geographic boundaries of their own country or they may travel internationally.

Travellers defined for purposes of the Balance of Payments and International Trade in Services are "individuals staying for less than a year in an economy of which they are not residents ..." with some exceptions.

International "visitors" are therefore a sub-set of "travellers".

4. Tourism and the standard components of the Balance of Payments

TRAVEL is a standard component of the BoP and EBOPS. It measures international “visitor” expenditure for Tourism analysis, after the exclusion of the exceptions to the one-year rule, namely expenditures of commuters and seasonal workers, and students, persons travelling for medical treatment and ship’s crews, away for more than a year. TRAVEL is a measure of mode 2 of the GATS, “consumption abroad”.

The part of the standard component TRANSPORTATION, that relates to passenger transportation, is also relevant for the statistical measurement of international visitor expenditure for Tourism analysis, because it covers the international carriage of travellers, not included under TRAVEL. The convention of the Balance of Payments, also adopted for Tourism analysis, is that passengers travelling abroad on domestic transportation carriers are treated as purchasing a domestic service whereas passengers travelling abroad on foreign transportation carriers are treated as purchasing a service from the country in which the foreign carrier is registered. The supply of international transportation services by domestic carriers to foreign visitors, under the GATS concept of modes of supply, is mode 1 “cross-border supply”.

5. Conclusion

Data compiled for the BOP and EBOPS, are useful in the measurement and analysis of international Tourism. Greater convergence between the concepts of the BoP and EBOPS and the TSA would be mutually beneficial, in that similar methods of data collection and compilation could serve the needs of all three, which would contribute to enhancing the quality of data in all three frameworks and go towards meeting some of the needs for measurement of the modes of supply of the GATS.

Résumé

La Balance des Paiements est la plus importante source d’information sur le commerce international des services. Les données recueillies pour le poste “Voyages”, après ajustement des différences entre les définitions des “visiteurs” (CST), des “voyageurs” (BP) et du Transport de Passagers, sont importantes pour mesurer les dépenses des “visiteurs” internationaux pour l’analyse du Tourisme. La convergence entre les concepts de la BP et la EBOPS et ceux du CST permettrait d’améliorer la qualité des données et de répondre aux besoins du GATS pour les données par mode de fourniture. Le poste “Voyages” est le plus gros composant du mode 2 ou “consommation à l’étranger” et le “Transport de Passagers” correspond au mode 1 ou “fourniture transfrontières”.

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Analytical value and limitations of FDI statistics: a user's perspective

Katja Weigl and Masataka Fujita (UNCTAD)

1. Importance of FDI statistics

Statistics on foreign direct investment (FDI) are a vital means to analyze the phenomenon of globalization of economic activities. International production is three times as large as world exports, as companies rely increasingly on FDI in delivering goods and services to foreign markets. Governments, business and academics are interested in comprehensive, timely and internationally comparable data on FDI¹, for analytical purposes and for policy formulation. To measure the impact that FDI might have on home and host countries, through the presence of TNCs and their foreign affiliates, variables such as the number of affiliates and their employment, value added, sales, exports and imports of goods and services, amongst others, are of interest. Based on the analysis of FDI trends and prospects, policy recommendations can be derived, in order to assist both host and home countries in maximizing the potential benefits and minimizing adverse impact of FDI for the domestic economy. FDI data as collected and disseminated by regional and international organizations, such as UNCTAD², Eurostat, the OECD or the ASEAN secretariat, are supportive in policy discussions and decision making, i.e., in the context of regional integration initiatives or in the framework of international trade negotiations and agreements, such as the GATS.

2. Data sources and compilation methodology

Data on FDI are compiled by national authorities, such as national central banks, national statistical institutes or investment promotion authorities. They may, however, differ from country to country, and the statistics may be collected by different agencies for different purposes. Cross-country comparisons are facilitated by national compilers applying internationally recommended guidelines on definitions and compilation methodologies, suggested by the IMF's Balance of Payments Manual (IMF, 1993) as well as the OECD's Detailed Benchmark Definition of FDI (OECD, 1996). Guidelines in the area of FDI statistics address, for example, the definition of FDI, the statistical unit as well as the components of FDI, the valuation of FDI stock, geographical allocation or classification by economic activity. The recent Manual on Statistics of International Trade in Services (UN et al, 2002) also covers services provided through the presence of foreign affiliates abroad.

3. Analysing FDI statistics

Divergence in FDI data compilation methodologies is illustrated by the fact that world inflows of FDI, for the reporting period of 2001, exceeded world outflows by more than 15 per cent (UNCTAD, 2002). This result can partly be explained by, among others, differences in FDI definitions applied by national compilers (i.e., the 10 per cent-rule), timing of recording FDI statistics, definition of FDI relationships (i.e., the Fully Consolidated System), application of the directional principle, the coverage of FDI components (such as reinvested earnings or other capital), or mea-

1 Defined as "international investment that reflects the objective of a resident entity in one economy obtaining a lasting interest in an enterprise resident in another economy" (IMF, 1993).

2 The United Nations Conference on Trade and Development (UNCTAD) through its Division on Investment, Technology and Enterprise Development (DITE), is the focal point within the UN system for matters related to foreign investment and technology. It builds on 30 years of experience in its principal areas of work. UNCTAD seeks to further the understanding of the nature of TNCs and their contribution to development and to create an enabling environment for international investment and enterprise development. UNCTAD's work is carried out through intergovernmental deliberations, technical assistance activities, seminars, workshops and conferences. UNCTAD collects and disseminates FDI and TNCs operations data regularly, i.e., in its annual World Investment Report and World Investment Directory series, and uses it in a variety of analytical publications as well as technical cooperation activities.

surement errors, or errors due to estimation. Furthermore, failure to correctly capture the transactions related to Special Purpose Entities as well as offshore enterprises could lead to under- or overestimation of a country's FDI flows. The example of countries reporting FDI stock data at both market value and book value reveals significant differences according to both methods, and the perpetual inventory method (accumulation of flows) applied by several countries could deliver different results for FDI stock. When FDI or TNCs operations data are broken down by geographical region, the application of the principal of ultimate beneficial ownership or the immediate country basis can lead to different results regarding the main investment partners of a country. Similarly, differing classification of data by economic activity might deliver misleading results. Furthermore, recent phenomena, such as the surge in cross-border mergers and acquisitions (M&As) during 1999-2000, could pose new challenges to national compilers, to correctly determine the part of the M&A transactions related to FDI. Policy makers are challenged by the lumpiness effect of large M&A transactions.

4. Conclusion

Various examples illustrate the benefits of implementing internationally recommended guidelines for FDI data compilation at the national level, and the harmonization of compilation methodologies at the regional and international level. Further development of methodological guidelines to adequately capture relevant issues and comprehensiveness of data are warranted. International cooperation in the area of capacity-building in understanding and implementing recommended guidelines are of importance, to assist countries and regions to put in place reliable, timely and comparable statistics on FDI and the operations of TNCs. This will support international analysis and the development of sound policy recommendations in the area of FDI, TNCs and development.

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Résumé

L'analyse adéquate du phénomène de mondialisation requiert des statistiques détaillées et fiables sur les investissements directs étrangers (IDE) et les activités des entreprises transnationales. Des exemples montrent que des inconsistances en matière de définitions et de méthodologie de compilation de statistiques peuvent influencer les recommandations politiques. En conséquence, la disponibilité de statistiques comparables entre pays, suivant des recommandations agréées au niveau international, et facilitée par la coopération technique, est importante.

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FATS data: Lessons from the French experience

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1. What are Fats and who does compile them?

FATS are statistics on trade and activity of Multinationals' Affiliates ("foreign affiliates") developed to analyze their specific role. The domain is at the crossing of Business, BoP and IIP statistics: on a subset of FDI stocks (entities directly controlled), FATS measure sales (turnover), exports and imports of goods and services, value added and employment, of resident (inward) and non resident (outward) affiliates of multinational enterprises (MNEs)¹.

These statistics were initially required for policy purpose to follow up the extension of "commercial presence" as a mode of international supply of services, within the GATS framework (e. g. WTO mode 3). But FATS have in fact a broader, analytical, purpose, that is to improve our understanding of BoP trends, by identifying the particular role of MNEs' affiliates in all BoP transactions (goods and services, investment income flows, loans, deposits...). This involves a coverage of all industries and not only services activities (Eurostat, 2003).

Depending on the country, the compilation is made either by Central Bank, by National Statistical Office, by a specific institution, or even by a cooperation between these different players.

2. How are they compiled?

FATS are made of three sets of data: (1) French resident affiliates of Foreign MNEs (Inward), (2) Foreign resident affiliates of French MNEs (Outward Affiliates), (3) French resident Mother Companies (MC) of outward affiliates. The appropriate aggregates for total economy have to be added, in order to compare foreign affiliates with other firms and to the domestic economy.

The compilation of FATS relies mainly on the combination of various already existing sources², matched by the use of the unique identification company number taken from the general business register. For resident companies (inward affiliates and MC) sources are (1) individual databases on enterprises accounts (value added, employment, sales³), (2) specific databases for banking and insurance, (3) BoP flows (exports and imports of goods and services), (4) IIP (FDI stocks), (5) business sector aggregates (for comparison needs). For non resident companies (outward affiliates), (6) a specific question is added in the outward FDI stocks survey addressed to French MC.

Data are compiled in 3 steps: (1) tagging of relevant companies, from FDI stocks, (2) extraction of FATS variables by a matching with business statistics and BoP flows, (3) checking of resulting data and imputation of missing values.

3. What do FATS statistics say?

FATS are today available for most important industrialized countries. Using OECD data (OECD, 2003), we can thus compare, for a given country, sales by MNEs affiliates to total external trade. In France, the ratio amounts to 75% for inward sales and to 145% for outward sales. In comparison, the figures are respectively 42% and 79% for Germany, 4% and 161% for Japan, 347% and 224% for the USA. These ratios indicate the degree of globalization of economies.

The special feature of services activities can be illustrated by comparing sales of outward affiliates to the total sales of their French resident MC. Outward sales amount to 68% for services, against 38% for manufacturing. That demonstrates that affiliates abroad play a more important role than exports in the services globalization process.

1 *France compiles all these variables for inward affiliates, but only sales for outward (employment in a next future).*

2 *We use information from: Insee, Banking control commission, Insurance control commission, Banque de France.*

3 *For each variable, the total amount is allocated to FATS as soon as the company is under majority control.*

FATS give also information on the importance of foreign controlled companies in the domestic activity: their own contribution to French trade of goods and services (20% for exports, 30% for imports) is higher than that to domestic activity (15% of total French value added). For such a variable as employment, the limitation of FATS to direct control (1st rank affiliates) can be misleading as only 7% of French relevant employment is under direct foreign control, compared to 15% if we extend the scope of FATS to indirect controls, as in INSEE publications.

When analyzing performances it is necessary to focus on the permanent population of companies over time, because the data can be influenced by new entries due to new FDI flows and by companies shut-down. For example, between 1997 and 1998, the apparent growth rate of the inward sales reaches 22% when including new entries, whereas it increased only by 5% when restricting to the permanent population. That is the reason why FATS have to be organized as a longitudinal individual database, including information on enterprise demography.

4. Future for FATS: what should they be and what are the implications for the statistical tool?

FATS are presently in France compiled on the basis of the first rank of control. However there is a growing need to integrate indirect controls (at least sub-affiliates). This process raises important questions relating to the availability of information – at national and international level – and on the methodological principles to be used to consolidate FATS variables amongst controlled companies.

The reporting of MC, which was not included in FATS at the beginning, changes also the content of FATS and the work of compilers. More generally, it is now a domain which goes beyond “pure” Trade and “Foreign Affiliates”, and covers Foreign Activity of Multinational Enterprises. In consequence, it is questionable whether the name has to be changed¹.

Last but not least, the need of normalization and cooperation has to be stressed at international level (information sharing on groups perimeters and accounting standards). At national level, cooperation, as we experience in France between Banque de France and INSEE, allows a significant improvement of FATS data. This can take place in a step by step development of statistics, beginning by the production of some limited but meaningful indicators, before extending the coverage and the number of variables.

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1 FAME, FLAME (Foreign Linked Activity of Multinational Enterprises) or SOFA (Statistics On Foreign Affiliates) ?

Temporary movement of natural persons (mode 4) under the GATS

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1. The scope of the movement of natural persons supplying services under the GATS

The General Agreement on Trade in Services (GATS) recognizes that for certain services to be supplied internationally movement of natural persons is indispensable and hence, introduced so-called mode 4 supply of services. The Agreement, together with its Annex on the Movement of Natural Persons Supplying Services under the Agreement, does not provide for a precise definition of this mode which could be immediately adopted for statistical inference, namely in respect to the characteristics of movers, concerning the modalities for such moves, or with respect to timing of moves. The broadest possible definition of mode 4 is introduced here since it appears to be best suited for statistical purposes.

There is no a priori exclusion of any occupation or skill level from the coverage of the GATS and in that sense all categories of natural persons could be negotiated under mode 4. There is no provision in the GATS, which would tend to suggest that the coverage of natural persons supplying services is subjected to any type of particular qualifications.

In practical terms, GATS mode 4 extends to foreigners who are employed in a foreign company established abroad or which is supplying services under a contract without permanent presence in that country, e.g. in the implementation of a construction project. It also includes independent or self-employed service providers, as in the case of consultancy services, and also foreign nationals employed in domestic companies.

All possible modalities of movement from one country into the territory of another country are covered by GATS. Since this is movement of people supplying services, their intended entry should fall under the provision of services in one of the industries classified as services sectors by the WTO.

GATS establishes a definition for the movement of natural persons as seeking “non-permanent” entry and “temporary” stay for the supply of services abroad. There is no specified timeframe in the GATS regarding what should be considered as “temporary”. Non-permanent or temporary status may be interpreted by each country according to its national law practice, which may be reflected in the national schedules of their GATS specific commitments. For example, in the present GATS specific commitments countries allow for a temporary stay of 1, 3 or 5 years, which may also be extended and might be different for different categories of persons.

However, present GATS specific commitments do not extend to cover fully the scope of GATS mode 4. Individual countries as a rule have scheduled their commitments with respect to a rather limited coverage of mode 4, referring to investment related movement of natural persons.

2. Measurement challenge

GATS introduces the challenge and the need to monitor the size and structure of the movement of persons from the viewpoint of national labour markets and migration policies, both as “exports” and “imports” and in terms of trade. This means that there will be a need for countries to compare movement of persons through mode 4, its size and structure. Systems of most countries have failed to evolve so as to reflect the growing complexity of international population movements – and now the needs of the GATS. No one international collection system gives the complete coverage necessary for measuring the GATS needs related movement of persons, however, some elements could be drawn from the balance of payments statistics (BPM5), System of National Accounts, UN Statistics of International Migration, International Labour Organisation’s (ILO) employment statistics.

Since no one collection system in any country gives the complete coverage necessary for measuring the GATS needs related to the movement of persons to work abroad, there will be a need to

use data collected within each country from un-connected systems such as administrative records of controlling and regulatory agencies as well as of institutions and establishments, in addition to surveys of travellers and residents. Statistics from different sources will, however, provide very different pictures about international movement of persons and the balance between different sources will depend on each country.

The main preoccupation in GATS related statistics for movement of workers is the total numbers of persons working abroad, their countries of origin, occupation, possibly skill level, status in employment in the receiving country, sector of economic activity, length of stay, total remuneration received and the remittances they send back to their home country. BMP5 provides three types of information that is relevant to the value of trade created by workers abroad. In some cases this information underestimates or overestimates the actual trade, however, if anything it confirms the importance of global labour mobility as the factor in trade.

The data to be compiled for GATS will need to cover both the movement (“flow”) in a given period and the presence (“stock”) of service providers at a given time. Statistics collected on persons at the ports of entry are the most widespread sources of information on the movement of service suppliers. Measuring the “stock” of foreigners providing services poses real problems, because population registers, registers of foreigners or other surveys or administrative records do not provide a comprehensive way to trace and keep track of foreign service providers individually.

Different elements will need to be further elaborated to develop a framework to define the groups of interest on one side (mode 4) and variables that service to describe relevant characteristics of the members of these groups. Agreed international recommendations in this area would serve as a model for development of the national statistics, and for constructing statistics which is reasonably comparable between and among countries.

In the context of globalization and internationalization of production and trade in services, international movement of persons is likely to grow in importance. Availability of the timely and reliable statistics, comparable internationally is necessary if progress in the multilateral trade negotiations in the area of services and namely on progressive liberalization of movement of natural persons is to be achieved. A great number of developing and least developed countries have identified trade related movement of persons as the single most important area of their export interest and their key interest in the GATS negotiations. Developed countries are also seeking liberalization of mode 4. Lack of data on both, sending and receiving countries are limiting the scope for analytical and research activities in assessing the economic impact on the two sides. Having more detailed, valid and reliable statistics, policy makers and trade negotiators may be more willing to engage in improving their specific commitments in the on-going GATS negotiations.

Résumé

Les systèmes statistiques nationaux n'ont pas évolué suffisamment pour rendre compte de la complexité croissante des mouvements internationaux de personnes et pour répondre aux besoins découlant de l'AGCS. Aux fins de l'AGCS, on aura besoin de statistiques concernant aussi bien les mouvements (flux) sur une période donnée que la présence (stock) de fournisseurs de services à un moment donné. Les principales données dont on a besoin aux fins de l'AGCS, en ce qui concerne les mouvements de personnes, sont le nombre total de personnes travaillant à l'étranger, leur pays d'origine, leur métier ou leur statut professionnel dans le pays d'accueil, la durée de leur séjour et leur rémunération totale.

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Part II: The Manual on Statistics of International Trade in Services and its implementation

Implementing the Manual on Statistics of International Trade in Services: Are we progressing?

William Cave (OECD)

1. Introduction

The new Manual on Statistics of International Trade in Services (Manual) was quite recently published jointly by six international agencies. It first appeared in English in December 2002.

Surely then it is too early to ask about, let alone measure, progress? Not so. The user community of trade analysts, governments, business and trade negotiators need more relevant and more detailed data on trade in services and they need them urgently. There is a need to monitor progress in implementation so that attention can be focused on problem or priority areas. It should also be appreciated that, although only recently published, the Manual was a long time in preparation. Drafting of the Manual began as far back as 1996 and some countries had been improving their trade-in-services data collections and anticipated the new international standards to meet their own user needs.

By what instruments and criteria could progress be measured? First there are a number of core recommendations in the Manual and some other main recommendations. We could look for progress in the number of countries reporting such data for each recommendation. Associated with this would be whether international organisations are collecting and disseminating the data. Finally data quality - what can be said about changes in data quality and international comparability?

2. Core Recommendations of the Manual

Some core recommendations call for implementation of pre-existing standards. The core recommendations of the Manual, which are new, may be summarised as follows:

- a.
to collect trade in services data in the balance of payments (BoP) context;
 - (i) by type of service in the Extended Balance of Payments Services (EBOPS) classification;
 - (ii) by partner country.
- b,
to collect data on Foreign Affiliates Trade in Services (FATS) statistics for basic variables:
 - (i) by activity – according to the ISIC Categories for Foreign Affiliates classification (ICFA);
 - (ii) by partner country.

A key feature of the Manual is the description of trade services in terms of four modes of supply, but statistically that is an area that needs further development.

3. Balance of Payments Services

BoP trade in services data collection is relatively well established and widespread according to the principles and framework of the IMF's fifth Balance of Payments Manual (BPM5). An impressive and continuing increase in detail by type of service has been noticed since around 1995. The data collection of IMF, OECD and Eurostat is currently being adapted to allow reporting according to the EBOPS classification.

BoP trade in services by partner country are disseminated by Eurostat in the "New Cronos" database and in 2002 OECD published trade in services by partner country data for the first time for 22 countries. OECD expects to be able to publish about 26 countries' data in 2003. These countries account for around 75 per cent of world trade in services.

4. Foreign Affiliates Trade in Services

Compared with trade in services in the balance of payments, foreign affiliates trade in services statistics are relatively undeveloped. But data collection and dissemination of FATS statistics are growing at Eurostat, OECD and UNCTAD fuelled by the growth in national activity in this area.

The OECD FATS database covers, in principle, the economic activity (turnover, employment, value added, exports and imports) of foreign affiliates in the services sector related to OECD member countries by activity and partner country. Not all these requested data can be provided by countries but about 20 countries provide some of these. The results of these two surveys were published for the first time in 2002. The 2003 OECD survey is expected to yield information from a larger number of countries.

5. Assessing Data Quality

Given that measurement of trade in services is more difficult than measurement of trade in goods, how can we assess data quality? In principle, the exports declared by one country should be equal to the imports declared by the partner country. Any bilateral asymmetries and global imbalances can provide an indication of international comparability of data and allows this to be tracked over time. A second tool that has proved useful in other areas is a methodological soundness questionnaire. OECD-Eurostat plan to launch such a questionnaire (for BoP trade in services) jointly in 2003. It is clear from bilateral data, global imbalances, and information on the variety of data sources used by countries that data quality is and will be an important concern.

6. Conclusions

On the criteria suggested above, important progress is being made in implementing the core recommendations of the Manual. Much, but certainly not all, of this is occurring in OECD countries. Some important progress is already being made on BoP services; on FATS and in both cases with partner country data. The monitoring tools described above on country reporting and data quality will be essential in highlighting priorities for further work and improvement.

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Abstract

Although only published very recently, pressures from data users are helping to ensure that progress in implementing the Manual on Statistics of International Trade in Services is monitored. A toolset for assessing progress is outlined. Important progress is being made in implementing the core recommendations of the Manual. Much, but certainly not all, of the current progress is occurring among OECD countries. Important progress is being made on BOP services; on FATS and in both cases with partner country data. The monitoring tools described above on country reporting and data quality will be essential in highlighting priorities for further improvement.

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International trade in services – migration statistics and mode 4

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1. The modes of supply in the General Agreement on Trade in Services (GATS)

The area of international trade in services has always been an important element of National Accounts and Balance of Payments statistics. The way in which services traded are being recorded impacts the definition of GDP and other important indicators. Statistics on international trade in services have recently received additional attention as a means of providing information on measuring the necessity and the impact of negotiations and commitments made under the GATS. While some services can be provided across borders, similar to the traditional notion of international trade, others require the physical proximity of service provider and client. The GATS therefore recognizes four different ways of providing a service – the four modes of supply. These cover the provision of a service across borders (mode 1), through consumption abroad (mode 2), through establishing of a commercial presence (mode 3) and through the presence of natural persons (mode 4). The specific commitments negotiated under the GATS can apply to individual industries, as well as individual modes of supply. These modes subsequently constitute an additional dimension in international trade in services to be measured. By the very nature of the differences in which services are being supplied through these four modes, the availability and the way of obtaining of statistical data for these service transactions changes. This results in a variety of techniques and data sources to be used specifically for each mode and, in some cases, for particular types of services. For modes 1, 2 and 3 methodological guidelines are well developed nationally and internationally, including in the *Manual on Statistics of International Trade in Services*.

2. Migration statistics – a viable data source for mode 4?

For the (efficient) supply of services, the direct contact between service supplier and consumer is often essential. The structural changes that have taken place in the post-industrial economies have created an increased demand for highly skilled service suppliers. The increased dynamics of global markets leave ever shorter time-frames for reaction to consumer and investment demands, often requiring the immediate availability of service suppliers. The observable trend to increased (temporary or permanent) presence abroad underline the growing importance of delivering services through mode 4. An example would be the temporary relocation of specialists, professionals and contractual service suppliers by internationally operating firms.

Under the GATS, the movement of natural persons refers to the entry and temporary stay of persons for the purpose of providing a service. It does not relate to persons seeking citizenship, permanent employment or permanent residence in a country. The provision of services through mode 4 is possible for practically all types of services and the commitments related to mode 4 under the GATS are mostly horizontal commitments. Among those, most relate to executives, managers and specialists, while only a small percentage covers low-skilled persons. This type of commitment also indicates another dimension in the statistical data needed to adequately reflect services trade in mode 4, linked to the occupational level of the service provider.

In recent discussions, the use of migration statistics to tackle the problem of data collection for mode 4 has received increased attention and different data sources for statistics in this area are being explored. As mode 4 statistics has to be compiled on individuals (natural persons), the typical instruments for gathering data from businesses are not always applicable. Migration statistics cover the movement of people across borders and appear therefore as a likely candidate for a data source.

For statistics to be produced on provision of services through mode 4, several indicators are of interest: the value of the services provided, the type of service provided (classified as industry), the mode in which this service is provided, the occupation and skill level of the service provider, the time of stay of the service provider in the host country (“temporary”). Existing migration statistics typically cover some of these plus other quantitative indicators such as: the number of persons in-

volved or duration and purpose of stay, which may serve as approximations. However, to meet the needs of mode 4 statistics, additional considerations have to be made.

Migration statistics compiled on the basis of visas or work permits issued could give a fair indication of the size of the labour force moved between countries, approximating data sought for mode 4. Additional information is needed to account for differences, since often the interpretations of the GATS text are different from established definitions used in migration statistics, adding an additional layer of difficulty in merging these two types of statistics.

Links between these two types of statistics should also be of interest to migration statisticians themselves, as they allow for measuring the “economic” impact of a typically “social” phenomenon. The creation of a Technical Subgroup of the Interagency Task Force on Statistics of International Trade in Services has been a first step in providing guidance in this area.

3. The need for harmonization of standards

The use of different data sources to capture the phenomenon of mode 4 service provision immediately raises the question of how comparable the underlying concepts for these data sources are. It becomes clear that the inherent definitional problems of migration statistics mirror problems in statistically defining concepts of the movement of natural persons in the sense of the GATS. The GATS as a negotiation instrument between countries necessarily carries a degree of flexibility, allowing countries to negotiate commitments in line with their national practices and laws. While statistics on mode 4 should be defined on a fixed set of concepts, to ensure international comparability, one has to be aware that they may not always have the same scope as that intended by individual countries in their negotiations under the GATS. On the other hand, while migration statistics may seek to provide data on fixed concepts and definitions, the actual availability of data is often determined by national legal settings. This includes fundamental questions such as the definition of “temporary stay”. Not only may migration statisticians and trade negotiators in the GATS use different definitions for this, the data available from administrative sources will invariably reflect the legal practices of the country involved. For instance, visas issued for “temporary” stays may cover stays of different length. Also the definition of “foreign” varies among countries, reflecting sometimes the country of birth, sometimes the nationality of the person. This has a significant impact on the data produced.

In this sense, we are moving closer to identifying data sources to measure the service provision through mode 4, but become at the same time more and more aware of conceptual or practical shortcomings of the different approaches. As limitations on the reporting burden of countries, businesses and individuals also play an important role, seeking a statistically sound compromise between limitations in applicability of existing data sources and methods and additional programmes, as well as further harmonizing their standards, will become a key issue in the future.

Résumé

L'intérêt croissant accordé à la fourniture de services réalisée à travers le déplacement des personnes physiques, tel qu'il a été défini par le mode 4 de l'Accord Général sur le commerce des Services (AGCS), entraîne une demande grandissante de statistiques dans ce domaine. De nouvelles sources de données sont à l'étude, traduisant l'importance reconnue aux statistiques liées au phénomène migratoire. Simultanément, on assiste à une continuelle amélioration des standards, amélioration rendue nécessaire par le caractère imparfait de ces sources de portée et concepts différents.

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Trade in services – a challenge to statisticians: the Czech case

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1. Foreword

The Czech Republic is a small open economy with a high ratio of foreign trade to GDP and a ratio of trade in services exceeding 10 % of GDP. Trade in services is important for the development of the balance of payments since the usual surplus here compensates, at least partly, for the traditional deficit in trade in goods.

At the beginning of our economic reforms, the compilation of the balance of payments was based solely on the settlement system. There were only a limited number of banks at that time but the existing banks were experienced in this activity. The liberalisation process influenced the collection system in many ways. Dozens of new banks were established and a great number of new enterprises and businesses were also created. Due to the liberalisation in external trade many of them started to carry out cross-border business. All these changes resulted in an enormous increase in the numbers not only of economic agents involved in cross-border activities but also in the transactions to be reported. In addition to the generally known drawbacks of the settlement system these transitional factors further worsened the quality of the figures from the settlement system. The Czech National Bank as a compiler of the balance of payments statistics started to introduce alternative sources to the information collected from banks. It concerned almost all balance of payments items including trade in services.

2. The actual system of data collection

There are basically three acts setting out the legislative background for collecting data for the balance of payments: the Act on the Czech National Bank, the Act on Banks and the Foreign Exchange Act. The information from banks is collected in accordance with the first two acts, the last one accomplished by decrees providing further details on collected information sets the framework for the reporting by non-bank respondents. The reporting obligation defines the duty of economic agents to report data for statistical purposes. It is imposed in several areas and the trade in services is one of them.

The methodology applied for the compilation of the balance of payments is essentially the methodology set by the BPM5 of the IMF, although not all details correspond fully to these standards. The breakdown of services is not presently available for all items but collection and compilation procedures are gradually being implemented or improved to increase data availability.

3. The information sources for respective items of trade in services

The settlement system is still the main source of information for trade in services but several alternative sources have been introduced.

Data on receipts and expenditure concerning the transport by air and rail of goods and passengers is collected directly from transportation companies. Companies involved in the transportation of natural gas and oil (transit charges) are also required to report directly.

The cross-border statistics of both foreign visitors and Czech residents used to be the only information source in the area of travel items at the beginning of our transitional period. Estimates of the average expenditures of foreigners during their stay in the Czech Republic were based on regular enquiries at selected border crossings. These sources are still considered but additional ones have been included. Information from the banking sector on the purchases of both Czech and the foreign currencies and information from hotels and travel agencies are more reliable sources. These as well as bank information regarding credit cards transactions, are now used as the main source of information.

As regards other services, direct reporting was imposed on insurance companies in 1999. The survey includes cross-border transactions relating to insurance and reinsurance of the insurance companies operating in our country.

4. The evaluation of information sources and further development

The balance of payments compilation system is being designed to meet international standards. The key elements are the quality of the data and the detailed breakdown. There are basically two options on how to collect the information: either from the bank settlements system or from direct reporting. There is no clear preference between these two sources in the Czech Republic to meet all the requirements. More reliable information as regards the total volume is the biggest advantage of the direct reporting. The information from credit cards transactions is also a reliable source of the total volume. The detailed breakdown, specifically the territorial section, is the biggest advantage of the settlement system. The Czech National Bank as a compiler benefits from the advantages of both systems. While the settlement system is currently and generally used for compiling the trade in services and for territorial breakdown, more direct reporting has been gradually introduced in recent years.

Nevertheless it seems that the best way of creating a more comprehensive system of direct reporting in the sphere of trade in services is to co-operate with the national statistics institute. A further reason for the takeover of these activities by the national statistics institute is the fact that applying the threshold of 12 500 EUR in the Czech Republic after accession to the European Union will further worsen the quality of the data. The national statistics institution has a better ability to maintain the register of economic agents and to introduce a comprehensive system including all major economic agents carrying on business in trade in services. The central bank would play the role of the methodological consultant, at least when the system is introduced and the national statistics institute would incorporate this area into its set of surveys. This idea is currently being discussed with the Czech Statistical Office.

Résumé

Pour dresser la balance des services dans le cadre de la balance des paiements on utilise, en République tchèque, les données sur transactions des banques de même que les informations directes des interrogés. Les informations bancaires sur transactions n'ont pas d'alternative dans beaucoup de domaines et leur avantage principal consiste dans la segmentation territoriale. Le reporting direct est introduit successivement dans quelques domaines et les données en retirées sont assez fiables, du moins quant au volume total des services. Néanmoins, le reporting direct réalisé par la banque centrale a certaines limitations, vu cela, on est en train de négocier son transfert éventuel à l'institut de la statistique.

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Evolution of data collection system on services in Russia: from surveys to international transactions reporting system

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1. The use of an enterprise survey system

The surveying of enterprises has been conducted since 1994.

Practicability and advantages of the adaptation of the survey system in Russia:

At the moment of introduction of trade-in-services reporting system, preference was given to the survey system owing to the fact that national statistics was well tuned in contrast to the banks' weakness and unreadiness to undertake data collection functions. Additional advantages (as counterbalance to a transactions reporting system) that stood up in favour of and contributed to such a choice were the following:

1. general:
 - data themselves, and responsibility for data reporting are direct by nature, rather than indirect.
2. specific:
 - it makes possible to obtain information on types of services in those specific cases when only an immediate counterparty disposes of the information, which can meet the methodological nuances. In the first place, the superiority of this approach is noticeable for such important types of services as freight and construction;
 - it exclusively enables a BoP compiler to obtain data on trade-in-services when settlements via banks don't take place (e.g., barter, trade credit) or in cases of net payments (e.g., communication services);
 - it provides the correct timing of the provision of a service.

Shortcomings upon the use of the survey system in Russia:

- main: incomplete coverage;
- difficulties in identifying respondents not engaging on a regular basis in imports of services – the range of such services being wide and basically presented by other business services;
- for some entities, the value of transactions in services is deemed so negligible that those entities consider it worth ignoring to furnish the data to a BoP compiler;
- consequently, it is necessary to count-up the data to the full range, thus losing the possibility to disaggregate them by service type;
- organizational difficulties for the Central Bank as a BoP compiler, which take place upon the checking-up of the initial database, and on proposing changes into the reporting methodology;
- problems tied with the collection, within a single report form, of data on specific services such as insurance.

2. Introduction of an ITRS-based report form

The new report form (to be compiled by banks) on each transaction in services of the banks' clients and of the banks themselves introduced by the Bank of Russia in 2001 made it possible to overcome the weak points of the survey system, thus retaining the latter as a source of data for specific services (transportation, construction, and partly other services not paid for directly):

- the problem of inadequate coverage of respondents to be included has been settled: the number of counterparties, which emerged in the new report form, vis-à-vis the number of those in the enterprise survey sprang up twelvefold;

- consequently, the statistics on services improved on the whole and separately by service type; comparative analysis of the two reporting systems (excluding count-ups) has demonstrated a double increase in export indicators and fourfold in imports.
- there is qualitative improvement of the presentation of other business services, and personal, cultural and recreational services previously not classified in the BoP separately by type;
- auxiliary data, which came from the new report form, on import transactions in communication services, which are of great importance for Russia, led to the change in the balance; formerly, information on such services had been obtained exceptionally from major enterprises (nearly monopolies) operating as net exporters of those services;
- detailed information on insurance flows made it possible to compile the respective BoP items with required disaggregation;
- the expansion of the number of respondents contributed to the lifting of the confidentiality-related limitations on recording government services as a separate item.

3. Transactions associated with capital outflow

Analyzing payments for the services available through the international transactions reporting system permitted for the first time to identify residents' transactions of fictitious nature. Because the effective controls exist in other areas, in the absence of foreign exchange controls in trade-in-services, sizeable funds are transferred onto nonresidents' accounts under the cover of services imports. In the balance of payments, such phenomenon is classified as a capital outflow and recorded under the financial account.

To associate a transaction with this phenomenon and to estimate the value of the latter the following criteria were adopted:

1. Aggregate value of payments made by an importing enterprise within a reference period exceeds US\$ 10 million.
2. In a transaction worth of over US\$ 1 million, the counterparty is resident in an offshore zone or in a country included by the FATF in the "black" list.
3. Payments made by a number of importing enterprises within a reference period simultaneously via the same bank, which in total give more than US\$ 10 million.
4. Payments made by an importing enterprise, whose transactions were attributed to fictitious in previous reporting periods, regardless of the value of the transaction and country of the counterparty.

Provided one of the above criteria kept, it is assumed that a transaction has a fictitious nature.

The capital outflow value in 2002 is estimated to have been 93 cents per each US dollar spent on imports of services (excluding travel).

4. Conclusion

- The introduction of the ITRS allowed to heighten the quality of services statistics.
- It has now become possible to develop an extended services classification not only for BoP purposes, but also for further negotiations on Russia joining the WTO.
- It helped estimate the value of illegal capital outflow via fictitious contracts for services provision.

Résumé

L'introduction des systèmes des communications des transactions internationales (SCTI) liée aux services fournis ou reçus par les clients des banques également des enquêtes existantes auprès des entreprises (EE) en 2001 a permis d'augmenter la qualité de la statistique de services.

En effet, on a gagné la possibilité d'élaboration de la classification élargie des services pour les négociations d'admission de la Russie à l'OMC ainsi que pour la balance des paiements.

Les sorties illégales de capitaux liées aux contrats fictifs pour l'importation de services ont été estimés dans le cadre de SCTI, aussi que les paiements précisément pour les services.

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Japan's implementation of the recommendation of the MSITS

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1. General Overview

In Chapter 1, the manual recommends five core elements for compilers to tackle first, that is, BPM5, EBOPS, Foreign Direct Investment statistics, FATS, trade and services by partner country.

Viewed broadly in order above, we, Bank of Japan, compile Balance of Payments statistics based on BPM5 and publish preliminary figures every month. Then the classification of services is also based on BPM5. The items we disseminate are as follows: (1) Travel, (2) Maritime transport, (3) Air transport, (4) Communication Services, (5) Construction services, (6) Insurance services, (7) Financial services, (8) Computer and Information services, (9) Royalties and License Fees, (10) Other business services including Merchanting and Operational leasing, (11) Personal, Cultural, and Recreational Services, (12) Government Services. We break down these 12 services data into 32 countries and 8 areas, and publish those data by regions semi-annually. Regarding Foreign Direct Investment, we compile and disseminate flow statistics every month and stock statistics every year.

In a word, so far we have met 3 core elements out of 5. About EBOPS, we breakdown trade in services based on the BPM5 classification. Regarding FATS statistics, however, we must say this is the issue to be discussed in days ahead.

2. Foreign Affiliated Trade in Services Statistics

In Japan, FATS statistics are not compiled as advocated in the manual at the moment.

However, two statistics are compiled by METI (Ministry of Economy, Trade and Industry) through outward and inward surveys that cover FATS variable to some extent.

It is important to understand the difference between FATS and those statistics. It should be a necessary first step when we develop FATS.

3. Description of the surveys

Outward survey, "Survey of Overseas Business Activities", has been annually disseminated since 1970. It is on Japanese companies that have overseas subsidiaries.

Inward survey, "Survey of Trends in Business Activities of Foreign Affiliates", has been annually disseminated since 1967. It is on foreign-owned subsidiaries located in Japan.

Both surveys include major variables of FATS such as sales, value added, employment, R&D expenditure and so forth.

As for time schedule, for the outward survey, they dispatch the questionnaire in July and disseminate only key items on provisional basis in May. For the inward survey, they dispatch the questionnaire in September, and disseminate key items in July. After inquiring about the figures, the final results of both surveys are published in next May.

4. Characteristics of METI's statistics in comparison with FATS

Coverage: Finance, insurance and real estate business are not included. The number of effective responses is 2,039 parent companies in Japan and 14,991 oversea subsidiaries for the most recent outward survey, 1,639 foreign-controlled affiliates in Japan for the inward survey.

Industrial classification: the classification is based on JSIC, which was revised last year to reflect the recent trend toward a service economy.

Variables: intra-firm trade has been inspected every three years at the outward survey.

The country of origin: UHC or UBO is not taken into consideration. The outward survey includes those Japanese affiliates whose 10 to 50% share is controlled by parent companies. Since 1987 not only overseas subsidiaries but also sub-subsidiaries have been included. The inward survey includes foreign affiliates whose 1/3 to 50% share is held by their parent companies.

5. Conclusion

- We have to make progress in order to meet needs for FATS.
- The activities of banking and insurance sector should be figured out.
- METI must have a lot of experiences in data collection.
- From the viewpoint of statistics users, it will be required for the Bank of Japan, the Ministry of Finance and the Ministry of Economy, Trade and Industry (METI) to have a discussion on FATS.

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Résumé

Comme suggéré dans le manuel des statistiques du commerce international des services (MSITS), qui a été publié l'année dernière, les statistiques du commerce des services des filiales étrangères (FATS) complètent les statistiques conventionnelles de la balance des paiements. Les compilateurs de la balance des paiements dans certains pays établissent encore les statistiques FATS, mais la Banque du Japon, responsable de la compilation de la balance des paiements, ne se charge pas des statistiques FATS. D'autre part, le Ministère de l'économie, du commerce et de l'industrie (METI) a fait une enquête annuelle sur des entreprises multinationales pendant des années. Au Japon, des variables des statistiques FATS incluant des éléments tels que les ventes, la valeur ajoutée, l'emploi, la dépense de la recherche et le développement sont, dans une certaine mesure, inspectées dans l'enquête du METI, mais ces statistiques ne couvrent pas les opérations de banque et des assurances, pas plus qu'elles ne satisfont nécessairement en détail aux normes des statistiques FATS. Et, en conséquence, cela vaut la peine de clarifier la différence entre les statistiques FATS et les statistiques du METI et ce qui pourrait être une première priorité pour améliorer à la fois la qualité des données et le système actuel de collecte des données.

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Compiling trade in services statistics in a fully liberalized developing country: the case of Uganda

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Introduction

The Services account forms a significant share of Uganda's international trade. In the fiscal year 2001/02, exports of services amounted to US\$ 223.8 million or 32 percent of total exports of goods and services. Imports of services were worth US\$ 552.7 million or 37 percent of total imports of goods and services. The balance on the services account was a deficit of US\$ 329.0 million, which contributed about 25 percent of the overall deficit on the current account. Compared to the previous fiscal year there was a growth of 3 percent in exports of services and of 16 percent in imports of services. Payments for transportation services rank highest among services outflows contributing about 30 percent of total service payments. This is mainly due to high freight costs on Uganda's imports resulting from the landlocked nature of the country. The leading services earner for Uganda is travel contributing about 76 percent of total service inflows, which consists of almost equal shares for both business and personal travelers.

To meet the needs associated with the increasing growth in the value of trade in services and the reporting requirements of the BPM5 format, Uganda has taken a variety of steps over the past ten years for improving the coverage and international comparability of its statistics in trade services. This has taken place in an environment of liberalization, which started with the lifting of controls on the current account in 1993 followed by the freeing of the capital account in 1997. In this paper we discuss the steps that have been taken to improve the collection of data in the conventional sense of exchanges between residents and nonresidents. Section 1 presents the current data compilation methodology of trade in services in Uganda, while section two, the sources of data and improvements made so far in the sources used for collecting data following the lifting of exchange controls are identified. Section three discusses the remaining challenges and section four concludes.

1. Compilation Methodology

Before describing the data compilation methodology, it should be noted that the Uganda Bureau of Statistics (UBOS) – an autonomous government institution is the Uganda government agency with the primary responsibility of collecting and disseminating data on Uganda's international sales and purchases of services as empowered by the "Statistics Act of 1998". However, the UBOS delegated the role of compilation and dissemination of balance of payments and money and banking statistics to the Bank of Uganda (BOU).

Prior to the liberalization of the economy, there were restrictions on both the capital and current account. The main characteristic of the exchange control era was the control on all flows of foreign exchange denominated financial instruments on both the capital and current account. These called for surrender requirements of all foreign exchange inflows and outflows, including highly bureaucratic procedures of centralized export and import licensing in the line trade ministry. All remittances were effected with prior sanctioning by Bank of Uganda. Data used for balance of payments compilation was therefore obtained as a bi-product of the administrative exchange control procedures at the time and supplemented by other administrative sources such as customs through customs declaration forms. As part of the measures to improve the payment and exchange system in the country, the current and capital accounts were freed in 1993 and 1997 respectively.

However, one weakness identified in the process of liberalizing the external sector was that the emphasis on data collection was underplayed. Consequently, most agents understood the freeing of both the current and capital accounts as freedom to transact with non-residents without any controls including data reporting requirements. The removal of restrictions on both the capital and cur-

rent accounts was interpreted to mean that there was no need to disclose information concerning foreign exchange transactions by the private sector, which completely undermined the importance of the monitoring role by the BOU. As a result most authorized foreign exchange dealers relaxed on the use of the (exchange control) forms, which led to loss of information on imports and other outflows for payments of services. To the extent that it was relatively easier to capture exports, the trade account improved (given the loss of information on imports of goods) together with the services account. The improvement in the services account was largely due to a methodological approach in which the residual was placed in the services account. The lesson learnt here was that the speed of the liberalization process of the payment and exchange system was not adequately matched by the revision of the then current data collection procedures or by the creation of alternative data collection procedures. Flaws in the traditional sources that had been used for statistical purposes apparently became evident. At about the same, the need for comprehensive and timely statistics and conformity to new international standards (BPM5 and IIP) called for different and in most cases more detailed data.

It is within the context of this environment that the BOU found it necessary to develop new data collection procedures among which included conducting of surveys of international services. These have included surveys on both services and foreign direct investment. While BOU surveys provide a large share of the data on trade in services, other sources are used for supplementary/complementary purposes. In some of these cases, one source is used to obtain a unit value or per capita amount, which is then multiplied by a volume measure obtained from another source to derive an estimate of the total dollar transactions. These include estimates of expenditures by travelers derived by multiplying a sample based estimate of expenditures per traveler obtained from surveys by the total number of travelers obtained per given period.

For other types of services, a composite value is obtained from which the individual service items are derived using well established ratios determined from regular studies. These include freight and insurance services which are derived from CIF values of imports. The balance of payments estimate on freight and insurance on goods is identified from imports derived from records provided by Uganda Revenue Authority (URA – customs authority) on a monthly basis. Since customs taxes are levied on the CIF Value of imported goods, URA's main concern is the capturing of the CIF value of imports, with little attention paid to the composition of the value of cost, freight, and insurance. Therefore, to split imports into its cost, freight and insurance components, a study was undertaken based on data on imports provided by Intertek Testing Services (ITS), a pre-shipment inspection company. Results from this study indicated that on average, the overall CIF value of imports was composed of a 15 per cent freight component, a 1.5 per cent insurance component, and a 83.5 per cent cost component. These ratios have been adopted as estimates to present imports on a free on board (FOB) basis until further work allows additional refinement.¹ Based on these, the components for payments of freight and insurance services are estimated and input in the services account.

In addition, imputations are made for various services through the use of returns submitted to the BOU from Commercial Banks and Foreign Exchange Bureaux (see Appendices 1 and 2) on a monthly basis showing the contribution of various items in the different accounts of the BOP to overall payments and receipts of foreign exchange through the financial system.

The level of detail provided in the data compiled follows the BPM5 format and is presented in terms of monthly, quarterly and annual estimates. Data on communications services, government imports of non-factor services and other services recorded through the international transactions reporting system are compiled on a monthly basis while all other data is compiled using monthly estimates derived from quarterly and annual surveys. Table 1, shows the level of detail for which the data on services is presented in the BOP, the frequency of compilation and the US dollar values for 2000/01 and 2001/02.

In terms of international comparability, Uganda uses international guidelines for the compilation of statistics on trade in services between residents and nonresidents provided in the BPM5. While the BPM5 provides sharper distinction between goods, services, income transactions and current transfers compared to the earlier versions and provides a detailed guide for recording trade in services, the Manual on Statistics in Trade in services provides additional detail on challenging issues such as treatment of services delivered using the commercial presence² mode of supply.

Uganda is gradually conforming its reporting to the BPM5 (we are still trying to report trade in services in conformity with the BPM5 – see Table 1). However, there still exist a number of line

1 *Through the International Trade Statistics Committee (a standing committee on trade issues consisting of the main data providers and users), URA has been urged to start collecting information on the precise composition of the CIF value of imports.*

2 *These involve the sale of services abroad through foreign affiliated companies that are considered residents of the economies in which they are located and would thus be omitted by the BPM5 based on the principle of residency.*

items for which data is estimated and therefore require implementation of regular surveys to obtain reliable data. In general, the Research department has taken a number of steps to improve the accuracy, comprehensiveness, and detail of its trade in services. These have not been spurred by only the need to ensure conformity with BPM5 but to improve the general quality of the data and coverage.

Among methodological and presentational changes that have been made to improve the usefulness of the data, a significant change has been the adoption of reporting imports on FOB basis as opposed to reporting on a CIF basis as in the past. This has improved the content of the services account on account of increased accuracy in the data on freight and goods insurance. However, more work needs to be undertaken on freight costs in light of the fact that some of Uganda's imports consisting of mainly non-oil imports originate from neighbours with common borders. According to the BPM5 definition, trade in goods is supposed to be valued at the border, so that for trade between neighbouring countries CIF is equal to FOB. Moreover, if different FOB/CIF ratios were to be applied depending on the region of origin of imports, the direction of trade statistics need to be carefully analysed to avoid possible misclassification.

The other change was to reclassify the amount spent on technical assistance for short-term consultants from the services account to the income account under compensation of employees. The previous practice had been to record all technical assistance to Uganda under the services account.

2. Sources of Data for BPM5 and FDI and Improvements made

2.1. Surveys

Data on expenditures by travellers is obtained through surveys conducted by the Ministry of Trade, Tourism, and Industry (MTTI) on expenditures of tourists. The most recent of such surveys was conducted in the second half of 2001. During this survey, visitors leaving the country through the customs entry points were sampled to fill in questionnaires on their purpose of visit, length of stay, activities undertaken, money spent, etc. The design of the survey was compatible with balance of payments concepts, i.e. a distinction was made between residents and non-residents. From the results of this survey, the average expenditure per traveller was estimated and used to derive travel estimates based on the number of travellers obtained from the immigration department.

A survey of communication services (see Table 3) is carried out every quota (with a lag of two months) to determine communication services transactions. The data collected provides estimates on receipts and payments for communication services as compiled from all communication services providers. In the past we have concentrated more on telephone and postal services provision, however the next survey will include Internet services provision and any other computer mediated networks that meet the reporting criteria.

Data on FDI is compiled using enterprise surveys of Private Capital Flows, the most recent of which was carried out in 2001. This survey covered resident enterprises with foreign assets and liabilities during the years 1999 and 2000. In this survey, data was collected on foreign direct investment, foreign non-equity liabilities and investments in non-resident entities. The concepts and definitions used in the survey were in line with the 5th version of the Balance of Payments manual. A second round of the survey for the year 2002 is underway. A key input of this survey was the reclassification of the components of direct investment in the BOP between equity capital, reinvested earnings and other capital and determination of stocks of assets and liabilities of direct investment for IIP compilation.

Commercial bank assets and liabilities consisting of currency and deposits are captured from the monetary survey, which is carried out on a monthly basis. Assets and liabilities of other sectors (non-bank private sector) are derived from the private sector inflows and outflows of foreign exchange as a residual. This is done through monitoring of private sector foreign exchange transactions conducted through the financial system. All foreign exchange transactions involving the private sector are tracked through the financial system. Any gap created in the private sector on account of private sector transactions is filled up by a combination of:

- (i) The central banks' intervention¹,
- (ii) Sterilisation of government's expenditure of grants and loan disbursements for poverty eradication related expenditures of HIPC savings by the central bank,
- (iii) Changes in commercial bank assets,
- (iv) And changes in non-bank assets.

1 *The central bank intervenes in the foreign exchange market from time to time by either sales of foreign exchange or purchases of foreign exchange in the inter-bank foreign exchange market to curb instability.*

While it is possible to accurately determine the changes in commercial banks' assets and the amount of intervention and sterilisation by the central bank, it has not been possible to track changes in non-bank foreign assets due to lifting of controls on the capital account without strengthening reporting requirements. Therefore these are derived as a residual item after filling the foreign exchange gap created by the private sector transactions with changes in commercial banks assets, intervention and sterilisation.

Indeed this may not be the best way of obtaining non-bank assets, however we have observed over time a consistent movement in these estimated assets with movements in the exchange rate, as depicted by tendencies of these market players (commercial bank and non-bank agents) to hold onto their assets during periods of instability in the foreign exchange market and activity picking in periods of market stability.

2.2 Administrative Reports

The use of administrative records for the compilation of data on trade in services in Uganda is very minimal and is carried out by a few organisations. These include the immigration department, which compiles data on all persons entering or leaving the country and is used as an input in the compilation of travel services. The use of this data is limited to the number of travellers coming to Uganda and the purpose of their visits. This information is used for computing the volume of travellers to Uganda and is a key input in the compilation of travel receipts.

The External Operations Department¹ of Bank of Uganda provides data on government transactions in services. However, this data is usually reported in a lump sum figure without regard to the detailed breakdown as required by the BPM5. For classification purposes, there is need to establish the breakdown of this value into the various service account components of the BOP. Already efforts are underway to obtain part of the data from other sources such as the Ministry of Finance Planning and Economic Development for payments on account of government services (not included elsewhere) so that these can be netted off from the total of government services transactions in a bid to solve the problem of poor classification. For receipts of forex on account of government services not included elsewhere, a survey of foreign missions has been planned for 2003.

Additional information through administrative reports is compiled for FDI on account of divestitures of public enterprises by government from the Privatisation Unit under the Ministry of Finance, Planning and Economic Development.

2.3. Bank and Forex Bureaux Reporting System

Other services are compiled from commercial bank and forex bureaux returns (see source document attached as Appendices 1 and 2) on forex outflows and inflows. These are compiled on a monthly basis and form the basis for estimates of all other services such as financial services, transportation, and personal insurance. They also provide ratios used for estimating imputed trade in services. In deriving imputed trade in services, the total volume of all transactions in the foreign exchange market for every month is computed and all identified BOP transactions netted off. This involves determining total foreign exchange inflows during the month less identified inflows for each BOP account and total foreign exchange outflows through the financial system less identified outflows for the various accounts. The respective residual is then redistributed among the various accounts of the BOP according to the indicative ratios computed from the identified BOP transactions.

In general the public has not warmed up to the new bank reporting requirements instituted to ensure conformity with the BPM5. However, reactions from domestic users such as economists, business and other analysts to the additional data provided have been generally positive. It should be noted that currently only relevant parts of the BPM5 categories and definitions for trade in services have been adopted for Uganda. Where reliable data is not available, the authorities are using some estimates while in the process of designing and testing the new methods and data sources. This is a long process and it is expected that the data will become more reliable over time. From the viewpoint of the data providers, there are sentiments that additional surveys and forms for collection of data are bothersome and overburdening. However, the BOU has continuously sensitised the public on the need for accurate and timely data through the media, workshops and awareness seminars. The move from data collection under controls to collection of statistics under liberalisation has been impromptu and will take time to complete.

¹ *The External Operations Department is responsible for effecting government's transactions with the external sector.*

3. Challenges and Way forward

Some progress has been made in recent years to ensure that the BOU conform the reporting of trade in services statistics with the BPM5 in terms of adopting new data sources and methodologies. Nonetheless, some lessons have been learnt and the following challenges remain:

- *Need to ensure high-quality data* – Because it is not possible to conduct as many surveys as we would have liked, emphasis has been placed on the collection of data through the banking system using ITRS. This has been done through development of new forms consistent with the BPM5, but the data need to be analysed and crosschecked against other sources frequently to ensure their quality. In addition, there remains the challenge of capturing data on transactions of trade in services that do not necessarily go through the banking system or obtaining reliable estimates for such transactions. Other issues that still need to be resolved are those on the time of recording since in most cases payments for services are made either upfront or on completion of service provision.
- *Importance of good coverage* – Improving the rate of response mainly by means of persuasion is necessary, especially in surveys, which are conducted on a voluntary basis. Effecting penalties is an option, which can be invoked through the statistics act although this has not yet been exercised in preference to the use of moral suasion to obtain the data. This is a slow process and poses a big challenge in ensuring the timeliness of data.
- *Training of the human resource* – This is necessary to improve efficiency and the quality of data. This is reinforced further by the fact that collection of statistics under liberalisation requires a matching change in the skills of the staff receiving the data to carry out consistency checks, provide answers to queries raised by the respondents on concepts used and any other matters.
- *Improving communication* – This is important to ensure that respondents are provided with explanations on the purposes and details of data requirements. For this meetings and workshops have been held with respondents and business associations during the development of new forms through which dialogue has been established. Detailed manuals for filling in the forms have been prepared but these require continuous upgrading as new products come onto the market. These activities are time consuming but necessary.

Finding an adequate balance between data requirements and reasonable respondent burden, avoiding duplication and making use of information provided by other sources outside the BOU. For this agreements with other institutions for data sharing have been used and may need to be improved and broadened. Examples of these include the MOU between Uganda Investment Authority, Uganda Bureau of Statistics and the BOU on collection of data on private sector investment. An additional challenge that arises is that of adopting uniform concepts and definitions for the data collected under such arrangements, which meet the different data users needs.

Improving surveys - For this, it is important to develop and use adequate sampling frames. It is also important in the application of these surveys, to use adequate forms while keeping them as simple as possible, developing follow-up processes, improving response rates, treating non-responses appropriately and up rating the data from samples. This is a relatively new activity and requires considerable expertise, coordination and resources.

Experience from past surveys shows that obtaining data from resident companies with parent companies located outside Uganda has been very difficult. This is because in most cases, the resident entities have to send copies of the forms to their parent companies for express permission to release the information sought and in some cases the forms are filled in abroad. This has led to delays in obtaining data and contributes a significant portion to non-response and remains a big challenge.

Need for ongoing assessment of statistical practices and procedures, comparison with other country's experiences. There is need for continuous assessment of response rates, quality of data, respondent burden, use of data, possible duplication and others. Another aspect is that of examining other country's systems of data collection.

The compilation of accurate information on short-term borrowings and compilation of non-bank assets remains a big challenge in the case of Uganda. The previous private capital flows survey did not adequately capture data on these two items and as a result these are derived using crude estimates.

The use of commercial banks and forex bureaux forms for recording of transactions by source for inflows and purpose for outflows in the case of commercial banks is hampered by the inability to accurately determine in some instances the source of inflows, especially when funds are inwardly remitted for credit to client's forex accounts. This affects the credit side of our services account as holders of these accounts may at times disclose the source only when they are converting these proceeds to Uganda shillings after withdrawing them from the accounts.

4. Conclusions

Currently a lot of emphasis has been placed on deriving estimates for trade in services through bank and bureaux reporting as a starting point due to staff limitations and the urgent need to revise the forms used during the exchange control regime to coincide with the exchange rate regime under liberalisation. However, these forms can only provide working estimates and it will take time for the public to get accustomed to filling them accurately. In the mean time, the use of regular enterprise surveys through private sector governing organisations is being explored as a substitute for some of the data compiled through the bank and bureaux reporting system. This is expected to improve the data compilation of trade in services statistics considerably and to solve some of the problems associated with data collection of statistics in a liberalised environment. However, as surveys become a prominent tool for the compilation of data for BOP purposes in general and trade in services statistics specifically, there will be need for adequate and relevant legislation giving the BOU authority to collect data from the public while at the same time reassuring the public about the confidential treatment of the data collected.

Table 1 – Uganda Trade in Services during FY 2000/01 and FY 2001/02
(figures in US\$ millions)

	Frequency of Collection	FY 2000/1	FY 2001/2
Services		-262.6	-329.0
Transportation	Monthly	-120.7	-130.8
Air transport	Monthly	20.6	21.7
Other transport	Annual	-154.4	-166.9
Passenger	-	0.0	0.0
Freight	Monthly	-154.4	-166.9
Extended classification of Other transport	Annual		
Rail transport	Annual	-70.2	-76.0
Freight	Annual	-77.2	-83.4
Road transport	Annual	-71.1	-76.4
Passengers	-	0.0	0.0
Freight	Annual	-77.2	-83.4
Travel	Annual	165.8	169.0
Business	Annual	68.0	69.3
Personal	Annual	97.8	99.7
Communication services	Quarterly	5.1	3.8
Postal and courier services	Quarterly	0.0	-0.5
Telecommunication services	Quarterly	5.1	4.4
Insurance services	Monthly	-15.4	-16.7
Freight insurance	Monthly	-15.4	-16.7
Other business services	Monthly	-305.8	-362.8
Misc. business, professional, and technical services	Monthly	-305.8	-362.8
Legal, accounting, management consult. and public relations	Monthly	-9.3	-14.9
Business and management consultancy, public relations	Monthly	-9.3	-14.9
Other	Monthly	-296.5	-347.8
Government services, n.i.e.	Monthly	8.4	8.4

Source: Bank of Uganda

Table 2 – Sources of Data for BPM5 and FDI

Item	Source of Data
1. Transportation	Customs Declaration forms Commercial Bank and Forex Bureaux Returns
2. Travel	Survey of Foreign Visitors Immigration Department Commercial Bank and Forex Bureaux Returns
3. Communication	Survey of Communication Service Providers Commercial Bank and Forex Bureaux Returns
4. Insurance	Customs Declaration forms Commercial Bank and Forex Bureaux Returns
5. Government Services n.i.e.	Ministry of Finance Bank of Uganda
6. Other Services	Commercial Bank and Forex Bureaux Returns
7. FDI	Privatization Unit Private Capital Flows Survey*

* The private capital flows survey report for 2001 can be obtained from <http://www.bou.or.ug/indexTEDD.htm>

Source: Bank of Uganda

Table 3 – Communication Services, 2000/01 – 2001/02 (US\$ millions)

	2000	2000	2001	2001	2001	2001	2002	2002
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Communication services	0.64	0.70	1.81	1.95	1.19	1.09	0.27	1.29
Credit	1.85	2.10	3.34	2.86	3.54	2.39	1.35	2.94
Debit	-1.21	-1.40	-1.53	-0.91	-2.35	-1.30	-1.08	-1.65
Postal and courier services	-0.04	-0.06	0.07	0.00	-0.49	-0.04	0.03	-0.02
Credit	0.26	0.30	0.30	0.26	0.22	0.19	0.26	0.27
Debit	-0.30	-0.35	-0.23	-0.25	-0.71	-0.23	-0.23	-0.28
Telecommunication services	0.68	0.76	1.74	1.95	1.68	1.13	0.24	1.30
Credit	1.59	1.80	3.04	2.61	3.32	2.20	1.09	2.67
Debit	-0.91	-1.05	-1.30	-0.65	-1.63	-1.07	-0.85	-1.37

Source: Bank of Uganda

Annex 1 – Commercial Bank/Forex Bureaux Return for Forex Inflows

Form R

Source of Funds

Transaction between Ugandan Residents	<input type="checkbox"/>	(d) Insurance & Re-insurance	<input type="checkbox"/>	Foreign Direct Equity Investment	<input type="checkbox"/>
Currency Holdings/Deposits e.g. savings	<input type="checkbox"/>	(e) Financial services	<input type="checkbox"/>		
Exports of Goods		(f) Travel		Portfolio Investment	
(a) Gold Exports (non-monetary gold)	<input type="checkbox"/>	(f1) Business/Official	<input type="checkbox"/>	(a) Government	<input type="checkbox"/>
(b) Repairs on goods	<input type="checkbox"/>	(f2) Education	<input type="checkbox"/>	(b) Bank	<input type="checkbox"/>
(c) Goods procured in ports by carriers	<input type="checkbox"/>	(f3) Medical	<input type="checkbox"/>	(c) Other	<input type="checkbox"/>
(d) Goods for processing	<input type="checkbox"/>	(f4) Other Personal	<input type="checkbox"/>		
(e) Coffee and other Exports	<input type="checkbox"/>	(g) Computer and information services	<input type="checkbox"/>	Loans	
		(h) Royalties and license fees	<input type="checkbox"/>	(a) Loan Received	
Income Receipts		(i) Other business services	<input type="checkbox"/>	(a1) By commercial Banks	
(a) Interest received on External assets	<input type="checkbox"/>	(j) Personal, cultural, and recreational services	<input type="checkbox"/>	Short term (< 1 year)	<input type="checkbox"/>
(b) Dividends/ profits received	<input type="checkbox"/>	(k) Government services, n.i.e.	<input type="checkbox"/>	Long term (> 1 year)	<input type="checkbox"/>
(c) Wages/Salaries	<input type="checkbox"/>			(a2) Others	
Service Receipts		Transfers		(i) Private	
(a) Transportation		(a) NGO Inflows	<input type="checkbox"/>	Short term (< 1 year)	<input type="checkbox"/>
(a1) Freight	<input type="checkbox"/>	(b) Government Grants	<input type="checkbox"/>	Long term (> 1 year)	<input type="checkbox"/>
(a2) Passenger	<input type="checkbox"/>	(c) Worker's remittances	<input type="checkbox"/>	(ii) Government	<input type="checkbox"/>
(a3) Other	<input type="checkbox"/>	(d) Other transfers	<input type="checkbox"/>	(b) Loan Repayment (Principal)	<input type="checkbox"/>
(b) Communication services	<input type="checkbox"/>	Interbureaux	<input type="checkbox"/>	Interbank	<input type="checkbox"/>
(c) Construction services	<input type="checkbox"/>			Bank/bureaux	<input type="checkbox"/>
		Other (Please speCIFy)			

1. Please consult the dealer for guidance if you are not sure of the box to tick

Source: Bank of Uganda

Annex 2 – Commercial Bank/Forex Bureaux Return for Forex Outflows

Form P

Purpose of Transaction

Transaction between Ugandan Residents	<input type="checkbox"/>	(b) Communication services	<input type="checkbox"/>	Foreign Direct Equity Investment	<input type="checkbox"/>
Currency Holdings/Withdrawals e.g. savings	<input type="checkbox"/>	(c) Construction services	<input type="checkbox"/>		
Imports of Goods		(d) Insurance & Re-insurance	<input type="checkbox"/>	Portfolio Investment	
(a) Govt. Imports (Incl. Govt. Projects)	<input type="checkbox"/>	(e) Financial services	<input type="checkbox"/>	(a) By Government	<input type="checkbox"/>
(b) Private Imports (Incl. Parastatal & NGOs)	<input type="checkbox"/>	(f) Travel	<input type="checkbox"/>	(b) By Banks	<input type="checkbox"/>
(i) Oil Imports	<input type="checkbox"/>	(f1) Business/Official	<input type="checkbox"/>	(c) By Other	<input type="checkbox"/>
(ii) Gold Imports	<input type="checkbox"/>	(f2) Education	<input type="checkbox"/>		
(iii) Repairs	<input type="checkbox"/>	(f3) Medical	<input type="checkbox"/>	Loans	
(iv) Goods procured in ports by carriers	<input type="checkbox"/>	(f4) Other Personal	<input type="checkbox"/>	(a) Loans Extended abroad	
(v) Goods for processing	<input type="checkbox"/>	(g) Computer and information services	<input type="checkbox"/>	(a1) By commercial Banks	
(vi) Other Imports	<input type="checkbox"/>	(h) Royalties and license fees	<input type="checkbox"/>	Short term (< 1 year)	<input type="checkbox"/>
Income Payments		(i) Other business services	<input type="checkbox"/>	Long term (> 1 year)	<input type="checkbox"/>
(a) Interest paid on external Liabilities	<input type="checkbox"/>	(j) Personal, cultural, and Recreational services	<input type="checkbox"/>	(a2) Others	
(b) Dividends/ profits paid	<input type="checkbox"/>	(k) Government services, n.i.e.	<input type="checkbox"/>	(i) Private	
(c) Wages/Salaries	<input type="checkbox"/>	Transfers		Short term (< 1 year)	<input type="checkbox"/>
Service Payments		(a) NGO Outflows	<input type="checkbox"/>	Long term (> 1 year)	<input type="checkbox"/>
(a) Transportation		(b) Government Grants	<input type="checkbox"/>	(ii) Government	
(a1) Freight	<input type="checkbox"/>	(c) Worker's remittances	<input type="checkbox"/>	(b) Loan Repayment (Principal)	<input type="checkbox"/>
(a2) Passenger	<input type="checkbox"/>	(d) Other transfers	<input type="checkbox"/>	Bank/bureaux	<input type="checkbox"/>
(a3) Other	<input type="checkbox"/>			Interbank	<input type="checkbox"/>
		Other (Please speCIFy)		Interbureaux	<input type="checkbox"/>

1. Please consult the dealer for guidance if you are not sure of the box to tick

Source: Bank of Uganda

Abstract

Following the freeing of both the current and capital accounts in 1993 and 1997 respectively, Uganda like most developing countries lost readily accessible data sources on foreign exchange transactions involving the private sector with non-residents. The loss of these data sources together with the need to conform to new international standards (BPM5 and IIP), which called for different, and in most cases detailed data posed a challenge for Balance of Payments Statisticians. The response to some of these problems has been to develop new data compilation methodologies and to opt for alternative sources of data. While this response has been slow a number of challenges have been dealt with and new lessons have been learnt. This paper identifies some of these challenges, steps taken and lessons learnt with specific reference to compilation of trade in services statistics.

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Part III: Methodological and analytical aspects of trade in services

Costa Rica: Enhancements on the services and the current transfers' data for the balance of payments

William Calvo (Central Bank of Costa Rica)

The global approach for the real and financial transactions has made, among others, an ever increasing participation of the tradable services in the economic activity and in the country's total exports. This growing interdependence of the worldwide economy has made more evident the necessity of relying on statistics that reflect the new tendencies toward the trends on liberalization and integration of the markets in order to generate recommendations of economic policies much more in concordance with the reality of the country.

In the last five years, Costa Rica has increased the exports of services to the rest of the world. While in 1992 Costa Rica exported \$186 millions in services, ten years later the amount reaches \$1.950 millions. In 1991 the percentage of the services into the total of exports was 22%, in 2002 that percentage increases to 27%. In terms of the Gross Domestic Product, in 1992 those exports represented 7.5% and ten years after this percentage is 11.5%.

It is very important to indicate that those percentages are influenced by tourism, of which the foreign exchange earns to the country has grown 3.5 times in the last ten years. However, the other Services of the balance of payments also have increased four times on that period.

Especially in the last five years, some activities in the sector of services have developed in the country, close tie to the industries of computing, call centers, business centers and sport books.

But the major development in services has been in foreign direct investment, such as distribution, financial and business services and telecommunications.

The efficient compilation of the services statistics is very important for countries like Costa Rica, which generally have current account deficits of balance of payments. A properly compilation of the values of services exports facilitate present to the international financial community and ratings agencies figures very realistic about the external position of the country. Also, the best compilation of those statistics facilitates the economic authorities to adopt some economic policies to reduce the external disequilibrium with high precision.

It is believed that about 1% of the services exports has not been included in the balance of payment compilation. That percentage is very important because in the last few years the current account deficit of the balance of payments has been over 5%. Then if we deduct that 1%, this deficit will be handling.

The method of the Central Bank of Costa Rica to compile the services exports statistics is through direct surveys to some enterprises of which we know their activities must be include in the balance of payments statistics. However, the task to obtain the information from the enterprises has been negative. The main reason for that is fiscal. They don't want to give information to the Central Bank because they think the Ministry of Finance can obtain the information and compel them to pay taxes.

Costa Rica has not any law to compel the private and the public sector to give information to the National Institute of Statistics or to the Central Bank. In front of these difficulties, the Central Bank of Costa Rica made a Law at the beginning of the year to compel the people to provide it with the

data or to pay a fine. At the time I wrote this paper, the Law was at the National Assembly for approval.

Furthermore, the Balance of Payments Section has made some important efforts to compile and to enlarge the services statistics. On the tourism area, the Central Bank and the National Institute of Tourism started a survey between all enterprises which have some link with the tourism activity, like hotels, car rentals, restaurants, tourism agencies, etc, to create a Satellite Account of Tourism.

With respect to information from Business Centers, we can obtain it through a survey among 13 firms, which give annual and quarterly data.

As regards the data from the computing exports firms, the Central Bank could obtain the information from the four main firms on a quarterly basis. Also the Computing Chamber gives data about all the sector every six months.

Another item on which we have got best and more information is the worker's remittances from and to outside the country through twelve firms who are in the business of sending and receiving workers' remittances.

An item of the balance of services on which it has been impossible to obtain good data concerns sport books. This sector does not collaborate with the Central Bank, so we had to estimate this item through indirect ways of information.

The difference between the trade of goods and the trade of services is that the former has an official registry at the customs of the countries. Meanwhile there is no way to measure exactly the trade of services because the only way to get the information is through surveys into the firms, if they want to give it to the compiler.

Two difficulties for the statistician arise when there is no quality data about services trade: first, the current account of the balance of payments may be undervalued or overvalued, and second, the capital and errors or omissions may be in the same situation. Both situations can induce the economic authorities to adopt policies in the wrong direction, because there is no good compilation of the balance of payments.

Also for the calculation of the Gross Domestic Product, Costa Rica has a data deficit on services. The problem arising in this point is that the GDP in our country is undervalued and in some times the growth of that indicator has been more substantial than the figures show.

In this situation, the Central Bank of Costa Rica and the National Statistical Institute must make efforts to look for better statistical tools for economic analysis and policy making to match their needs.

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Italian business travellers abroad: a multidimensional perspective

Giovanni Giuseppe Ortolani and Andrea Alivernini (Ufficio Italiano dei Cambi),

Business tourism is a relevant segment of Italy's - as well as of many developed countries' - outbound tourism. In 2001 the expenditures carried out by residents travelling for professional reasons accounted for 41% of the total outbound travel expenditure.

The numerous studies on the characteristics and behaviour of international leisure travellers led to the development of some generally shared findings. On the contrary, the segment of international business travellers, despite its importance, has not yet received analogous consideration in the scientific community.

This paper attempts to outline the fundamental features of Italy's outbound business travel by exploiting the potentialities of statistical tools for multidimensional analysis. The lack of a theoretical framework suggested the adoption of exploratory - rather than explanatory - statistical tools. The source of data is constituted by the results of the extensive inbound-outbound border survey on international tourism, carried out by the Ufficio Italiano dei Cambi (UIC) on a continuous basis through around 150,000 annual face-to-face interviews of a representative sample of both residents travelling abroad and non-residents travelling in Italy.

In the first part of the paper, data are submitted to a multiple correspondence analysis (MCA), whose most typical feature is the production of a low-dimensional graphical representation of the large number of available qualitative and quantitative attributes. The input data set contains analytical data from the UIC sample survey at borders. It consists of 114,049 observations (interviews) with 15 attributes retained on resident outbound business travellers, carried out during the five-year period 1997-2001. After grossing-up, the observations refer to a population of 70,261,000 travellers. By reducing input dimensions to the ones that most explain the variability (inertia) of the phenomenon, MCA allows the identification of its essential features, highlighting most relevant relationships between the attributes describing travellers' characteristics (e.g. sex, age, profession) and behaviour (e.g. length of stay, accommodation used, countries visited, Italian area of origin, level of expenditure). The first two factors explain together 93.9% of the variability of the phenomenon. This suggests to limit the analysis to these two dimensions, as the first factor plane will represent most of the variability and, consequently, will allow a good approximation of the real spatial relationships between points.

Dimension 1 essentially opposes excursionists to high-spenders / overnight visitors; factor 2 is mainly created by the opposition of the following two other groups of travellers:

- on the negative side of the axis, people who stay abroad for a relatively short period (1-3 nights), coming from the North-East of Italy, using 'Other accommodation' (in many cases a dwelling offered for free by a firm abroad) and visiting above all Germany and Austria.
- on the positive side of the axis, people with a high expenditure per person, travelling by air, visiting the United States, staying abroad for a relatively long period (29-91 nights), of female sex.

Therefore, it may be concluded that the multidimensional structure of the Italian outbound business travel market can be efficiently summarised in its fundamental features by a single variable: the length of stay.

This finding seems to be specific for business travellers, since the same analysis on Italian outbound leisure travellers does not show a similar pattern.

The second part aims at identifying homogeneous groups of travellers according to the countries of destination. To this end, the Ward's hierarchical clustering technique is used (the application of other clustering methods verifies the robustness of the results). In Ward's method, the distance between two clusters is the ANOVA sum of squares between the two clusters added up over all the variables. Four clusters have been retained, whose choice was made basically upon heuristic considerations (reading of the dendrogram) and statistical-probabilistic considerations (tests on the increase in non-explained deviance when reducing the number of clusters retained). The analy-

sis confirms that the duration of the stay is the key variable of the phenomenon, as Table 1 shows: countries involving similar length of stay tend to be grouped in the same cluster.

Table 1 – Composition of clusters.

Clusters	Countries	Average length of stay (nights)*
Cluster 1	Africa-other, Russia, Europe-EU-other, UK, Belgium, Netherlands, Poland, Denmark, Portugal, Spain, Sweden, Turkey	12.2
Cluster 2	America-other, Oceania-total, Canada, USA, Asia-other, China, Brazil, India, Japan	16.9
Cluster 3	Austria, Hungary, Croatia, Switzerland	1.3
Cluster 4	Europe-ExtraEU-other, Romania, France, Germany, Greece, Tunisia	4.8

* The overall average is 5.2 nights.

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Résumé

Comme dans beaucoup de pays développés, les voyages d'affaires en Italie représentent un important mouvement touristique (en 2001, le 41% des dépenses totales). Le manque de schémas théoriques pour l'étude du tourisme d'affaires nous a suggéré l'application d'instruments statistiques exploratifs, fondée sur l'enquête sur le tourisme international du U.I.C. réalisée aux frontières.

Dans la première partie de l'étude on a appliqué un Analyse des Correspondances multiples, qui a produit une représentation graphique bidimensionnelle des nombreux attributs qualitatifs et quantitatifs des données de base. L'analyse montre comme la structure multidimensionnelle du tourisme d'affaires des voyageurs italiens puisse être efficacement résumée par une seule variable: la durée du voyage.

La deuxième partie du travail consiste à l'identification de groupes homogènes de voyageurs selon le pays visité, à travers l'application de la technique de Ward pour l'analyse hiérarchique des groupes (l'application d'autres méthodes de cluster analysis assure la solidité des résultats). La durée du voyage se confirme, encore une fois, comme variable-clé du phénomène

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Travel in balance of payments statistics

Branimir Gruić and Igor Jemrić (Croatian National Bank)

1. Introduction

As part of international economic relations statistics, the Croatian National Bank (CNB) is responsible for Balance of Payments Statistics (BoP).

BoP statistics are based on official data sources (like Croatian Bureau of Statistics (CBS)) and data compiled inside CNB (from the International Transactions Reporting System, specialised statistical surveys, data on reserves assets etc.). Having in mind the importance of tourism revenues for Croatia, CNB in co-operation with research agencies conducts a Survey on expenditures of foreign travellers in Croatia and Croatian travellers abroad. This text concentrates on BoP revenues (credits) from travel.

2. The Survey

The Croatian Institute for Tourism (CIT) developed the original methodology (met1) for the Survey. All border crossings (road, sea, air) are grouped according to type and geographical criteria. Each group is represented by one border crossing on which foreign travellers are surveyed when leaving Croatia, in accordance with a previously defined plan. The Survey's questions are related to total expenses in Croatia, country of residence, way of travel (aeroplane, car, bus, truck), motive, length of stay and accommodation (paid or unpaid).

A stratified sample is used. Each stratum is based on a type of border crossing and a type of day (working or weekend). For each month (m), each answer j about total expenses ($c_{m,i,j}$) is classified in a stratum (there are L_m stratum) and weighted by the ratio of the total ($N_{m,i}$) and surveyed ($n_{m,i}$) number of visitors in the stratum i . Aggregate monthly expenditure equals the sum of the stratum's expenditure, while average monthly expenditure (\bar{C}_m) is a fraction of total expenditures and the number of foreign visitors in the month:

$$(1) \quad \bar{C}_m = \frac{\sum_{i=1}^{L_m} \sum_{j=1}^{n_i} \frac{N_{m,i}}{n_{m,i}} \cdot c_{m,i,j}}{\sum_{i=1}^{L_m} N_{m,i}}$$

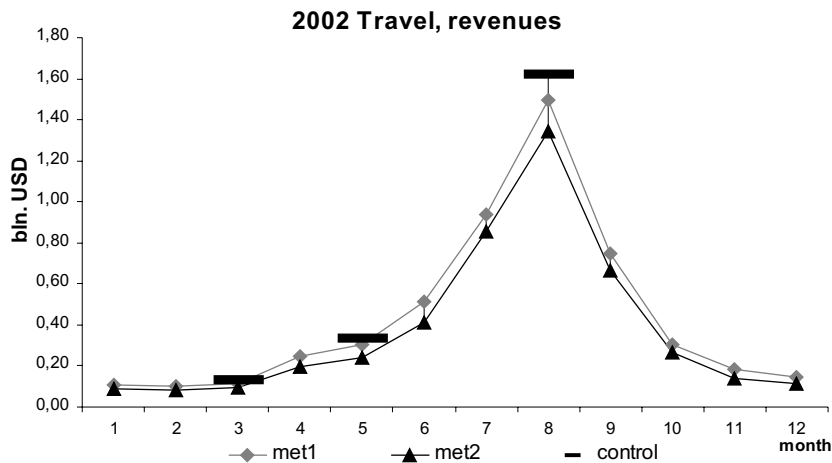
3. Problems of the methodology and possible solutions

Three times a year estimated revenues for each group's road representative are checked with the second largest road border crossing. As a result, we were faced with different estimates of expenditures and different structures (country, motive, accommodation etc.), so we have concluded that groups have not been as homogenous as we wanted them to be.

Beside that, the number of nights in commercial accommodations (hotels, motels, camps etc.) according to the official CBS data and the number of nights in the same accommodations from the Survey are different (the CBS's number is few times lower). Fortunately, it is possible to identify the distribution by countries and type of accommodation in official data, so by combining a selection of questionnaires with (1) the official data of overnights by countries and (2) the same number derived from the Survey, we were able to compare estimated average expenditure and variances. Large differences between them, together with a changing maximum variance proved that the choice of weights had a large effect on our estimates.

During 2002 the total number of foreign travellers was alternatively calculated. For each type of road vehicle (car, bus or truck), it was a product of the number of foreign-plated vehicles and the average number of passengers in the vehicle. These estimates (met2) are a bit lower than those of met1.

Figure 1 – Revenues from foreign travellers in 2002



The unknown structure of foreign travellers was estimated from the Survey results. This approximation lowers the quality of our estimates because it depends on a segment of surveyed travellers. In order to improve the quality of output data, partial counting of foreign-plated vehicles will be introduced during 2003 in order to gather more data on the structure of foreign travellers. As a result, for 2004 there will be more stratum (each of the present stratum will be subdivided according to a breakdown by countries). Also, there will be a new classification of border crossings into more homogenous groups (during 2003 each group will be surveyed on 2 or 3 border crossings).

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Résumé

Dans cet article on présente la méthodologie et des problèmes d'estimation des revenus enregistrés dans le bilan des payement sous "voyages". On identifie des problèmes de groupement des passages routières de la frontière, du choix des présentateurs des groupes, les différences entre les données sur le nombre officiel des touristes et les résultats de l'enquête. On a introduit une nouvelle méthode selon laquelle on a augmenté le numéro des présentateurs de chaque groupe pour contrôler les groupes qu'elles déjà existent et pour créer des nouvelles groupes. Le numération de contrôle du trafic rendra possible meilleure estimation de la structure des touristes selon les pays de leurs origines.

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The use of surveys in financial statistics

Redesign of the statistics on insurance corporations and pension funds.

Abraham J. de Boo (Statistics Netherlands)

1. Current situation

Statistics Netherlands compiles quarterly and annual statistics on insurance corporations and pension funds. The quarterly figures are based on a sample survey among the 1350 Dutch insurance corporations and pension funds. The much more detailed annual figures are based on data from the register that is maintained by the Dutch Supervisory Authority of Pensions and Insurance (PVK), augmented by supplementary sample data gathered by Statistics Netherlands. The results are mainly used for the National Accounts, the Structural Business Survey of Eurostat and some thematic publications. The Dutch central bank, who is the partner in the quarterly survey, also uses the data.

The production process for insurance corporations and pension funds used to take place in three different systems: one highly automated system for the quarterly figures, and two systems for the annual figures. The systems for the annual figures have a limited functionality. Hence, the main activities of the production process, i.e. the translation of corporate data into macro-economic formats (ESA95), and the sector classification of investments and transactions, have to be done by hand outside the system. Also the production of the output tables was mainly done by hand. All this is very time consuming. The fact that the quarterly and the annual figures are compiled in separate systems sometimes yields different results.

2. Need to redesign

The need to redesign the production process of the statistics on insurance corporations and pension funds had been felt for some time. It became urgent by the need to switch to a Windows 2000 environment before June 2003. We concluded that the straightforward conversion of the three old systems into the new environment was too costly. Therefore, we decided to build one new, integrated system for the quarterly and annual statistics. We implemented four major innovations. First, we extended the quarterly survey in such a way that we can fulfil our obligation to the European Commission to produce complete quarterly sector accounts. Second, we implemented an algorithm for automatic sector classification of investments into the production software. Third, we computerised several standardised production routines that were so far done manually by the analysts. Fourth, the production process was transformed into a process with clearly defined input, throughput and output phases. This is in line with Statistics Netherlands' objective to become a process-orientated organisation instead of the former subject-orientated organisation.

3. Logistic part of the redesign

We linked the logistic part (the input phase) of the new system to a generic system for population registration, surveys and data entry. For the quarterly survey, this means that another department of

Statistics Netherlands now takes care of the mailing of the questionnaires and monitors the response. Now the new system is introduced, the insurance corporations and pension funds will be asked to fill in electronic questionnaires instead of paper, and return them by e-mail. A centralised service of Statistics Netherlands can then take care of the input of the data.

For the annual survey, the link with the generic logistic system means that the content of the data deliveries by the PVK can be monitored accurately. Therefore, the analysts always have an up-to-date overview of the available parts of the required data, per entity in the population. The supplementary data is gathered in electronic format. It mainly consists of investment details, and will be inputted centrally.

The new system uses one database for both the quarterly and the annual surveys. The data of several years are stored in this database to simplify the confrontation of quarterly and annual data and time-series analyses.

4. Redesign of the quarterly survey

Redesigning the quarterly survey resulted in a new questionnaire for the quarterly survey in order to gather the necessary information for the new European quarterly sector accounts. The old questionnaire was adapted and extended to include all balance sheet items according to the ESA95 definitions. The sector breakdown of the balance sheet items was likewise made compatible with the ESA95 institutional sectors. Furthermore, some questions were introduced about the current account items. This is restricted to main items such as premiums received, damages paid and labour costs. It did not seem possible to include a more comprehensive quarterly questionnaire for the current account.

To improve the quality of the quarterly figures, the sample was enlarged by nearly 50% to 225 entities. In the throughput phase, the information received is checked and, when necessary, edited by the analysts. Next an output database is generated with a complete and consistent data set for all units in the population. For units not in the sample this data set is imputed automatically, using a combination of annual key data and the quarterly sample data from their peer group. The output tables are produced automatically from this database. These tables are checked again to see if figures for insurance corporations and pension funds fit in with the overall macro-economic developments. If necessary the analysts return to the individual data and repeat the imputation until the results are considered reliable.

4. Redesign of the annual survey

The redesigned process for the annual survey is based on an imputation strategy resulting in a database containing complete and consistent figures for all individual insurance corporations and pension funds. The advantage of such a database is that any desired aggregation will be consistent.

The main data source for the annual figures is the PVK register. Unfortunately, these data only become available during the course of the year and are sometimes incomplete. In order to deal with these difficulties the imputation strategy was designed. For each output variable, a decision tree is defined based on a best available data hierarchy. Data used in this hierarchy include PVK register data (which, when available, are always given highest priority), quarterly figures, last-year's data, stratum averages and population averages. As a last resort, stratum averages of last year may be used. This imputation is done stepwise and top-down, i.e. first the main variables are imputed and gradually more details are added, while keeping track of consistency requirements.

The imputation for missing units in the population follows the same strategy as the imputation of the missing variables.

After the fully automated imputation phase, the analysts get the figures and a number of indicators about the quality of the output. They have to decide what to check or change by hand. After editing, the imputation and analysis process can be repeated until the analyst decides that the quality of the data is sufficient. The system allows for the automatic generation of output tables at any time. Of course, the quality will be poor in the beginning, when essentially only quarterly data (with less detail) and last-year's data are available.

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Surveying Issuing and Paying Agents (IPAs) of securities in the United Kingdom

Bruce Devile (Bank of England)

1. Background

IPAs are agents that act on behalf of the issuers of securities. They are normally banks that issue securities on behalf of the issuing body; pay any interest or coupons due on the security; and pay the capital back to the investor at maturity. In summary the IPA acts as intermediary between the investor and the issuing body for the “money transmission” part of the transaction.

Before the introduction of the IPA return, the Bank of England did not have a single comprehensive source for monitoring issues of securities. Instead it used a variety of sources, such as newspapers, other forms of media, commercial data providers and securities issuers. The data collected from these sources were not comprehensive and were therefore potentially misleading, so the Bank sought to improve the standard of its data. The Bank introduced the IPA return in July 2000. This is a monthly return sent to six UK IPAs, who we estimate account for over 90% of issues in the London market. Initially this was a voluntary return, but became statutory in November 2000 under the Bank of England Act 1998. The aim of the IPA return was to verify and improve on existing data sources. Over time it has been developed and the return is now the Bank’s primary source for debt security issuance data.

2. Positive experiences

The survey stipulates that IPAs report all new issues and all issues redeemed. We found that the aggregate figure provided more comprehensive data on a security-by-security basis than we had previously achieved, even by using a range of commercial data providers and the other sources detailed above.

As well as providing better coverage, we believe the quality of the data obtained from the survey is higher, as an IPA needs to maintain accurate details on its internal computer systems in order to deal with various aspects of the issue on behalf of their client. For example, the IPA provides timely and accurate data on early repayments of securities by issuers. Previously we had been unable to identify when issues were repaid early, and thus missed identifying money returning to investors by this route.

Collecting from the one source (IPAs) is more efficient for the Bank of England and reduces our cost of collection, in that we do not have to pay for several commercial data suppliers. There are however additional cost implications for the IPAs involved, though as part of our initial consultation we established that for most meeting our reporting needs only required a straightforward download from their computer systems.

3. Limitations

Although the introduction of the IPA return has improved both the coverage and quality of debt security issuance statistics in the UK, there are still certain limitations.

IPAs do not have a culture of completing statutory returns in the same way as the banks do, so some teething troubles were to be expected. The quality of reporting was uneven: and some returns required disproportionately more resources from the Bank to process. But, we are making efforts to ensure that the quality improves over time.

The number of attributes per security that we asked to be reported by IPAs is limited, but sufficient for our current purposes to monitor issues and redemptions, and commensurate with our obligations to be alert to the reporting burden. However if more in depth, or a greater breadth of, information about each security were to be required at some future date, then a commercial data supplier may again become the preferred or supplementary source.

Equally, if we wish to make changes to the form, either to increase coverage or if there is a structural change in the market we will need to consult and agree with the IPAs trade association before implementing any changes. This can be a prolonged process and means the dataset cannot be quickly expanded. If markets were to change we might need to supplement the IPA data with data from other sources.

4. Next steps

We have been collecting data from IPAs for two and a half years and have been using the data as our prime source for just over a year. Our next step is to continue to work in conjunction with the IPAs to improve their reporting to us. This includes the format in which they report and the data quality on various attributes of securities for certain IPAs. Our aim is to have the data of a high enough quality to automatically upload the data from the IPAs and thus reduce processing time. The IPA return currently provides the coverage the Bank requires for its statistical needs, but with markets ever evolving, we are not complacent about its ability to continue to meet all our possible future needs.

5. Recommendations

If there are similar organisations to IPAs in other centres, then investigate the possibility of receiving survey data from them. Find out how much data you can reasonably collect on each issue and assess if this meets your requirements. Initially, use the data for verification purposes against current data sources and, if and when the data are of high enough quality, assess the potential benefits of adopting a survey approach.

Summary

This paper looks at the history of the introduction of a (statutory) monthly survey of Issuing and Paying Agents (IPAs) of debt securities by the Bank of England to assist it in its compilation of statistics on securities issuance. The Bank believes it may be unique in using IPAs to collect securities statistics. The paper explores the experiences the Bank has had from the survey – both good and bad – and highlights the limitations, and notes possible improvements that the Bank plans to make. It concludes that the IPA return has been beneficial for the production of securities statistics in the UK, however this does not necessarily mean it is the best method for collection of such data in all countries or in all circumstances.

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Utility of surveys undertaken by the Reserve Bank of India for collection of financial statistics

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The Reserve Bank of India (RBI), the Central Bank of the country, collects statistics on various economic transactions of banking and other financial institutions in the process of implementing its policies on monetary management, foreign exchange management, public debt management and the measures of inflationary controls. Sometimes, it would not be possible to collect certain details according to different classificatory characteristics, through the statutory returns and such data may have to be collected separately, perhaps, on bench-mark basis. To collect such details supplementing the data collected by it, the RBI conducts surveys in the fields of credit to rural/urban households, different aspects of the banking sector, balance of payments statistics and the private corporate sector. These details are collected through various sample surveys, some of which are conducted at regular intervals and others on ad hoc basis.

The objective of the paper is to review the surveys conducted by the Reserve Bank of India in the above fields and their utility from the point of policy purposes. The paper also highlights their importance in building the national macro-economic aggregates and accounts.

Debt and Investment Surveys

The Reserve Bank of India was established in 1935. One of the responsibilities entrusted to the Bank was to oversee the agricultural credit extended through commercial banks and co-operative banks. The Bank observed through an internal study (made in 1937) that a large part of finance required by the agricultural sector was provided by money lenders/indigenous bankers in the unorganized sector while the part played by co-operatives and other agencies was negligible. Besides, the funds supplied by money lenders were subjected to high interest rates. A few other committees were set up to study the problem of rural indebtedness. The Bank organized an informal conference in 1951 on "Rural Finance" which recommended that the RBI should undertake a comprehensive enquiry to look into the availability of rural credit facilities, factual information on credit needs, borrowing practices, incidence of indebtedness of rural households, etc. Based on the recommendations of the conference, the RBI conducted the first comprehensive survey known as All-India Rural Credit Survey, with 1951-52 as the reference period, under the guidance of a Committee of Direction. The objective of the survey was to collect such data/information as would assist the RBI and the Government of India in formulating an integrated credit policy for rural credit, to assess the extent of indebtedness of rural households to financial institutions in the organized and unorganized sectors. The survey, thus, did not aim so much to compile the national estimates of rural indebtedness or credit requirements. The survey indicated importantly that the professional money lenders, agriculturist money lenders and traders together accounted for 70 per cent of the outstanding total borrowings of cultivators, and they charged high rates of interest. The Committee, based on the results, made a series of recommendations to the Government of India and the Reserve Bank of India. Importantly, the Committee recommended to evolve an integrated scheme for rural credit; to review periodically the credit situation in the rural sector from the points of demand side and supply side of credit; to conduct similar surveys on decennial basis. Based on another recommendation, the State Bank of India was established as a public sector bank by amalgamating the Imperial Bank of India and other state-associated banks.

Following the recommendation of the Committee, similar all-India surveys were conducted decennially and the latest survey pertained to the year 1991-92. While the 1951-52 and 1961-62 surveys covered rural households only, the subsequent surveys covered urban households also. The conduct of the survey was, however, organized jointly by the RBI and the National Sample Survey Organization of the Department of Statistics, Government of India from 1971-72.² The

¹ *The views expressed in the paper are those of the author and not necessarily of the organization to which the author belongs.*

Debt and Investment surveys generally adopt two stage stratified sampling procedure. Villages/blocks formed the first stage units (FSU) for rural/urban areas and the households formed the second stage units (SSU) in both the areas. In 1981-82 survey, households in each sample village were divided into four sub-strata based on area of land possessed. Two households were selected from each stratum. Similarly, all households in a selected block were divided into three sub-strata based on their monthly per capita consumption expenditure (MPCE) and two households were selected from each sub-stratum.

In contrast, in 1991-92 survey, the sampling design was modified by considering the indebtedness status also as one of the criteria for selection of households besides the size of area of land possessed/MPCE in rural/urban areas. Households in each sample village/urban block were divided into seven sub-strata on joint consideration of land possessed/MPCE and indebtedness status of households for rural/urban households. Thus nine households were selected from each village/block.¹ The total sample size in each of these surveys is given in Statement 1.

The incidence of indebtedness of the rural and urban households, and the extent of credit financed by unorganized financial sector as estimated from these surveys, from 1951-52 onwards, are presented in Table 1. It may be seen from Table 1 that, over time, the dependence of households on unorganized financial sector decreased leading to the increase in the share of organized financial sector. It is observed from the 1971 survey that the credit from commercial banks accounted for only 2.2 per cent of total debt of rural households. As one of the objectives of nationalization of commercial banks, in 1969, bank branch net work pierced into rural and unbanked areas. As a result, the number of branches of commercial banks increased significantly from 1,833 in 1969 to 17,566 branches in 1981, and further to 35,206 in 1991. The Government of India and the RBI gave special emphasis to "agriculture" by categorizing it as a priority sector and also assigning certain proportion of bank credit for agricultural purposes. The commercial bank credit to agriculture increased from Rs.501 crore² in December 1972 to Rs.4,160 crore in June 1981 and further to Rs.18,573 crore in March 1991 (RBI, 1988 ii). These factors could perhaps have resulted in the increase in the share of commercial banks in total debt of households, to 28.0 per cent in 1981. The share further increased, though marginally, to 29.0 per cent in 1991. The share of co-operative banks and credit societies also increased between 1971 and 1981 but decreased in 1991. Details are given in Statement 2.

Table 1 – Indebtedness of Households

Year (as on end June)	Incidence of indebtedness of households *		Share of Unorganised sector [@] in Total Debt		Debt-Asset ratio	
	Rural	Urban	Rural	Urban	Rural	Urban
1951	63.3	..	85.1
1962	62.8	..	70.8	..	7.7	..
1971	42.3	..	38.8	..	4.4	..
1981	20.0	17.4	38.8	40.1		
1991	32.0 (23.4)	26.9 (19.3)	39.6 (32.7)	32.0 (26.8)		

Notes: 1. Debt includes outstandings of (a) cash loans payable and (b) trade credit and other dues payable. Figures in brackets relate only to cash loans.

2. The survey results were not available for urban areas for the years 1951 to 1971.

.. : Not available.

* : Denotes percentage of households reporting debt.

@ : Includes agriculturist moneylenders, professional moneylenders, traders, relatives and friends, etc.

Sources: Publications/Articles of RBI and NSSO on Debt and Investment Surveys.

The surveys also collected data on the purpose of loan for which the credit was extended, such as for capital formation or current expenditure, etc. These purpose-wise estimates at all-India and state level are used in working out the estimates of capital formation in construction activity and

2 The surveys of 1971-72 and 1981-82 were conducted jointly with National Sample Survey Organisation (NSSO), Department of Statistics, Government of India, whereas that of 1991-92 was conducted completely by NSSO.

1 Details of stratification of households are given in the Reports of NSSO (1998-i)

2 1 crore = 10 million

also for capital formation of the household sector by the Central Statistical Organisation at national level and also by State Statistical bodies. The results thrown up by the Debt and Investment surveys provided a platform to researchers to undertake analytical studies to critically examine the estimates of indebtedness of households; and suggest improvements to the sampling design and to the schedules of data collection. The data also provided a base for computation of measures of inequalities of asset holding or debt of households [Seetha Prabhu, et al (1988), Gothoskar (1988), Subba Rao, et al (1997) and Ramachandra Rao and Tripathi (2001)]. As stated earlier, the responsibility of conducting this survey and publication of the results was vested with the NSSO from the survey of 1991-92 onwards. The next survey on this topic is scheduled in 2003, with 2002-03 as the reference period.

Other Surveys relating to Priority Sectors

With the introduction of social control on commercial banks in 1968 and subsequent nationalization of major commercial banks in 1969, the Government of India and the RBI gave a shift in the credit policy by extending credit to the hitherto neglected sectors, such as small scale industries (SSI), trade and transport operators, retail trade and small business, etc., which are categorized as "priority sectors".¹ To evolve a suitable credit policy in regard to certain priority sectors, such as small scale industries, and traders and transport operators, there was no reliable statistics on their key characteristics, such as, investment, finance, value of output, capital structure, employment, etc. With a view to assessing the magnitude of the small scale industries on these aspects and to assist the credit policy, the RBI conducted, during 1977-78, the Survey of Small Scale Industries which were assisted by banks, with April 1976 to March 1977 as the reference period.

Two stage stratified random sampling procedure was adopted to select a sample of small scale industries. A sample of 869 bank branches (SSUs) was selected through probability proportional to size (PPS) sampling procedure from each stratum formed according to State X Bank Group X District and the amount of credit outstanding against SSIs for each branch formed as the size variable². The second stage units (SSUs), viz., SSIs, were selected from each selected branch after grouping the assisted SSIs into four strata according to credit limit sanctioned³ and arranged by the industry of the unit, and following the linear systematic sampling procedure in each stratum. Thus, a sample of 15,000 SSI units (SSUs) was selected from 869 selected branches of commercial banks (FSUs) for the survey.

Based on the result of the survey, it was importantly noted that more than one-third of the liabilities of SSIs was in the form of their borrowings and of these borrowings, 64.5 per cent was from banks. About 58 per cent of their assets was in fixed assets and inventory stock. The proprietary concerns accounted for 68 per cent of the SSI units. The outstanding investment under plant and machinery was less than Rs.1 lakh for 89 per cent of the units. Various characteristics of the SSIs were published according to industry, State of location of the unit, size of plant and machinery, etc. (RBI, 1979 & 1980).

Subsequently during 1979-80, the RBI conducted the Survey of Traders and Transport Operators, comprising retail traders, wholesale traders and transport operators, which were financed by the commercial banks, to assess the magnitude of this segment in terms of capital structure, investment expenditure, employment, value added, value of output, sales, etc. The reference period of the survey was July 1978 to June 1979. The selection procedure of the sample, broadly, is as given below.

Like the survey of SSI discussed earlier, the sample was selected following two stage stratified random sampling procedure. In the first stage, the financing branches of banks were arranged into three strata of bank groups and in each group, they were arranged according to population group. Branches were further classified into two size classes based on the business of a branch in terms of number of assisted units under the three categories viz., retail traders, wholesale traders and transport operators, in each stratum and population group. From each ultimate stratum, the required sample (1453) of bank branches was selected following simple random sampling procedure without replacement. The second stage units, for each of the three occupational categories were se-

1 *The priority sectors are: (i) agriculture, (ii) small scale industries, (iii) setting up of industrial estates, (iv) retail trade and small business, (v) road and water transport operators, (vi) professional and self employed, (vii) education, (viii) housing loans to weaker sections and SC/STs, and (ix) consumption of loans. Of late, in the nineties, micro-credit has been included under priority sectors.*

2 *Bank groups are: (i) State Bank of India and its associates, (ii) other nationalized banks and (iii) other scheduled commercial banks; Districts are classified into backward districts and others.*

3 *The strata are made according to credit limit sanctioned. They are: credit limit up to Rs. 10,000; Rs. 10,000 to Rs 1 lakh, Rs 1 lakh to Rs. 5 lakhs, and Rs. 5 lakh and above. Rs. 1 lakh = 100 thousand.*

lected by classifying the units into two size classes according to the credit limit. The units were arranged according to commodity classification for traders and by category of transport for transport operators. Attempt was made to give higher representation to bigger units. The ultimate units were selected through linear systematic sampling procedure. A sample of 28,407 units comprising 14,718 retail traders, 4,914 wholesale traders and 8,775 transport operators, which were assisted by 1,453 selected branches of commercial banks, formed the sample.¹ The survey indicated that the majority of the units are proprietary or partnership units and about 65 per cent of them were without any paid employee, except wholesale traders. More than three-fourths of their debt was from institutional agencies (RBI, 1981). The important aspects of this survey are given in Table 2.

The non-profit institutions such as trusts, charitable institutions, welfare associations, etc., form an important segment of household sector and they render wide range of social services to the community. They form an important segment of the household sector and constitute the non-profit institutions serving households (NPISHs) as per the institutional classification of national accounts of an economy. Very little information about the structure, employment, financial resources, financial performance, etc., of these institutions is available. With a view to obtaining such information for these NPISHs, the RBI conducted, in 1988, a sample survey of Private Non-profit Institutions with 1986-87 as the reference period. The response to the survey was, however, found to be not satisfactory and the results, therefore, were published as type study of private non-profit institutions (Subba Rao, 1989).

Table 2 – Survey of Traders and Transport Operators 1977–78
Summary Results

Srl. No	Item	Retail Traders	Wholesale Traders	Transport Operators
1	Estimated number of units	5,28,792	59,259	2,01,182
2	Type of ownership: Per cent share in total units of the category	Proprietary units 87.0	Partnership 75.0	Proprietary units 97.0
3	Per centage share of units by place of location according to population size	Below 10,000: 31.0	Above 10 lakhs: 38	Below 10,000: 16 10,000-50,000:27 Above 1 lakh: 13
4	Percentage of units by size of sales	Below Re. 1 lakh: 75	Rs. 1 lakh: 90	Below 5,000: 45
5	Percentage of debt to international agencies	89	75	94
6	Average debt per unit (Rs.)	7,827	95,972	18,060
7	Percentage of units with paid employees: (a) zero employees (b) 1-3 employees	64,4 28,5	6.1 46,2	65,1 28,7

Note: 10 lakhs = 1 million

Surveys Related to Foreign Exchange based Transactions

Since 1970, Government of India attracted the savings of non-resident Indians as remittance to India, through certain deposit schemes. The Non-Resident (External) Rupee Accounts Scheme (NRER) is the first of such schemes to operate. These accounts are operated in Indian currency. In 1975, another scheme, viz., Foreign Currency (Non-Resident) (FCNR) Accounts Scheme was introduced, maintaining the deposit accounts in specific foreign currencies. The balances held in these accounts as well as the interest earned thereon are freely repatriable in foreign currency in

¹ The effective sample size excluding non-response and ineligible units turned out to 18,186 units.

which the accounts are maintained. The maximum tenure of deposit was shortened for 3 years in early 1986 and the rates of interest on the deposits were revised from time to time, keeping in view the movements in international interest rates. As these amounts are repatriable, the repayment obligations of amounts standing to the credit of non-residents were reflected in the country's balance of payments accounts. The maturity-wise details of FCNR and NRER deposit accounts, if available, facilitate compilation of liabilities to be met in future at different points of time. The periodical returns submitted by authorized dealers to the RBI do not provide such maturity details. A sample survey was, therefore, conducted to obtain the information on maturity pattern and sensitivity of these deposits to changes in interest rates, etc., in respect of accounts opened during July 1985 to June 1988, which also formed the reference period. A two-stage stratified random sampling procedure was adopted with bank branches having FCNR and NRER deposits as first stage units and these individual accounts formed the second stage units. Initially, the bank branches were grouped into four strata such that branches having both types of accounts of deposits formed stratum 1, those having accounts of only FCNR deposits formed stratum 2, branches having only NRER deposits formed strata 3 and those of Bharat Overseas Bank, for which type of account-wise details were not known, formed the last stratum. The branches in each strata were further divided into sub-strata based on the volume of deposits and number of accounts held by them. The accounts in each selected branch were stratified according to the reference year of the deposit and the maturity of the deposit account. A sample of 10 per cent of the accounts was selected with a limit on minimum and maximum number of accounts to be selected from a sub-strata.¹

The results of the survey brought out important details of the accounts, such as the type of currency of deposit, the maturity pattern of deposits, interest rate, mode of payments received, etc., for FCNR and NRER deposit schemes. It was estimated, among others, 75 per cent of deposits received during the reference period was of dollar currency and 22 per cent of deposits was in NRER accounts. The depositors showed preference to have longer term deposit to maximise the return on deposits although 1-2 year period maturity were also reported for dollar deposits. About 60 per cent of dollar deposit amount and 40 per cent of pound sterling deposits amount outstanding as on June 30, 1988 was estimated to be due for repayment during 1988-90 and the balance in 1990-91. However, in the case of NRER deposits, about 70 per cent was due for repayment till July 1992 and the balance, beyond that period (RBI, 1991). In view of the importance of the data, the RBI repeated the survey with 1988-1991 as the reference period.

The RBI receives data on sale and purchase of foreign exchange from authorized dealers (ADs) every fortnight. However, in respect of transactions below a cut off limit (Rs. 1 lakh or its equivalent, since April 1997), the ADs are not required to report in their returns certain details like purpose of remittance, country of remittance, etc.² These small valued transactions of non-export remittances, which are below the cut off limit, classified as 'unclassified receipts', are surveyed to obtain the purpose of the remittance receipts and country of remittance to supplement the data available from other sources on balance of payments statistics. The survey covers all purchases of foreign currencies from public for the purposes other than exports, which are individually below a cut off limit, where the receipts are in foreign currencies and all debits to Rupee Accounts of foreign branches of Indian banks and overseas correspondents including private exchange houses. The data are consolidated on a quarterly basis and classified according to purposes of receipts and currency of transaction, etc. The results of these surveys are not published, but they are used internally in the compilation of balance of payments statistics.

Surveys related to Banking sector

The RBI collects data on liabilities and assets of commercial banks as a part of its regulatory and supervisory functions, and for assessing the financial situation of the banking institutions. In the process, the data on aggregate deposits held with banks, aggregate credit extended, aggregate investments in various securities are collected from commercial banks. However, the source-wise details of deposits, i.e., from whom the deposit amounts are received, or the details of allocation of credit, to whom the credit has been extended or details of investments in which they have invested are not collected in the statutory returns. The RBI collects such details through a scheme of returns known as Basic Statistical Returns (BSR), some of which are collected through sample surveys. While the data on allocation of credit (BSR-1) and investments (BSR-5) of scheduled commercial banks are obtained on census basis, ownership details of deposits are collected annually through a

¹ The details of sampling procedure are given in RBI (1991).

² The cut off limit has been changed to Rs. 5,00,000 (or equivalent to US\$10,000) from March 2002 survey onwards.

sample survey of commercial bank branches through BSR-4. A sample of branches of commercial banks was selected based on stratified systemic sampling procedure.

The results of the survey on Ownership of Deposits with Scheduled Commercial Banks are based on the returns received from about 10,000 branches of commercial banks having a response rate of 93.7 per cent¹. The ownership pattern obtained in the surveys revealed that 67.2 per cent of the aggregate deposits with banks was held by households. However, the share varied across current, savings and term deposits and estimated at 47.3 per cent, 87.9 per cent and 63.8 per cent, respectively. The data are also published according to State, population group and bank group. These results are utilized in estimating the saving of household sector in deposits with commercial banks, which is component of financial savings of household sector, which, in turn, is used in getting aggregate saving and investment. It may be mentioned that household saving in the form of deposits with banking institutions accounted for about 41 per cent of their financial saving (gross) in 2000-01. The results of these surveys are disseminated through articles annually in the RBI Bulletin (RBI, 2002).

The account-wise details of the borrowal accounts, such as, organization, occupation, etc., of the borrower, interest rate on loan, size of loan, etc., are collected through BSR-1A return in respect of accounts each having credit limits of above Rs.25,000/-. However, in respect of accounts each having credit limits of Rs.25,000/- and below, referred to as small borrowal accounts, only the aggregate amounts are collected according to occupation category of the borrower in BSR-1B return.² The small borrowal accounts generally pertain to weaker sections of the priority sectors. It was felt that disaggregated data on small borrowal accounts would be useful in policy formulations. Accordingly, the first survey was conducted in 1979. In view of increased attention to these sectors, it was felt that the survey be repeated with the objective of obtaining a profile of these borrowal accounts giving details into organisation and occupation of the borrower, interest rate on loan, etc. The RBI conducted periodical surveys of these accounts with March 1993 and March 1997 as the reference periods.

A sample of bank branches was selected based on two-stage stratified systematic sampling procedure with bank branches as the first stage units and the borrowal accounts as the second stage units. The bank branches were arranged according to bank groups and population groups. A sample of bank branches was selected following circular systematic sampling procedure. The sample of accounts, the second stage units, was selected through linear systematic sampling procedure comprising 10 per cent of accounts from the respective ledger books of accounts maintained by the selected branches. Based on the data collected in the survey, distribution of these borrowal accounts according to size of outstanding loan amount, type of account, purpose of loan, population size, occupation of the borrower, etc., are published in the RBI Bulletin (RBI, 1996, 1999). The small borrowal accounts, as defined earlier, accounted for 94.2 per cent of all borrowal accounts with a share of around 20 per cent in outstanding bank credit as on end-March 1993. The shares in terms of number, as also the amount, decreased to 90.1 per cent and 13.2 per cent, respectively, in 1997. The borrowal accounts each with outstanding credit of less than Rs.7,500 as on end-March 1997 accounted for 64.1 per cent of all SBAs in terms of number and about 32 per cent in terms of outstanding amount as against higher share in 1993. Considering the accounts by type of loan, term loans accounted for more than 50 per cent in 1997 in terms of both number and outstanding amount³. Loans for agricultural purpose accounted for a major share of 42.2 per cent of amount outstanding against all SBAs in 1997. Important results of the last two surveys are given in Statement 2.

Surveys relating to Private Corporate Sector

The RBI publishes various aspects of the joint stock financial and non-financial companies in the private sector in its publications. The RBI is the primary source in respect of the data on income and expenditure accounts, assets and liabilities, and saving and investment of the private corporate sector. As a secondary source, the RBI collects and publishes data relating to the capital raised by non-Government and Government companies in its annual publications. However, the details of subscribers to the capital raised by the companies, either on stock basis or flow basis, are not available in the RBI publications or Government publications. These details are required to arrive at the saving of the household sector in the form of shares and debentures of private non-financial joint

1 The sample size relates to the survey of 2001. The sample size was 6000 branches for the earlier surveys.

2 The cut off limit was Rs. 10,000 for the survey relating to March 1979 and the limit was increased to Rs.2 lakh from March 1999 onwards.

3 Different category of loan accounts are: cash credit, over draft, demand loan, Medium-term loan, long-term loan, packing credit and bills purchased/discounted.

stock companies. In the absence of a single source of data providing the details of ownership of the capital raised, household investments in these securities are derived as residual, by deducting the investments of different economic units, based on their published annual accounts, from the aggregate paid-up capital raised during a year the data on which are collated by the RBI. These estimates are subject to limitations such as time of reporting, valuation of the securities, etc. In view of the importance of the compilation of the household savings estimates, the RBI initiated the conduct of surveys on ownership of the share capital and debenture capital of the private sector non-financial companies. The coverage was restricted to a few selected companies in the first survey conducted in 1954 and the coverage was increased to cover the companies listed on the stock exchanges in the subsequent surveys, conducted in 1959 and 1978.

The latest such survey related to the year 1995 (end-March) wherein the coverage increased in terms of the number of companies and scope through industrial activity. The scope of the survey was extended to collect also the information on the profile of individual investors. Public limited companies each having paid-up capital of Rs.50 lakh and above were considered for the survey. Based on the availability of data, all public limited companies are grouped into two strata such that companies listed in the Fact Sheet published by the Department of Company Affairs, Govt. of India, as at the end of March 1992 formed Stratum-1; and companies registered between April 1, 1992 and March 31, 1994 formed Stratum-2. A sample of 1000 companies was selected from these two strata. Companies each with paid-up capital of Rs.25 crore and above were selected with certainty from both the strata and the rest were selected circularly systematically from both the strata. The number of companies for each stratum was fixed in proportion to their number of companies in the frame. The response to the survey was, however, not satisfactory.

It is observed from the survey that households was the major category, holding more than one-third of the total paid-up capital of non-government non-financial public limited companies as on March 31, 1995. The financial institutions accounted for about 24 per cent of the paid-up capital. In the case of debenture capital, the financial institutions accounted for 80 per cent as on March 31, 1995 while household investment was less than 10 per cent. It is also noticed that households preferred to investment in convertible debentures rather than non-convertible debentures. With regard to the profile of the household investors, it is observed that about 30 per cent of them belonged to business occupation, which accounted for 39 per cent of paid-up capital held by individuals. Individual investors holding shares worth of Rs.1 lakh and above accounted for the largest share of 44 per cent of the capital as also number of shares, but in terms of number of individual investors, they accounted for only 5 per cent. The results of the survey were published in the RBI Bulletin (RBI, 1998). The results of this survey are used in estimating households' investment in corporate securities, which is a component of households' financial savings.

The RBI, while announcing its monetary and credit policies, reviews the performance of the economy. In particular, the performance of the industrial sector vis-à-vis the credit extended by the banking system is one of the important areas of the RBI's concern. It was noticed in 1997 that the output of the private industry registered a decline in its growth rate and the availability of credit to the industry also registered decline in its growth. It was felt that the monitoring of the performance of the industrial sector would be essential and could be assessed through a survey, which can provide inputs to the RBI in its policy formulations so that necessary steps can be taken for adequate supply of credit. Accordingly, a quarterly mail-survey was launched in 1998 with the objective to assess the performance of the private industrial sector based on the industry's perceptions and get insight into their expected performance in the forthcoming two quarters, measured through selected indicators. The survey was initially conducted from both demand and supply points of view. A sample of about 2,000 companies was canvassed to assess the performance of the sector and their credit requirements from banks, from the demand point of view. No specific sampling method was adopted for selection of companies but attempts were made to cover companies from the different industries of manufacturing activity in the private sector. Similarly, about 500 branches of commercial banks were canvassed from the supply of credit point of view to obtain the bankers' views on the supply of credit to the industry as also the constraints faced by them in the process. The survey, however, subsequently discontinued the part relating to the bankers' viewpoint concentrating only on demand side and the surveys have been attuned to business tendency surveys conducted internationally. The response to the survey was initially not satisfactory but over time it improved to 30-45 per cent response. The survey is basically a qualitative one and enquired about overall business performance, output growth, demand factors such as exports and order books, imports, capacity utilization, inventory built-up, price situation, profitability and employment position of the company. The results of these surveys are not published but are used only for internal purposes. The results of these surveys are also useful in developing leading economic indicators for the Indian economy.

Concluding Observations

The paper attempted to describe various surveys undertaken by the Reserve Bank of India in the Department of Statistical Analysis and Computer Services. The RBI has been conducting various surveys in the fields of banking, corporate and external sectors to supplement the data collected by it through various statutory and non-statutory returns. These data provide inputs to its policy formulations while some surveys provide inputs in the compilation of saving and investment estimates of the household sector. The surveys like Debt and Investment, and Banking and Corporate sectors are useful in the compilation of national accounts. In particular, it may be mentioned that financial flow of funds accounts, one part of the system of national accounts, present the inflow and the outflow of funds 'from whom to whom' basis. The surveys of "ownership of deposits", "capital of non-financial companies" provide the details on institutional source of these funds. These accounts form the base for obtaining the estimates of financial savings of household sector. In the case of data collected on external sector, they are utilized in providing additional break-up details in the presentation of balance of payments statistics. The surveys in the field of corporate sector, viz., industrial outlook survey, provide inputs to the RBI in assessing the credit requirements of the private industry, which can be tuned to the availability of resources with banking sector and the requirements of the private industry, to the extent possible.

Statement 1 – All-India Debt and Investment Surveys – Sample Size

Period	Rural		Urban	
	FSU	SSU	FSU	SSU
1951-52	600	1,27,343	-	-
1961-62	2,057	80,000	-	-
1971-72	12,452	1,00,000	13,376	50,000
1981-82	8,408	67,224	5,300	31,800
1991-92	4,231	36,425	2,419	20,606

Notes: (i) FSU: First Stage Units – Villages for rural area and Blocks for urban area.

(ii) SSU: Second Stage Units – cultivating families for 1951-52 survey and households for other years for both rural and urban areas.

Statement 2 – Survey of Small Borrowal Accounts (SBAs)– Important Features

Item	1993			1997		
	No. of accounts (per cent)	Amount outstanding (per cent)	Average per account (Rs.)	No. of accounts (per cent)	Amount outstanding (per cent)	Average per account (Rs.)
1. Share of SBAs in all borrowal accounts	94.2	19.8	5,251	90.1	13.2	7,475
2. Share of SBAs with outstanding credit of less than Rs.7,500 in all SBAs	80.5	49.5	3,227	64.1	231.9	4,006
3. Share of Agriculture in SBAs	45.8	42.4	4,866	45.5	42.2	7,459
4. Share of Trade in SBAs	20.2	18.8	4,891	19.6	17.2	7,053
5. Share of Personal/ Professional loans	14.2	18.3	6,758	21.0	27.0	10,338
6. Share of Term loans credit in total credit to SBAs	56.7	52.1	4,824	60.9	54.2	7,156
7. Share of Demand Loans total credit of SBAs	19.5	23.5	6,316	18.5	23.9	10,420
8. Share of Credit to IRDP scheme in total credit to SBAs	34.2	22.6	3,464	34.6	24.2	5,624

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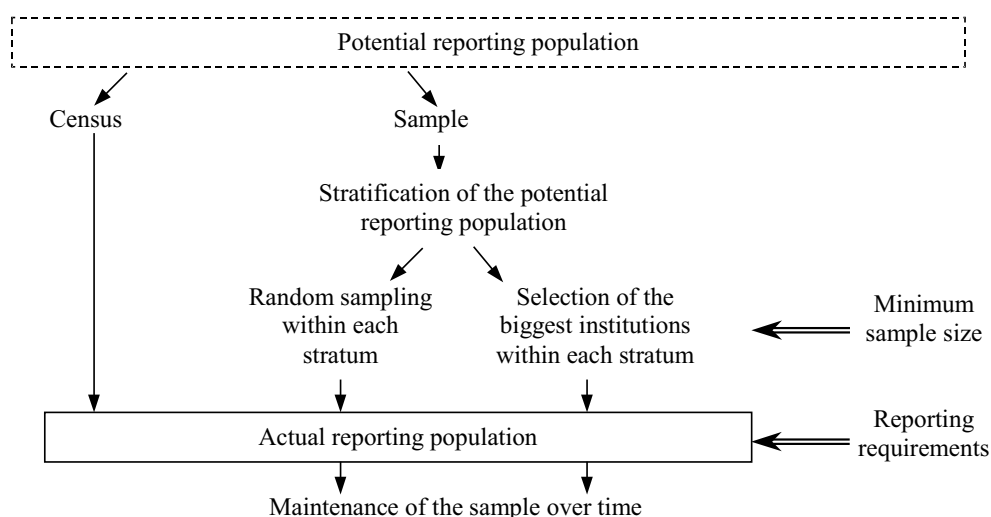
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Selecting reporting agents for MFI interest rate statistics

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In December 2001, the Governing Council of the European Central Bank (ECB) approved a new and fully harmonised survey on monetary financial institution (MFI) interest rate statistics with monthly data collection, starting with the reference month of January 2003. These statistics provide – for the euro area as a whole and individually for each Member State – detailed data about the interest rates that MFIs resident in the euro area apply to euro-denominated deposits and loans to households and non-financial corporations. Interest rates are collected for 45 instrument categories, 31 of which are related to new business and 14 to outstanding amounts. New business refers to any new agreement between customers and MFIs concluded in the course of a month. Outstanding amounts refer to the stock of all deposits placed and loans granted at the time reference point, which can either be an end-month observation or the monthly average. Interest rates are, in general, compiled as weighted arithmetic averages with the volume of new business or the outstanding amount as weighting information. The new business volumes are derived together with the interest rates, whereas the outstanding amounts are available from the ECB’s MFI balance sheet statistics.

The reporting agents for MFI interest rate statistics are selected at national level by the respective national central bank (NCB). The ECB has imposed minimum standards for the selection procedure to ensure that the resulting statistics give reliable and comparable information about the level and development of interest rates both at euro area and national levels. A uniform selection procedure for all Member States, rather than minimum standards, was not considered useful in the light of substantial differences in national retail banking practices in terms of the institutional structure and the deposit and lending products offered. The selection procedure is as follows:



For each NCB, the starting point is the potential reporting population. It comprises all resident credit institutions and other institutions which take euro-denominated deposits from and/or grant euro-denominated loans to households and/or non-financial corporations resident in the euro area. A monthly updated “list of MFIs” is available to the Eurosystem as a sampling frame, including some 7000 MFIs relevant for MFI interest rate statistics for the euro area as a whole.

Each NCB can choose between implementing a census or a sample. In the latter case, the NCBs divide their potential reporting population into homogenous strata with respect to the sampling variables, i.e. the interest rates and amounts of new business and the interest rates on outstanding amounts. The ECB requires at least one stratification criterion as a minimum standard. Most Member States define a hierarchy of criteria, such as bank categories, regional components, the type of

product and customer, the degree of specialisation, the size of the institution and the number of branches. Some Member States use principal component or factor analysis to determine the relevant stratification criteria and apply cluster analysis to establish the strata. The resulting number of strata per Member State varies between two and 15.

From the euro area point of view, the country of residence of the MFI is used as the first “natural” stratification criterion. This geographical ex ante stratification (a) gives NCBs flexibility to define the strata taking into account national conditions and (b) allows national samples or census procedures to be combined into a euro area sample. This approach and the definition of a minimum national sample size ensure that there are reliable statistics at both euro area and national levels.

As part of its preparations for defining the minimum national sample size, the ECB carried out a series of simulations based on the acceptable maximum random error, the desired confidence level for the results and the variance of the interest rates. Due to the limited availability and comparability of data prior to the implementation of the new survey, the definition of the minimum sample size could not be based solely on the simulation results. Instead, it judiciously takes into account any weaknesses in the assumptions and any drawbacks of the mathematical approach, and considers the reporting burden on the banking sector. The ECB therefore states that the minimum national sample size shall be such that the maximum random error for interest rates on new business on average over all instrument categories does not exceed ten basis points^{*1} at a confidence level of 90%. Alternatively, the sample size is assumed large enough if it covers at least: (a) 30% of the resident potential reporting population; where 30% exceeds 100 reporting agents, the size may be limited to 100; or (b) 75% of the stock of euro-denominated deposits and 75% of the stock of euro-denominated loans to households and non-financial corporations resident in the euro area.

The selection of the reporting agents takes place in the form of single-stage sampling after all strata and the national sample size are defined. Each NCB may choose the most appropriate allocation of the national sample size among the strata and apply either random sampling or select the largest institutions per stratum. The statistically ideal case is random selection, with equal probability for all institutions or with probability proportional to the size of the institution. However, selecting the largest institutions in each stratum is also permitted, the intention being to exempt small MFIs from having to report statistics. The selection procedure has led to a euro area sample of more than 1,800 reporting agents.

NCBs that choose the sampling approach must ensure that the sample remains representative over time. If there are significant changes in the potential reporting population, these need to be reflected in the sample after the annual check. The sample must be refreshed at least every two years to take account of joiners, leavers and other changes in the characteristics of reporting agents.

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Résumé

La Banque centrale européenne (BCE) a approuvé une nouvelle enquête sur les taux d'intérêt appliqués par les institutions financières monétaires aux dépôts et aux prêts vis-à-vis des ménages et des sociétés non financières. Pour la sélection des agents déclarants, les banques centrales nationales (BCN) peuvent opter pour un recensement de la population déclarante ou pour un échantillon stratifié. La BCE a imposé des normes minimales. Celles-ci offrent aux BCN une souplesse suffisante permettant de prendre en compte les caractéristiques et la structure particulières de leur secteur bancaire national. Parallèlement, elles garantissent la comparabilité et la fiabilité des statistiques au niveau national comme à celui de la zone euro.

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¹ May be translated into a relative measure in terms of the acceptable maximum variation coefficient of the estimator.

The implementation of the new ECB interest rate statistics in Austria: a pragmatic approach to a survey

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1. The new European requirements regarding MFI interest rate statistics

The new ECB regulation 2001/18 concerning statistics on interest rates applied by monetary financial institutions (MFI) to deposits and loans vis-à-vis households and non-financial corporations contains the rules for a euro area-wide harmonised monthly survey. However, as the different deposits/loans-products are not harmonised in the whole euro-area the 45 instrument categories for which each national central bank (NCB) has to collect interest rate according to the regulation are not sufficient to get besides high quality European statistics also the most relevant national statistics.

2. The premises for the selection of the Austrian reporting population

Compared with the percentage which Austrian MFI contribute to the balance sheet total of all MFIs in the euro area (about 4%), the number of MFI is very high, 836 (or about 10% of the euro area). But most of these MFIs can be described as rather small: The ten largest Austrian MFIs represent round 56% of the balance sheet total of all Austrian MFIs whereas the 510 smallest represent about 5%. In Austria, three large banking sectors do exist which are all very homogenous from their type of business: Raiffeisenkassen (rural credit cooperative banks), Sparkassen (savings banks) and Volksbanken (industrial cooperative banks). Nearly 90% of the Austrian MFIs (about 700) are members of one of these three sectors in which there are head-institutions in each province and one head-institution on top for Austria (which also acts as intermediary for minimum reserves).

In Austria, we apply the cutting-off-the-tail principle for the balance sheet statistics (BSI statistics) according to Regulation 2001/13 which means that only those 368 MFIs report which contribute to the monthly consolidated balance sheet about 95% of the total. As we need the stocks from the BSI statistics for the weighting of interest rates regarding outstanding amounts only MFIs which report BSI statistics shall be reporting agents for MIR statistics.

Because of the high implementation costs for reporting agents one important premise for our sampling procedure was that the sample shall be rather stable over time. In addition, very small MFIs shall not report as the relative costs for them of implementing and running such a reporting system are very high. That is not the case for the biggest institutions. Hence, all of these should be included in the sample as the interest rates applied by them are important for the whole market and are therefore also important for supervisory purposes.

3. Census or sample

According to the ECB regulation NCBs can either apply a census or a sampling approach when deciding about the actual reporting population. For Austria because of the reasons given above (many small MFIs, high implementation costs...) the census would not be an adequate method for getting high quality MIR statistics at reasonable costs. That is why we decided to go for a sampling procedure.

4. Stratification

It is stated in the regulation that if a NCB decides to apply a sampling procedure before drawing the sample the potential reporting population must be stratified into homogenous strata. To find the

suitable stratification criteria we used the single source of interest rate data we have available for all MFIs, namely the quarterly data of the supervisory statistics (profit and loss account statistics). These interest rates are only available on a highly aggregated basis but they were very useful to find the best stratification criteria and in the sequel to check the necessary reporting agents per stratum.

We tried and rejected some possible stratification criteria, like the regional criterion or the size criterion. The most appropriate stratification criterion was the criterion “banking sector”. We stratified the potential reporting population in five homogenous strata. Three of them are very similar to the three large banking sectors mentioned above, but in all the three cases the head institutes had to be excluded as their business and interest rates are not comparable with the smaller banks in these sectors. These banks are part of the fourth stratum which consists of the joint stock banks and special purpose banks. This stratum comprises most of the important big Austrian universal banks and represents in terms of volume the biggest sector. The fifth stratum is very important for housing loans – it is the sector “building societies”. The variance within the strata Sparkassenkassen, Raiffeisenkassen and Volksbanken was very low (between 0,09 and 0,17) whereas the joint stock banks and special purpose banks sector showed a higher variance (0,32).

5. Selection of the reporting agents

Because of the banking structure random sampling was no option, as almost certainly also institutions of the BSI-tail would have been chosen. The selection of very small institutes would create another important problem: For publishing and reporting to the ECB the new business volumes for all Austrian MFIs we must extrapolate on the basis of the reported volumes the overall sum for Austria. But for many small institutions the new business volumes can be zero in some categories which makes the grossing-up procedure impossible. That is why we chose to select the biggest institutions from each stratum. The number of selected reporting institutions was in four cases dependent on the variance in the strata. Out of the joint stock banks stratum we therefore chose a relatively high number of banks (43 out of 97). From the strata Raiffeisenkassen (15 out of 609), Sparkassen (13 out of 63) and Volksbanken (12 out of 67) we only needed a relatively small number of reporting agents as these strata are very homogenous. Besides the factor variance we also made simulations with our supervisory data to find out, how many MFIs must be chosen in order to reach a very close (deviation of less than 10 basis points) representation of the whole stratum. For the fifth stratum “building societies” which only comprises five MFIs we chose a census approach as all these societies are important for the housing loan business and we did not want to create some competitive disadvantage because of heavy reporting burden for some of them.

As a result 88 MFIs have to report monthly MFI interest rate statistics. These 88 MFIs represent 77% of deposits and 82% of loans of all Austrian MFIs which is in line with the minimum national sample size instruction in the regulation.

Résumé

Le règlement de la BCE concernant les statistiques sur les taux d'intérêt laisse aux BCN la décision de sélectionner les agents déclarants soit par recensement soit par échantillonnage. En raison de quelques particularités de la structure bancaire Autrichienne et les coûts élevés pour les agents déclarants la OeNB s'est décidée à opter pour l'échantillonnage. Comme critère de stratification a été choisi l'appartenance à des secteurs bancaires; le procès de sélection a révélé que le nombre des IFM qui ont une obligation de déclaration se remonte à 88 sur 836.

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Sample design and implementation of the Italian survey on harmonised interest rate statistics

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Harmonised interest rate statistics have been monthly collected in the Euro area since January 2003. In Italy, as well as in the vast majority of the Euro zone countries, data collection is sample based. This paper briefly describes the methodological steps undertaken to select the Italian sample and gives a few hints on how the main implementation issues have been addressed.

1. First level stratification: selection according to size

Amounts of new business and stocks intermediated by each reporting Monetary Financial Institution (MFI) play the role of weights in the calculation of interest rates at the national level. These volumes of activity show very skewed distributions in the population; that is, only a very small number of intermediaries account for a large percentage of total volumes of both new business and outstanding amounts. We thought we could gain efficiency from this feature by building a stratum of “large items” and designating it for selection with certainty. This strategy, which is widely used in business surveys, eliminates that large contributing stratum as a source of sampling errors and allows control over a significant part of the survey variables. “Large items” identification was made by looking at individual volumes of activity for each of the available survey variable proxies separately. We thus ensured participation of big universal banks as well as of relevant intermediaries with specific domain of activity. Stratum boundaries were defined on the basis of a quadratic efficiency gain function.

2. Second level stratification: geographic location

Geographic stratification is often used in sample surveys: it is justified by the homogeneity shown by units belonging to the same area and it is also pursued in order to ensure coverage control over geographic domains. Italian interest rates show regional differences, as it has been highlighted by several pieces of research. This is especially true for loans, reflecting geographic differences in the level of credit risk. For this reason, we introduced a second level stratification variable by splitting the population – not allocated to the first stratum – according to a 3 level geographic variable. Bank location was defined according to a prevalence criterion; very scattered banks, not complying with this criterion, were selected as a purposive component of the sample and allocated to the previously defined stratum of “large items”. From each area a number of units proportional to the relative weight of the area in the population was drawn. To avoid imposing relatively high reporting costs on small credit institutions, the principle of non-random selection of the largest units was applied to each geographic stratum.

3. Overall size and representativity of the sample

ECB/2001/18 Regulation establishes coverage-based transitional criteria and a probabilistic maximum random error criterion – which will be enforced starting from January 2007, to define minimum national sample sizes. Based on proxies available prior to the start of the new survey, we checked compliance with the empirical as well as with the probabilistic criteria. 75 per cent coverage required by the Regulation was ensured for each of the examined deposit and loan categories. Average random error for loans was estimated as aligned with the Regulation ceiling of 10 basis points – at a 90 per cent confidence level. For deposits, it is expected to be much lower, essentially because of the lower variance of these types of interest rates.

4. Implementation issues

Assistance to the MFIs selected for the new survey has been provided during the implementation phase through meetings and technical documentation distributed by a working group of intermediaries, co-ordinated by the Bank of Italy. Since the start of the survey, functional e-mail and telephone assistance are available to all reporting agents, in addition to the usual on-line first level quality checks.

Résumé

Le rassemblement des données sur les taux d'intérêt harmonisées dans la zone euro est commencée en Janvier 2003. Cet article décrit l'application du Règlement ECB/2001/18 en Italie. En particulier, il présente les méthodes utilisées pour l'identification des strates homogènes, la sélection de l'échantillon et les stratégies pour l'assistance aux intermédiaires déclarants.

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Performance evaluation model for primary non-agricultural credit societies

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1. Introduction

The cooperative movement, in its present form, originated in the west in the early 19th century in context of the emerging distributional and market failures of the post-industrial revolution modes of production. Essentially voluntary in nature and initiated by local leadership, these cooperatives assumed forms and organisational structures depending on the nature of the problem to be addressed. Thus consumer cooperatives were started in the UK, agricultural cooperatives in Germany and urban cooperatives in Italy.

The cooperative Movement in India did not emerge voluntarily as a result of the conscious choice of economic units but it originated with governmental policy because of the prevailing socio-political climate of the country. At the turn of the century the socio-economic conditions prevalent were not conducive for the indebted Indian peasantry – to generate the spontaneity necessary for a grass root movement.

Following the Deccan riots in 1875, the movement, especially as financial intermediation, got initiated in that region, essentially for countering the activities of the moneylenders and competing with them in the provision of credit.

During colonial and post-colonial periods in India, the state promoted cooperatives as instruments of rural development. The expectation was that in addition to providing an alternative to village moneylenders, cooperatives would mobilise resources for rural development and help promote social justice.

The Reserve Bank of India (RBI), which was set up in 1935, was given the mandate of conducting research for development of cooperatives in the country. The Rural Credit Survey (1951), which was set up soon after independence, observed that despite the cooperatives having come into existence in the early part of the century, moneylenders still accounted for 70% of rural credit requirements. The government of independent India while perceiving cooperatives to be the principal financial institutions for rural development in the planning model felt that their impact would be negligible until the introduction of state partnership in them. State partnership was both financial and administrative and resulted over time in officialisation of the movement, characterised by control over the day-to-day operations of such institutions by the government. State policy also encouraged a wide range of activities to be brought under cooperatives such as small and village industries, input supply, marketing, processing, warehousing, housing, fishery, dairy, etc.

Thus, for the most part, the experience of rural cooperatives in India has been very different from the expectations. In many cases the cooperatives have neither been successful as financial intermediaries nor have they led to an effective promotion of their members' interests. However, there are some notable examples of cooperative success in areas such as dairy cooperatives in Gujarat, sugar cooperatives in Maharashtra and the urban cooperative banks in Maharashtra, Gujarat and Karnataka. The growth of non-agricultural credit societies in Maharashtra is also indicative of a movement based on local initiative, which in the main is neither state driven nor state supported.

This paper is part of a larger study of the first author which seeks to explore not only original knowledge with respect to a particular group of cooperatives in Western India, but also to find results which will have important policy implications regarding cooperatives and their development in India at a more general level. The extant paper is only one aspect of that study wherein it is intended to assess the performance of the primary non-agricultural credit societies called Path Sansthas from a set of parameters, which relate to the cooperative, social, governance and financial aspects of their performance. The performance is examined with reference to a group of Path Sansthas located in Kolhapur district in Western Maharashtra.

¹ *The views expressed in this paper are those of the authors and not necessarily of the institutions to which they belong.*

It has been observed that not only has there been a substantial growth in the number of Path Sansthas in this area, but also in contrast to the general experience of cooperatives in India, these organisations have originated on the basis of local level initiatives and also appear to be financially successful. While all the Path Sansthas may be “bottom-up” organisations, they exhibit a heterogeneous position in regard to the purposes for which they had been established. A number of them seem to have been set up for gaining political power while others have been set up as feeders for milk dairies, self-help traders’ organisations, voluntary savings and loans associations and women’s organisations.

2. Objective

Keeping into consideration the complex role of a cooperative, its performance needs to be examined from various aspects, namely, their success as financial intermediaries as also performers of traditional cooperative and social goals, etc. In the present paper, it has been attempted to create a Performance Evaluation Model using several critical parameters on the above aspects. The performance evaluation model classifies the Path Sansthas as good, satisfactory or poor performers. The paper also tries to assess if there is a conflict among the Path Sansthas for meeting their cooperative/social values as against their financial standing on various profitability and efficiency parameters.

3. Review of Literature

A brief look at the literature available on performance evaluation of cooperatives and on credit rating and classification of firms into certain distinct classes based on their financial performance indicates that the technique of multiple discriminant analysis has been popularly used in the field.

Multiple discriminant analysis is a technique used to classify objects into two or more distinct classes. The problem of classification arises when an investigator makes a number of measurements on an object and wishes to classify the object into one of several categories on the basis of these measurements. The investigator cannot identify the object with a category directly but must use available measurements on several objects to first derive a discriminant function, which is subsequently used to classify a new object on the basis of its measurement.

Thus using historical data of failed and non-failed firms the discriminant function can be calculated and then used in predicting whether a new firm is about to fail or not.

One peculiar feature of this analysis is that one needs to have a clear definition of sickness of a firm, which may lead to its failure. This is a problem in financial analysis because the definition of sickness itself varies depending on the purpose for which one is defining sickness. It gets even more complex in the case of cooperatives where the performance is not always measured in strict financial terms.

Another technique used in appraising the performance of firms and looking at prediction of failure is called the dichotomous classification test, wherein the data are arranged in ascending order and then the array is inspected to find an optimal cut off point – the point expected to minimise the percentage of incorrect predictions. There are no weights assigned to each of the predictor variables as in the case of discriminant analysis.

Another method is of the Net Cash Flow approach and it basically looks at the pattern of flows and concludes that the firm will be sick in the year when the cash flows becomes negative. The pattern of flows of the past years are used here to predict the flows in future and see whether the firm is going to be in trouble or not.

While these two methods appear rather simple, they are not very popular in financial literature. In case of discriminant analysis, the criticism is that the method does not have a backing of financial theory. The problems encountered in the use of discriminant analysis or any other method is basically related to the definition of performance. This becomes particularly important in the case of cooperatives because, as mentioned earlier, there is apparently no clear definition available.

Regarding the use of variables, a look at the literature on cooperative indicates that most of the studies draw upon profitability ratios to measure performance. The studies by Gupta and Shekhar (1988), Suresh (1990), Korobow (1977), Sarma & Rao (1976) have all used profitability ratios.

Sriram and Gopaldaswamy have suggested that there is a need to develop surrogates for several non-financial parameters of performance identified in the literature and convert them into some sort of quantifiable factors, which may ultimately be used in constructing a weighted index.

Dongre and Narayana Swamy (1999) have argued that any model used to evaluate the performance of cooperatives must include variables that indicate liquidity, profitability and long-term

solvency of business. They have indicated that the evaluation methods developed in the studies of Sidhu and Sidhu (1990), Desai and Namboodiri (1991), Reddy (1992), Suresh and Vinaikumar (1993), etc are deficient in one or the other aspect of development and therefore these models may not be fully relevant in the context of cooperatives. They proposed a method, which can incorporate all the dimensions of development to measure efficiency. Their model is based on scaling technique, suggested by Rao, Bhatt and Bhatta (1991). The scale constructed is intended to measure the performance of Primary Agriculture Credit Societies by grouping them as good, satisfactory and poor. They have used almost all variables as shown in the Profit & Loss Account and Balance Sheet, so that no important variable is left out. Using scaling technique, they could systematically eliminate insignificant variables. They established the validity of the scale using Discriminant Analysis and Cluster Analysis.

Though Dongre and Swamy's paper looked at the performance of PACs in terms of liquidity, profitability and solvency, they did not build in a dimension to capture the social and cooperative goals of such institutions.

In the present paper, we try to build a scale using parameters that describe, not only the financial part of their performance, but also the social, cooperative and governance aspects of their performance.

4. Methodology

A. Selection of Path Sansthas

As mentioned earlier, the focus of this work is on primary non-agricultural credit societies. Maharashtra alone accounts for about 74 per cent of such societies in India and these societies in Maharashtra are called Path Sansthas. From among the several districts of Maharashtra, it was seen that the Kolhapur district accounts for about 1/6th of such societies (in number), which capture about 2/3rd of their total business (loans and deposits) in Maharashtra. The sample was selected from a rural area (Radhanagri Taluka) and an urban area (Kolhapur city) of the Kolhapur district. There are 233 Path Sansthas in the focus area and a 10 percent sample was chosen by stratified sampling procedure. The strata were formed based on the size of business levels (deposits and credit). 23 Path Sansthas were selected on basis of purposive sampling in each stratum in order to obtain a comprehensive picture of different types of Path Sansthas such as women's societies (mahila sansthas), societies located in inaccessible terrains, etc. The work of data collection was done as a part of the larger work of the first author. These Path Sansthas are listed in the Table A1 in the Annex.

B. Parameter Selection

To see the performance of the Path Sansthas in terms of cooperative/social/governance parameters the following variables were selected:

	Parameter Name	Parameter Type
1	Number of Regular members to total members	Cooperative
2	Members who have left to total members	Cooperative
3	Number of small loans (< Rs.10000) to total loans o/s	Cooperative
4	Amount of small loans (< Rs.10000) to total loans o/s	Cooperative
5	Dividend paid	Cooperative
6	Surety loans (Amount) to total loan o/s	Cooperative
7	Small deposits (less than Rs. 5000) to total deposits	Cooperative
8	Number of small deposits to total deposits	Cooperative
9	Number of AGMs held	Governance
10	Attendance in AGMs to total members	Governance
11	Number of Board meetings	Governance
12	Attendance in Board Meetings	Governance
13	Number of SC/ST members to total members	Social
14	Number of women members to total members	Social
15	Number of loans to SC/ST to total SC/ST members	Social
16	Number of loans to women to total women members	Social

To see the performance in terms of financial parameters on a composite scale, several variables were identified. These variables covered, inter alia, the efficiency and sustainability aspects of their performance as financial intermediaries. The variables are as follows:

	Parameter Name	Parameter Type
17	Number of Borrowers per Staff	<i>Outreach</i>
18	Number of Depositors per staff	<i>Outreach</i>
19	Amount of loans per staff	<i>Efficiency</i>
20	Amount of Deposits per staff	<i>Efficiency</i>
21	Depositors to Operating Expenses	<i>Efficiency</i>
22	Borrowers to Operating Expenses	<i>Efficiency</i>
23	Operating Expenses to # of loan issued a/c	<i>Efficiency</i>
24	Operating Expenses to Amount of loan issued	<i>Efficiency</i>
25	Non operating Expenses to Working Funds	<i>Efficiency</i>
26	Operating Expenses to Working Funds	<i>Sustainability</i>
27	Net Interest Income to Working Funds	<i>Sustainability</i>
28	Total Expenses to Total Income	<i>Operating self sufficiency</i>
29	Overdue to Loans o/s	<i>Portfolio quality</i>
30	hare Capital+Reserve Fund+Other Fund	<i>Size</i>
31	Working Capital	<i>Size</i>

C. Methodology of construction of the scale

All the Path Sansthas can be scaled according to each of the parameter separately, which would give their relative performance according to that parameter. In case of most of the parameters, the higher the value, the better it is while in case of some (eg. Expenditure related parameters), the lower the value, the better it will be. This scaling exercise attempts to build a scale that is comprehensive and has multidimensionality as it takes into account all the identified parameters. The directions of the parameters have been adjusted for, while preparing the scale. The exercise has been done using an iterative technique as suggested by Rao, Bhat and Bhatta (1991) and used by Dongre and Swamy (1999).

As the variables selected are in different units, firstly all the parameters are brought to common and unit free scale by standardizing them. These standardized values are next converted to scores from 1 to 10 using the decile points of the Standard Normal Distribution. This is done for each parameter. For each sanstha, its scores over all the parameters are added to arrive at the total score. The notation used for the score value of each parameter is given in the Table A2 and their score values in Table A3 in the Annex.

The correlations of these aggregate scores are calculated with the individual score of each of the parameter. The parameters that are highly correlated with the total score are retained and the remaining parameters are dropped. Using these residual parameters we arrive at a new total score. The correlation between the new total score and the set of parameters, which were used to calculate this total score, is again calculated and the process is repeated till each of the parameter in the residual set has significant correlation with the total score. These final total scores are then standardized and the standardized values are classified in 3 classes using the Standard Normal Tables. The ones with value 1 are weak/poor sansthas, the ones with value 2 are satisfactory sansthas and the ones with value 3 are good sansthas.

5. Results

A. Scaling with all the 31 parameters

In the first iteration 11 parameters were found to be significantly correlated with the total score and were retained (Table A4). A new total score is arrived at, by adding the scores of these 11 parameters. The correlations of each of these 11 variables were calculated with this new total score. In this second iteration, the variables “Attendance in Board Meetings” and “Number of Borrowers per

Staff” are dropped, as their correlations with the new total score were not significant. The following nine parameters remain.

1. Number of small loans (less than 10000) to total loans o/s
2. Amount of small loans (less than Rs.10000) to total loans o/s
3. Number of loans to SCST to total SCST members
4. Number of loans to women to total women members
5. Depositors to Operating Expenses
6. Borrowers to Operating Expenses
7. Operating Expenses to # of loan issued a/c
8. Operating Expenses to Amount of loan issued
9. Overdue to Loans o/s

With the remaining 9 parameters, which were highly correlated with the total score, the following classification emerges.

Weak:	Rural: AP, ML Urban: KDN, SR, PrM, SG, SN, PaM
Satisfactory:	Rural: JB, KWV Urban: BB, KMM, KC, SY
Good:	Rural: DN, VK, GP, CS, SA, Y, VM Urban: SV, JK

B. Scaling using all the Social/Cooperative/Governance parameters (16 parameters)

To begin with 16 variables were chosen. In the first iteration the following parameters, which were significantly correlated with the total score of all 16 parameters, were retained.

1. Number of women members to total members
2. Number of small loans (less than 10000) to total loans o/s
3. Amount of small loans (less than Rs.10000) to total loans o/s
4. Attendance in AGMs to total members
5. Number of loans to women to total women members
6. Surety loans (Amount) to total loan o/s
7. Small deposits (less than Rs. 5000) to total deposits
8. Number of small deposits to total deposits

The sum of scores of these 8 parameters led to a new total score. After iteration 2, parameters at serial number 1, 4 & 5 were found to have insignificant correlation with the new total score and were dropped (Table A5). The classification based on the remaining 5 parameters is as under:

Weak:	Rural: ML, VM Urban: KMM, PrM, SG, SN, PaM
Satisfactory:	Rural: AP, SA, KWV Urban: JK, SR, KC, SY, KDN
Good:	Rural: DN, VK, GP, CS, JB, Y Urban: SV, BB

C. Scaling using all the Economic/Financial parameters (15 parameters)

On lines similar to above, the scores of all 15 economic/financial parameters were added to arrive at a total score. The correlations of the scores of individual parameters are worked out with the total score (Table A6). In the first iteration nine parameters were retained. The sum of the scores of these 9 parameters gives a new total score. In the second iteration the parameters “Number of Borrowers per Staff” and “Operating Expenses to Amount of loan issued” were dropped as they were found to have insignificant correlations with the new total score. The grouping is done as per the following remaining parameters:

1. Number of Depositors per staff
2. Amount of loans per staff
3. Amount of Deposits per staff
4. Non operating Expenses to Working Fund

5. Operating Expenses to Working Fund
6. Share Capital + Reserve Fund + Other Fund
7. Working Capital

The following classification emerges as per the selected economic/financial parameters:

Weak:	Rural: AP, DN, VK, GP, JB Urban: KDN, SV, SR
Satisfactory:	Rural: CS, SA, Y, KWV Urban: JK, BB, KMM, PrM, SY, SG
Good:	Rural: ML, VM Urban: KC, SN, PaM

D. Scaling using only Cooperative parameters (8 parameters)

The total scores were arrived at by adding the individual scores of all 8 cooperative parameters. The correlations of three parameters were found to be insignificant (Table A7) and those of the following five parameters were significant.

1. Number of small loans (< Rs.10000) to total loans o/s
2. Amount of small loans (< Rs.10000) to total loans o/s
3. Surety loans (Amount) to total loan o/s
4. Small deposits (less than Rs. 5000) to total deposits
5. Number of small deposits to total deposits

The classification based on the total score of these five parameters all of which were significantly corrected to their total score was as follows:

Weak:	Rural: VM, ML, KWV Urban: PrM, SG, SN, PaM
Satisfactory:	Rural: AP, SA Urban: KDN, JK, KMM, SR, KC, SY
Good:	Rural: Y, JB, CS, GP, VK, DN Urban: SV, BB

E. Scaling using only Social parameters (4 parameters)

The total scores of all the four social parameters were first worked out. The correlations of individual scores with total scores (Table A8) led to the exclusion of two parameters and the following two parameters were of significance.

1. Number of loans to SCST to total SCST members
2. Number of loans to women to total women members

The classification based on these parameters each of which were correlated significantly with their total score was as follows:

Weak:	Rural: AP, VK, GP, ML Urban: KDN, BB, KMM, SR, SG, PaM
Satisfactory:	Rural: DN Urban: JK, KC, PrM, SY, SN
Good:	Rural: CS, JB, SA, Y, KWV, VM Urban: SV

F. Scaling using only Governance parameters (4 parameters)

Total score was calculated using all 4 parameters of Governance nature. The correlations of individual scores were seen with total score (Table A9) and the parameter "Number of AGMs held" was removed in the first stage. A new total score based on the three significant parameters was worked out. The correlations of this new total score with individual scores showed that the parameter 'Number of Board Meetings' was not significant. The total score of the remaining two param-

ters was significantly correlated with its components. This score was based on the following two parameters.

1. Attendance in Board Meetings
2. Attendance in AGMs to total members

The classification based on the above was as under:-

Weak: Rural: DN
Urban: KDN, BB, KMM, SR, PrM, SG

Satisfactory: Rural: CS, Y, KWV, ML
Urban: JK, SY

Good: Rural: AP, VK, GP, JB, SA, VM
Urban: SV, KC, SN, PaM

Observations:

To get a comparative picture of various classifications, we see the following table:

Table 1 – Classification of Path Sansthas on various criteria

PS Name	All Para	Economic	Soc-Coop-Gov	Cooperative	Social	Governance
	9 parameters (2 Iterations)	7 parameters (2 Iterations)	5 parameters (3 Iterations)	5 parameters (1 Iteration)	2 parameters (1 Iteration)	2 parameters (2 Iterations)
AP	1	1	2	2	1	3
DN	3	1	3	3	2	1
VK	3	1	3	3	1	3
GP	3	1	3	3	1	3
CS	3	2	3	3	3	2
JB	2	1	3	3	3	3
SA	3	2	2	2	3	3
Y	2	2	3	3	3	2
KWV	2	2	2	1	3	2
ML	1	3	1	1	1	2
VM	3	3	1	1	3	3
KDN	1	1	2	2	1	1
SV	3	1	3	3	3	3
JK	3	2	2	2	2	2
BB	2	2	3	3	1	1
KMM	2	2	1	2	1	1
SR	1	1	2	2	1	1
KC	2	3	2	2	2	3
PrM	1	2	1	1	2	1
SY	2	2	2	2	2	2
SG	1	2	1	1	1	1
SN	1	3	1	1	2	3
PaM	1	3	1	1	1	1

1-Weak; 2-Satisfactory; 3-Good

The above table gives a classification that classifies the 23 Path Sansthas as below:

- All Parameters: 8 weak; 6 satisfactory; 9 good
- Economic parameters: 8 weak; 10 satisfactory; 5 good
- Social-coop-gov parameters: 7 weak; 8 satisfactory; 8 good
- Cooperative parameters: 7 weak; 8 satisfactory; 8 good
- Social parameters: 10 weak; 6 satisfactory; 7 good
- Governance parameters: 7 weak; 6 satisfactory; 10 good

It would be interesting to see if these classifications according to several criteria have some element of commonality. For this we compute the following table:

Table 2A – Commonality in classification

Matching	All	Economic	Soc-coop-gov	Cooperative	Social	Governance
All	23	8	14	14	13	11
Eco		23	4	4	9	12
Soc-coop			23	21	11	10
Coop				23	10	8
Soc					23	11
Gov						23

Table 2B – Commonality in classification (in percentage)

Matching	All	Economic	Soc-coop-gov	Cooperative	Social	Governance
All	100.0	34.8	60.9	60.9	56.5	47.8
Eco		100.0	17.4	17.4	39.1	52.2
Soc-coop			100.0	91.3	47.8	43.5
Coop				100.0	43.5	34.8
Soc					100.0	47.8
Gov						100.0

It is observed that the overall rating has more commonality with the cooperative rating than the economic rating. This shows that the overall performance of these societies is primarily governed by the cooperative ideals and to some extent by social and governance ideals. Also, the overall performance is governed to a minimal extent by economic ideals.

It is also seen that the Path Sansthas which are good as per economic criteria are not so as per social or cooperative criteria and vice versa. These societies are however good in their Governance ideals. The negative relation of the Economic criteria with the Social-Cooperative-Governance criteria and the positive relation between the Economic criteria with the Governance criteria also emerge out from the following table.

Table 3 – Economic vs. Social-Cooperative-Governance and Governance Scaling

Economic	Social-Cooperative-Governance			Total	Governance			Total
	Weak	Satisfactory	Good		Weak	Satisfactory	Good	
Weak	-	3	5	8	3	-	5	8
Satisfactory	3	4	3	10	4	5	1	10
Good	4	1	-	5	-	1	4	5
Total	7	8	8	23	7	8	10	23

The above also shows that good governance leads to good economic performance, whereas the social/cooperative objectives achieved by these Path Sansthas is at the cost of their economic objectives. The Path Sansthas are paying the cost of achieving the social/cooperative objectives. They are arriving at a trade off between the economic and social/cooperative objectives.

6. Verification of the results

In Section 5 above, the Path Sansthas were classified on the basis of several criteria. The technique used for arriving at the classification is the scaling technique used by Dongre and Narayana Swamy (1999). As mentioned earlier, with the use of Discriminant Analysis and Cluster Analysis, they had established that the technique gave good results. However, it was felt that we could examine the PSs classified according to economic scaling, by their actual performance. For judging the performance of a business firm on financial parameters, it is important to judge the firm on profit margin, as profit is the central ability of a firm to perform financially. Therefore, the parameter for actual performance of the Path Sansthas was also considered as its ability to make higher Operating Profits.

Excluding the outliers and normalizing the Operating Profits figures, the Path Sansthas were classified into three classes. The classes obtained were as under:

Table 4 – Classification according to Operating Profits

Sr #	Name	Op-Profits	Op-profit Scaling	Economic Scaling
1	AP	-3515	1	1
2	DN	-6337	1	1
3	VK	-15051	1	1
4	GP	-27503	1	1
5	CS	-4213	1	2
6	JB	50160	2	1
7	SA	58524	2	2
8	Y	152880	3	2
9	KWV	18839	2	2
10	ML	-50118	1	3
11	VM	3885969	3	3
12	KDN	-21083	1	1
13	SV	78661	2	1
14	JK	8499	2	2
15	BB	73635	2	2
16	KMM	15055	2	2
17	SR	-36296	1	1
18	KC	366075	3	3
19	PrM	204623	3	2
20	SY	69813	2	2
21	SG	-187988	1	2
22	SN	3168324	3	3
23	PaM	205705	3	3

We consider the Economic scaling as good if the good Sansthas according to scaling technique are also good as per the Operating Profits criteria. It can be seen from the table that there is only one incidence of extreme misclassification (i.e., the good PS getting classified as weak or vice versa). If we have a hypothesis that the technique is good if the probability of extreme misclassification is as low as 1 per cent, i.e. in 99% of the cases there will be no misclassification, then using Binomial test, it is seen that for the given sample, the hypothesis is accepted at 5 per cent level of significance.

We further hypothesize that a technique is good if any type of misclassification is not more than 15 per cent. Using the binomial test, we find that for the given sample containing 7 misclassifications out of 23, the hypothesis is accepted at 1 per cent level of significance.

We also tested the classification using a Chi-Square test of goodness of fit. We have the following classification with Economic Scaling and Operating Profits criteria.

Table 5 – Table for Chi-square statistics

	Economic Scaling	Op-profit criteria
	Observed	Expected
Weak	8	9
Satisfactory	10	8
Good	5	6
Total	23	23

Under the hypothesis that the expected frequencies for weak, satisfactory and good classes are respectively 9/23, 8/23 and 6/23, we find that the value of Chi-square comes out to be 0.778. The tabulated value of Chi-square with 2 degrees of freedom at 5 per cent and 1 per cent level of significance is respectively 5.991 and 9.210. We therefore conclude that the Economic scaling is as per the expected criteria.

It has therefore been found that the classification technique applied on Economic parameters has categorized the Path Sansthas correctly into three classes, viz., weak, satisfactory and good. We may therefore presume that the technique provides a good way of classification on other parameters as well.

7. Summing up

There has been a lot of work done in the literature on the performance of Primary Agricultural Credit Societies, but the performance of Primary Non-Agricultural Credit Societies had not been much explored. There has been a substantial growth of such societies, called Path Sansthas in Maharashtra, where in contrast to the general experience of cooperatives in India, these organizations have originated on the basis of local initiatives and also appear to be financially successful. As they have a complex role to perform, it was necessary to judge their performance on various aspects, as a cooperative, social and economic entity. It was also to be seen if there was any conflict among these PSs for meeting their social/cooperative values as against their financial standing.

A set of 31 parameters covering the various aspects of performance of these Path Sansthas was chosen. Using scaling technique, their overall categorization was arrived at. Also the Path Sansthas were classified on the basis of their Social, Cooperative, Governance and Economic performance parameters. On comparing these classifications, it was found that:

- Social/cooperative objectives are achieved at the cost of economic/financial goals, i.e. at the cost of its efficiency/profitability. Thus there was a clear trade off between the social/cooperative goals and the economic goal.
- Good governance/ better management leads to better economic goals. Thus vigilance of the members or the responsibility and accountability of management helps in the Path Sansthas' economic performance. The Path Sansthas where Board participation or members' involvement is good do better economically. It may imply that the members/board ask for the Path Sansthas' performance and examine the same in economic terms and not in terms of their cooperative or social parameters.
- The Path Sansthas that are good in cooperative/social terms may be providing facilities with lower interest margin, i.e. they are giving credit at lower cost to borrowers and providing higher interest on deposits.

Annex

Table A1: List of selected Path Sansthas

RURAL PATH SANSTHAS	
AP	Ajitrao Pawar GBSSPSM
VK	Vivekanand GBSSPSM
GP	Gundunana Patade GBSSPSM
CS	Chatrapati Shahu GBSSPSM
DN	Shri Datta Nagari SPSM
JB	Jai Bhavani GBSSPSM
SA	Shri Ambai GBSSPSM
KWV	Kasba Walve Vyapari GBSSPSM
Y	Yashwant NSPSM
ML	Shri Mahalaxmi NSPSM
VM	Shri Vithalai Mahila NSPSM
URBAN PATH SANSTHAS	
KDN	Kolhapur District Nabhik Samaj PS
SV	Swami Vivekananda NSPSM
JK	Janakalyan NSPSM
BB	Shri Bapuso Baburao Patil NSPSM
KMM	The Kolhapur Maratha Mahila PS
PrM	Priyadarshini Mahila NSPSM
SY	Shrimanyogi NSPSM
SG	Shri Sadguru Gajanan Maharaj NSPSM
KC	Kumavat Cooperative Society
SR	Shriram NSPSM
PaM	Padmavati Mahila NSPSM
SN	Shivaneri NSPSM

Table A2: Notation for scale variables

Sr. No	Parameter	Notation
1	Number of Regular members to total members	SRM_TM
2	Members who have left to total members	SML_TM
3	Number of small loans (< Rs.10000) to total loans o/s	SSLAC_TL
4	Amount of small loans (< Rs.10000) to total loans o/s	SSLAM_TL
5	Dividend paid	SDIVIDEN
6	Surety loans (Amount) to total loan o/s	SSURL_TL
7	Small deposits (less than Rs. 5000) to total deposits	SSD_TD
8	Number of small deposits to total deposits	SSDA_TDA
9	Number of AGMs held	SAGM
10	Attendance in AGMs to total members	SAGM_A
11	Number of Board meetings	SBM
12	Attendance in Board Meetings	SBM_A
13	Number of SC/ST members to total members	SSCM_TM
14	Number of women members to total members	SWM_TM
15	Number of loans to SC/ST to total SC/ST members	SSCL_SCM
16	Number of loans to women to total women members	SWML_WMM
17	Number of Borrowers per Staff	SBORR_ST
18	Number of Depositors per staff	SDEPO_ST
19	Amount of loans per staff	SLOAN_ST
20	Amount of Deposits per staff	SDEPA_ST
21	Depositors to Operating Expenses	SDEPO_OE
22	Borrowers to Operating Expenses	SBORR_OE
23	Operating Expenses to # of loan issued a/c	SOE_LNIS
24	Operating Expenses to Amount of loan issued	SOE_LOA
25	Non operating Expenses to Working Funds	SNONEX_W
26	Operating Expenses to Working Funds	SOE_WF
27	Net Interest Income to Working Funds	SNII_WF
28	Total Expenses to Total Income	STE_TI
29	Overdue to Loans o/s	SOD_TL
30	Share Capital+Reserve Fund+Other Fund	SOWN_FUN
31	Working Capital	SWC

Table A3: Path Sanstha-wise Score values of all parameters and the total score

Sr.	PS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	AP	8	2	6	10	3	8	2	2	4	6	4	4	1	1	9	9
2	DN	8	5	6	3	5	8	4	1	4	2	4	5	8	9	9	9
3	VK	8	10	6	10	3	8	1	3	4	5	4	4	8	9	9	9
4	GP	8	8	6	10	3	8	6	6	4	7	4	5	8	9	9	9
5	CS	6	8	6	4	10	8	9	9	4	7	4	5	8	9	9	8
6	JB	6	6	6	9	8	8	7	2	10	4	4	5	8	9	9	9
7	SA	7	2	6	7	6	7	4	7	4	7	4	9	7	7	4	4
8	Y	5	6	6	6	10	7	10	10	4	7	4	7	8	9	9	9
9	KWV	4	8	1	7	10	5	3	2	4	7	4	4	4	4	6	6
10	ML	1	8	6	4	2	8	3	10	6	3	4	4	4	2	1	9
11	VM	1	2	6	6	8	7	4	8	10	10	8	10	4	2	1	5
12	KDN	8	2	6	3	3	6	6	7	4	1	4	4	8	8	7	2
13	SV	1	3	6	4	7	8	4	1	4	10	10	5	8	9	8	9
14	JK	8	4	6	3	2	5	8	7	6	6	4	7	8	8	7	2
15	BB	6	10	6	4	4	7	8	3	4	2	6	4	8	9	7	8
16	KMM	8	2	6	2	4	6	2	9	4	1	4	4	3	3	4	6
17	SR	8	10	6	2	3	1	5	5	2	2	4	4	8	9	8	2
18	KC	8	2	6	3	7	3	10	6	6	9	10	4	8	8	8	1
19	PrM	8	2	6	2	5	3	3	2	6	4	4	4	2	2	2	3
20	SY	8	4	6	3	5	4	5	4	4	6	10	4	7	6	4	5
21	SG	7	7	6	2	3	4	2	3	6	1	4	4	6	2	2	3
22	SN	1	3	6	5	5	1	2	7	8	7	4	4	1	1	1	1
23	PaM	2	2	6	7	2	5	10	10	4	10	9	4	5	2	1	1

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Sr.	PS	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
		Score															
1	AP	4	3	3	4	10	3	4	6	7	7	4	6	1	6	2	149
2	DN	4	3	5	10	1	3	4	3	6	7	6	8	5	6	3	164
3	VK	4	3	10	3	2	3	4	5	6	7	6	1	2	2	9	168
4	GP	4	4	10	10	2	3	4	3	7	8	7	3	1	1	9	186
5	CS	4	4	10	10	6	3	4	2	5	8	7	6	3	6	9	201
6	JB	4	4	2	4	10	4	4	3	4	7	6	1	1	7	4	175
7	SA	4	4	9	6	7	3	4	4	3	8	7	8	8	7	8	182
8	Y	5	4	8	8	9	5	4	4	7	8	7	6	7	7	8	214
9	KWV	4	5	3	5	4	3	4	3	7	8	8	7	8	7	9	164
10	ML	5	5	6	3	4	8	5	5	4	1	1	8	7	6	4	147
11	VM	6	7	9	6	4	10	10	10	1	7	8	9	9	7	7	202
12	KDN	5	5	3	3	7	3	4	3	7	2	1	2	2	6	6	138
13	SV	4	4	3	6	8	5	4	3	6	8	7	5	7	7	5	179
14	JK	5	5	5	6	4	3	4	5	7	8	7	6	8	7	9	180
15	BB	5	5	3	5	6	5	4	5	5	6	7	7	7	7	6	179
16	KMM	4	4	7	3	4	5	4	10	6	6	6	5	7	6	9	154
17	SR	5	5	2	3	5	5	5	4	7	5	3	2	4	6	1	141
18	KC	7	6	3	5	8	9	5	3	7	7	7	8	8	7	4	193
19	PrM	5	5	2	3	6	7	5	10	7	7	7	7	7	7	4	147
20	SY	5	6	3	4	4	5	5	4	7	7	7	8	8	7	8	173
21	SG	4	4	5	3	2	4	5	5	7	7	7	8	7	6	7	143
22	SN	10	10	3	2	5	9	10	4	7	2	8	9	9	7	4	156
23	PaM	9	9	4	5	4	6	6	10	6	1	4	8	8	7	1	168

Note: The parameters are numbered in the same order as listed in the body of the paper.

Table A4: Correlations of individual scores with total scores for all 31 parameters

Sr.No.	Parameter	With Total Score	After First Iteration	After Second Iteration
1	SRM_TM	-0.17		
2	SSCM_TM	0.01		
3	SSLAC_TL	0.42	0.62	0.62
4	SSLAM_TL	0.43	0.64	0.64
5	SAGM	0.06		
6	SAGM_A	0.26		
7	SBM	0.16		
8	SBM_A	0.64	0.48	
9	SDIVIDEN	0.33		
10	SSCL_SCM	0.61	0.57	0.57
11	SWML_WMM	0.63	0.62	0.62
12	SSURL_TL	0.29		
13	SSD_TD	0.27		
14	SSDA_TDA	0.35		
15	SBORR_ST	0.60	0.51	
16	SDEPO_ST	0.28		
17	SLOAN_ST	0.01		
18	SDEPA_ST	-0.01		
19	SDEPO_OE	0.51	0.57	0.57
20	SBORR_OE	0.68	0.78	0.78
21	SNII_WF	0.20		
22	SOWN_FUN	0.09		
23	SWC	0.04		
24	SWM_TM	-0.16		
25	SML_TM	-0.35		
26	SOE_LOA	0.51	0.69	0.69
27	SOE_LNIS	0.57	0.58	0.58
28	SNONEX_W	0.15		
29	SOE_WF	0.17		
30	STE_TI	0.04		
31	SOD_TL	0.42	0.59	0.59

Note: The numbers in italics show that the correlation coefficients are insignificant

Table A5: Correlations of individual scores with total scores for 16 social/cooperative/governance parameters

Sr.No.	Parameter	With Total Score	After First Iteration	After Second Iteration
1	SRM_TM	0.18		
2	SSCM_TM	0.34		
3	SSLAC_TL	0.66	0.60	0.76
4	SSLAM_TL	0.75	0.73	0.86
5	SAGM	0.06		
6	SAGM_A	0.51	0.52	
7	SBM	-0.09		
8	SBM_A	0.30		
9	SDIVIDEN	0.10		
10	SSCL_SCM	0.30		
11	SWML_WMM	0.42	0.42	
12	SSURL_TL	0.77	0.80	0.87
13	SSD_TD	0.65	0.78	0.72
14	SSDA_T DA	0.64	0.77	0.69
15	SWM_TM	-0.41	-0.42	
16	SML_TM	-0.18		

Note: The numbers in italics show that the correlation coefficients are insignificant

Table A6: Correlations of individual scores with total scores for 15 economic/financial parameters

Sr.No.	Parameter	With Total Score	After First Iteration	After Second Iteration
1	SBORR_ST	0.47	0.36	
2	SDEPO_ST	0.57	0.57	0.58
3	SLOAN_ST	0.46	0.79	0.81
4	SDEPA_ST	0.50	0.82	0.85
5	SDEPO_OE	0.33		
6	SBORR_OE	0.34		
7	SNII_WF	0.07		
8	SOWN_FUN	0.50	0.76	0.82
9	SWC	0.48	0.71	0.79
10	SOE_LOA	0.12		
11	SOE_LNIS	0.55	0.31	
12	SNONEX_W	0.64	0.72	0.74
13	SOE_WF	0.67	0.79	0.79
14	STE_TI	0.40		
15	SOD_TL	0.29		

Note: The numbers in italics show that the correlation coefficients are insignificant

Table A7: Correlations of individual scores with total scores for 8 Cooperative parameters

Sr.No.	Parameter	With Total Score	After First Iteration
1	SRM_TM	0.39	
2	SSLAC_TL	0.81	0.78
3	SML_TM	0.11	
4	SDIVIDEN	0.12	
5	SSD_TD	0.62	0.68
6	SSLAM_TL	0.86	0.86
7	SSURL_TL	0.83	0.87
8	SSDA_TDA	0.66	0.68

Note: The numbers in italics show that the correlation coefficients are insignificant

Table A8: Correlations of individual scores with total scores for 4 Social parameters

Sr.No.	Parameter	With Total Score	After First Iteration
1	SSCM_TM	0.37	
2	SSCL_SCM	0.53	0.72
3	SWML_WMM	0.61	0.90
4	SWM_TM	0.19	

Note: The numbers in italics show that the correlation coefficients are insignificant

Table A9: Correlations of individual scores with total scores for 4 Governance parameters

Sr.No.	Parameter	With Total Score	After First Iteration	After Second Iteration
1	SAGM	0.09		
2	SAGM_A	0.72	0.72	0.82
3	SBM	0.54	0.34	
4	SBM_A	0.79	0.80	0.85

Note: The numbers in italics show that the correlation coefficients are insignificant

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Abstract

State partnership was provided to cooperatives in India, as they were perceived as principal financial institutions for development of economically weaker sections of societies, both rural and urban. In spite of this support, for the most part, the experience of cooperatives has been very different from expectations. In many cases the cooperatives have neither been successful as financial intermediaries nor have they led to an effective promotion of their members' interests. In contrast to the general experience of cooperatives in India, the growth of non-agricultural credit societies in the state of Maharashtra indicates a movement, which in the main is neither state driven nor state supported but is based on local initiative and also appear to be financially successful.

This paper assesses the performance of such primary non-agricultural credit societies called Path Sansthas located in the Kolhapur district in Western Maharashtra. In the present paper, Performance Evaluation Models have been created to classify these Path Sansthas as good, satisfactory or poor performers. A set of 31 parameters capturing the social, cooperative, governance and economic/financial aspects of their performance was chosen. Separate models were developed and the Sansthas were classified into three categories (good, satisfactory and poor performers) for the economic, cooperative, social, governance parameters; for the social-cooperative-governance parameters taken together and also for all parameters taken together. The findings indicate that:

- *there is a conflict among the Path Sansthas for meeting their cooperative/social values as against their financial standing on various profitability and efficiency parameters,*
- *good governance/better management leads to better economic goals.*
- *the Path Sansthas good in cooperative/social terms may be providing facilities to the members at lower margins albeit at Sansthas' cost.*

What is the money equivalent in the nature? Results of a hedonic approach

Helmut Maier (Berlin School of Economics)

Subject and design of results

The question what could be a money equivalent in the nature makes sense if we assume the existence of an economic system within the nature. Introducing this assumption as a basic working hypothesis, and extending the classical economic principle that “scarce goods have a price” to “any good in the natural system has a price”, the primary question is what could be a price equivalent to a good (or service) within this postulated economic system of the nature. To find such a price equivalent we observe different phenomena of the nature, and we try to interpret them as economic events like markets with supply of and demand for goods and services within the nature. This approach meets the fundamental requirement of hedonic methods to measure prices as functions of a set of independent and physical variables. In contrast to classical hedonic methods which use regression analysis to estimate prices on base of these physical variables, see Triplett (1986) and Fleming et. al. (1992), within this approach there is no need for regression analysis because the price specification turns out as an observable one.

A positive answer to the question what could be a money equivalent in the economic system of the nature is important. Having an estimation of such an equivalent we can measure the value of this equivalent in terms of common currencies (Dollars, Euro, etc.), we can compare these (different) measures, and we can derive conclusions concerning relations between these different measures. It is possible that the money equivalent in the nature measured in common currencies is overestimated by these common currencies, but it is possible that this money equivalent is underestimated by these currencies as well. And it is possible that problems and disparities within economies of human societies especially within monetary policies arise because these economies and monetary policies neglect the real price of a good (measured in terms of the money equivalent) within the economic system of the nature.

The study starts with the analysis of the observable phenomena in the nature that “deer are grazing on a meadow near a forest in the evening”. Result is that this event can be explained as a market with the obvious specifications “supply of grass” (of the grass population) and “demand for grass” (of the deer population). But what is the price the deer pays for one unit of grass? A positive answer to this key question opens a door to the economic system of the nature. And a positive answer exists. Moreover, a lot of observable phenomena in the nature can be explained as markets as well. All these markets (within the economic system of the nature) show two characteristics. The first characteristic is that the demanders (animal or plant populations) pay for goods (or services) they buy with a currency of the nature which is transferable and convertible. In addition, there exists a set of different currencies in the nature, and representatives of different populations in the nature are able to convert one currency into a different one, hence there exists a banking system within the nature. The second characteristic is that the markets (within the economic system of the nature) are dual markets. This means that agents of populations which meet on a market to exchange goods (or services) are both: suppliers of a good (or a service) and demanders for a good (or a service) as well.

The paper presents and explains this observable price specification within the economic system of the nature. Moreover, it explains how the price is being transferred from the demanders

(who pay) to the suppliers (who get this money equivalent). Especially it explains what and how the deer pay for “grazing in a meadow in the evening near a forest”, and how the population of grass gets this payment. It explains different currencies of the nature, it explains the fee within the nature which is charged when the money equivalent of one type (currency) is converted into a money equivalent of a different type, and it gives a vision of the central bank within the economic system of the nature which is an observable, independent and autonomous object of the nature. Using a simplified model of such a dual market in the nature, the paper substantiates the equivalence of the economic equilibrium conditions of supply and demand, and of costs and returns with two basic laws of natural sciences. Finally and focusing this money equivalent of the nature, the paper presents a vision how to meet problems and disparities of present human societies (overcrowding, migration, aging, unemployment, poverty) in future.

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Résumé

Sur la base d' une approche hédonique, le papier présente et explique un équivalent d' argent, qui est représenté par des unités physiques dans un système économique postulé dans la nature, où chaque bien (et service) a son prix. Par ailleurs, il explique comment cet équivalent d' argent est transféré des demandeurs (qui payent) aux fournisseurs (qui obtiennent cet équivalent d' argent). En observant le phénomène naturel que (les cerfs pâturent le soir dans la prairie à côté de la forêt) il explique ce que et comment les cerfs payent pour (pâture) et comment la population de l' herbe obtient ce paiement. Il explique les différentes devises de la nature et il explique aussi les honoraires de la nature, qui sont chargés lorsque l' équivalent d' argent d' un type (monnaie) est converti à un autre équivalent d' argent d' un autre type et il donne une vision de la banque centrale dans le système économique de la nature, qui est un objet indépendant et autonome que l' on peut observer dans la nature (qui s' avère être un marché dual). Le papier justifie l' équivalence des conditions de l' équilibre économique de l' offre et de la demande et des charges et du revenus avec deux loi fondamentaux des sciences naturelles. Finalement et focalisant cet équivalent d' argent dans la nature, le papier présente une vision qui montre comment on peut résoudre dans l' avenir des problèmes et des disparités des sociétés humaines actuelles (surpeuplement, migration, vieillissement, chômage, pauvreté).

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Fisher's Short Stories on Wealth 80-86: Health, Socialism, Distribution of Income and Wealth, Concluding Summary¹

Arthur Vogt

Health has always been an important issue for Fisher, one of his "crusades", as Allen (1993) calls them. This preoccupation stems from Fisher's personal experience. In a radio broadcast, Cochrane (1947) summarized this experience, which can be a hopeful model for severely ill persons:

It was in 1896, in a tuberculosis station, high in the Mountains of Arizona, where the air is pure and clear. A young man of 29 was sitting in his invalid-chair waiting for death. The doctors had given him only a very short time to live. Behind him were years of the most intensive work as an economist at a university and exceptional academic recognition. This man, marked by death, looked at his young wife, his child before him in the sand... and he made up his mind: "I rather work to death than rust to death idly". He left the mountains and returned to his work... He took up the battle against his sickness and packed into each and every day so much work that in the race against his death he might at least do the maximum of creative work of which he was capable. Week after week, month after month, year after year this feverish race continued... One book after another appeared, basic contributions to the science of economics. also notes recording

Fisher's Short Stories on Wealth, 1926-1933

Dr. Arthur Vogt has drawn our attention to a series of simple explanations of elementary principles of economics which Fisher wrote in an agreement with the Worker's Education Bureau. Fisher called them "Short Stories of Wealth". The bureau issued them monthly for publication in any union newspaper that desired to print them. They appeared in the "Brotherhood of Locomotive Firemen and Enginemen's Magazine", "Trade Union News", "Labor Herald" etc.

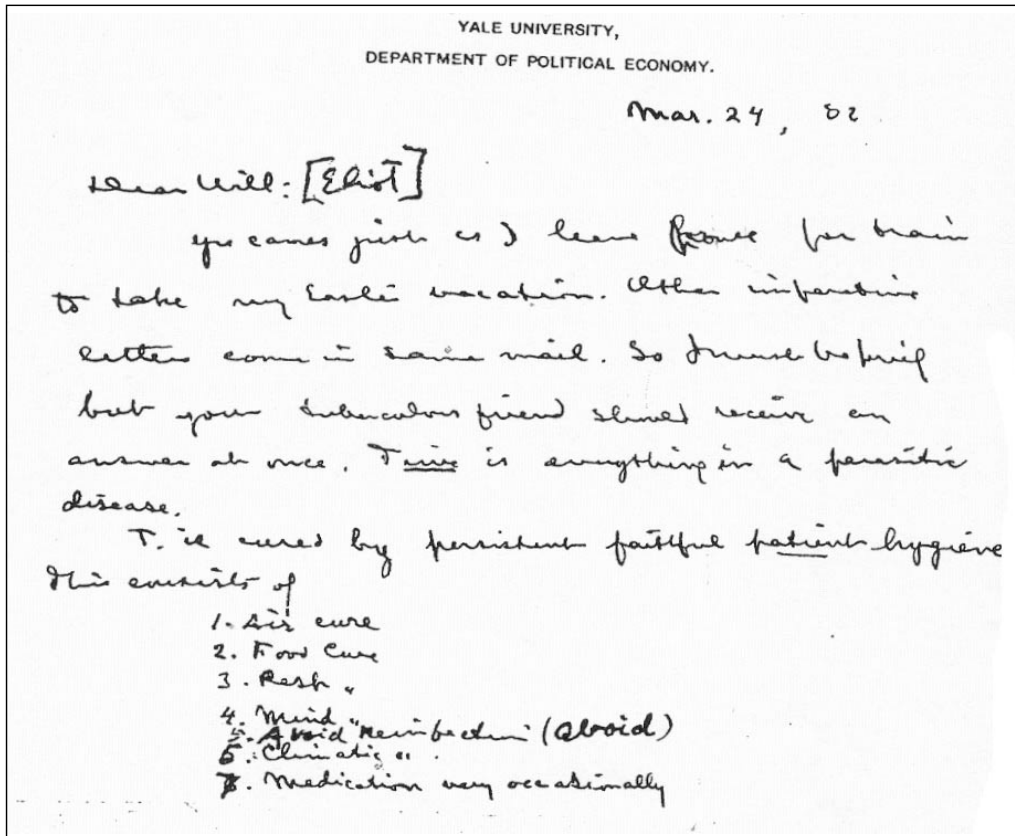
The stories had never been reprinted and had not been included in "The Works of Irving Fisher" (General Editor W.J. Bates, Consulting Editor J. Tobin), which was published in 1997. However, the Stories are worth to be read up to the present day. Besides the scientific and historical interest they are of didactical use as they are models of explaining economic phenomena to the public. The IFC Bulletin decided to publish all these "Short Stories of Wealth"

1) Professor George W. Fisher, the grandson of Irving Fisher, kindly granted the IFC Bulletin the right to quote from his grandfather's manuscripts (Fisher 1911b, 1946, 1947) and to print illustration 1 and the photographs.

his experiences in the fields of health and hygiene which he made in quest for life extension... He has been adviser to several presidents [of the USA], he was one of the founders of the Peace Society from which later developed the League of Nations... Today he is 80. He is still tireless active and one of the happiest man I've ever met. His name is Irving Fisher, Professor of Yale University...

It is noteworthy that Fisher experienced work as a pleasure. Work was a stimulus, which cured him of his illness. However, he did not postulate this as a general rule for everybody. In the fourteenth of the "Sixteen rules" (see below) he recommended to "work in moderation".

Fisher propagated an individual health strategy, which he put in a nutshell in his "rules of hygiene". In a letter of March 1902 he proposed 6 rules and a correction with a 7th rule.



Fisher's seven rules of hygiene

The 1928 edition of his famous health book listed 16 rules, and in the 1956 edition this number had increased to 22.

Fisher published, at his own expense, a poster "How can the employer help the worker satisfy his fundamental human instincts?", which was addressed to employers. Numerous requests were made to him to address an analogous poster to employees. Both are presented on the next two pages, the first in facsimile, the second retyped.

A list of the titles of all 86 Short Stories on Wealth was given in the IFC Bulletin of June 1998, p. 17-19. Among Fisher's many interests, there are quite a few that have remained controversial up to the present day, like:

- Peace (No. 71, 72);
- Conservation, ecology (No. 74);
- Health Policy (No. 73);
- Social Insurance (No. 79);
- Distribution of Income and Wealth (No. 84).

The Rules of Personal Hygiene

THE AIDS to health discussed in the preceding chapters may be summarized in twenty-two single formulas classified under the four heads, Fresh Air and Our Skin, Our Food, Our Favorite Poisons and Our Activities.

I. Fresh Air and Our Skin

1. Wear light, loose and porous clothes.
2. Ventilate every room you occupy, or keep the air moving by electric fans.
3. Keep outdoors as much as you can.
4. Perspire daily, preferably by exercise.
5. Bathe frequently in air, water and sunlight.

II. Our Food

6. Follow natural choice among natural foods, especially fruits, nuts (for young and vigorous), greens, dairy products; also whole grain foods, potatoes and other vegetables.
7. Eat the right amount of protein including some of animal origin. (Milk, milk products, and eggs are especially valuable. Meat is best used in moderation).
8. Eat slowly, taste carefully, enjoy fully.
9. Eat some hard, some bulky and some raw foods daily.
10. Avoid, so far as possible, unenriched white-flour foods and white sugar.
11. Avoid overeating and overweight. Avoid excess of fat—in oils, butter, cream, fat meats, etc.
12. Add little or no strong seasoning, even salt, at table.

III. Our Common Poisons

13. Exclude poisons—as in alcoholic drinks, tobacco, tea, coffee, cola drinks.
14. Avoid infections.
15. Keep the teeth and gums clean and healthy.
16. Get the habit of thorough and regular intestinal eliminations.

IV. Our Activities

17. Stand, sit and walk erect.
18. Work, play, rest, and sleep in due proportions.
19. Compensate for occupational deficiencies by special exercises including slow deep breathing, by recreation and by special relaxation.
20. Avoid undue fatigue, especially mental fatigue. Start off every day's work as fit as possible, without fatigue—even hidden fatigue.
21. Keep serene. Avoid hurry, worry, fear, anger.
22. Secure periodic health examinations—including dental.

The most controversial subject treated by Fisher was eugenics. In fact, Fisher was president of the American Eugenical Society for a couple of years. But he did not propagate eugenics as a programme of policy measures to “improve” the human race. Rather, he regarded eugenics as a mere extension of his concern with personal health. He saw eugenics just as means to diminish individual suffering stemming from bad health.

80. Minimum Standards

Fisher starts this story by introducing the “minimum standards of living”, not necessarily related to work. At a later stage, he concentrates on minimum wages. He is convinced that minimum standards are necessary. But their optimal level has to be determined. If the minimum wage is too high, more people are thrown out of work, if it is too low, there will be unnecessary poverty harming “labor, society in general, and even employers”.

HOW CAN THE EMPLOYER HELP THE WORKER SATISFY HIS FUNDAMENTAL HUMAN INSTINCTS ?

By IRVING FISHER

Professor of Political Economy, Yale University; Ex-President, American Economic Association.

Primitive instincts can be guided but not suppressed. If they become pent up, the danger of an unrestrained outbreak is great.

I. THE INSTINCT OF SELF-PRESERVATION

Maintain healthy working conditions. Guard against over-fatigue. Provide safety devices. No man can do his work well if he feels it is fitting him only for the scrap heap.

Provide a living wage.

Assure your men of steady jobs as long as they do their part. Let them know that, if laid off without any fault of theirs, they will be given due notice or a suitable dismissal wage. Energy dissipated in worry means loss to all concerned.

II. THE INSTINCT OF WORKMANSHIP

Find the right job, mentally and physically, for every man and the right man for every job.

Enable the man, by exact records, to have a true and accurate picture of his work and of any improvement he makes in it.

Educate him to understand what part his work plays in the whole, and the uses to be made of the product.

Encourage the workman to suggest improvements in the processes and thus stimulate personal interest.

Make it possible for the workmen to participate collectively and regularly in determining the processes of production.

Guard against the tendency to let the workers slip into dead-end jobs. Make it plain that efficiency means advancement.

Encourage promotions and the development of all-round ability.

Make your directions to workmen clear, concrete and specific and have a well thought-out plan of work. Set the men a good example as to standards of workmanship.

III. THE INSTINCT OF SELF-RESPECT

Utilize the records of work to give the credit and standing which a good record deserves in the eyes of the employer and of fellow workers. The spirit of rivalry spurs initiative.

So far as possible, use praise as the chief incentive rather than blame or threat of dismissal. If it is really necessary to call a man down, avoid doing so before his fellow workers.

Consider a man trustworthy until he has proved himself untrustworthy. Even-handed justice is recognized by saint and sinner.

IV. THE INSTINCT OF LOYALTY

Encourage the men to develop a team spirit by forming an organization of some kind.

Collective bargaining, participation in shop-management, mass activities, group singing, marching in a parade, wearing a button, or cheering a baseball team will foster a united feeling.

Make the organization worth being proud of. Pride is a weatherproof cement.

Loyalty is based on justice and mutual consideration. Prove to the workman that you respect his rights and wishes. *Put yourself in his place.*

Afford an opportunity for presenting grievances and for their adjustment.

If you want overtime or special consideration from him let him, if possible, have the fun of volunteering the service.

V. THE INSTINCT OF PLAY

"All work and no play makes Jack a dull boy." The balanced life demands recreation which provides a safety valve for many inevitably repressed instincts. This play should be not frivolity, still less dissipation, but entertainment which will develop physical and mental health and a broadened outlook on life. A long workday makes proper play impossible, and is largely responsible for the man's resort to drink and other perversions of play.

Encourage membership on athletic teams, attendance at good movies, at reading rooms, and clubs. Have singing at the noon hour, and calisthenics to interrupt the morning and the afternoon. At least try brief rest periods.

VI. THE INSTINCT OF LOVE

Conditions of employment should, in every way possible, conduce to happy family life. The unrest caused by bad instinctive life outside the plant is demoralizing.

A man thinks of his family as part of himself. His success means their happiness.

Do not arouse resentment by any action which affects the family welfare.

A workman with no home, or an unhappy home, is unstable.

VII. THE INSTINCT OF WORSHIP

"Man shall not live by bread alone." No man should be compelled to do work which will prevent attendance at church or inspiring public meeting, or crush idealism, or warp the spirit of humanity and service.

Every man should have a religion; and his daily work should be uplifted by, and really be a part of, his religion.

In a word, your employee is a man with the same fundamental human nature as yourself. If he is to be loyal, efficient, and contented, he must have the opportunity to give expression to the best that is in him. Without self-expression no man can lead a normal life. It is HIS initiative which you should aim to encourage. This is not the ordinary offensive paternalism in which the employer takes the initiative and seeks to impose his ideas on a passive or unwilling workman.

There is no adequate self-expression without a reasonable amount of self-direction. When the worker can be given a stake in the business and a voice in its management almost all the important motives are enlisted and strengthened—the motives of money-making, accumulating, creating, gaining credit, team play.

Primitive Instincts can be guided but not suppressed

See the caged lion. He walks wildly back and forth, becomes violent and irritable, then sinks into apathy; his natural life is balked; the instincts of his nature are not satisfied.

Man is often like that lion, caged by the restrictions on his will. How can we get out of our cages and live a free and satisfied life? By understanding our own instinctive needs and applying our knowledge.

I. The Instinct of Self-preservation

Learn how to keep your health. Without health life is scarcely worth living. If you realized that you could feel every day that it is good merely to be alive, you would do all in your power to gain and keep good health.

Health means power to earn a living and to keep a steady job at some productive work.

Every increase in production tends in the end to rise the general rate of wages. It is true, of course, that the effort of one individual may not at once bring higher wages, any more than one pebble tossed into a lake will raise its level. But if many pebbles are thrown, the water will raise. Real wages are not money, but what money will buy. The more bread and shoes are made, the more there will be to go round.

If we should all limit output, we'd starve and go naked.

See that you do an honest day's work and contribute your bit to the great stream of goods which make up the real wages of the world.

It is largely his power to foresee that enabled man to survive in the primitive struggle with beasts. In industrial society, foresight best contributes to preservation through "thrift". Get the thrift habit. Keep expense accounts.

II. The Instinct of Workmanship

Don't do your work as if you were a machine and so let your work turn to drudgery. Take an interest in it. You can get some real fun out of any job which needs your attention.

A job which is so mechanical as to need no intelligent attention and interest is not a man's job or a woman's job, and sooner or later a machine will be invented to do it.

Make your work a game. Put some sporting spirit into it. This will increase output, improve quality, and often lead to discovering new methods.

Remember you are really creating something in your work. Find out what your work is for. If you use your brains, you can learn more in the shop than in school.

If you don't like your job, see what you can do to improve or change it. Simply "knocking" never gets anywhere.

III. The Instinct of Self-respect

Live up to your own ideals. You have them, and if you don't live up to them, you cannot help being a little ashamed of yourself.

Live so that you can look every man or woman in the eye without feeling that, if they really knew you, they would not respect you. Show the best that is in you. But don't pretend to be other than what you really are.

Don't be too sensitive to what others think and say of you. Yet aim to win their respect.

IV. The Instinct of Loyalty

A business relation demands responsibility on both sides. Live up to your part of the bargain. Don't begrudge your employer his property or assume that his gains are ill-gotten.

Remember, too, that his is not altogether a bed of roses. He is taking risks and, maybe, lying awake nights with financial responsibilities of which you have no realisation but which involve your welfare.

He is a human being as well as yourself. You may be a boss some day. You will make a better boss if you can see the problem now from his point of view. The wages he pays you are not generally fixed by him but by market conditions of which he is almost as small a part as you.

Get up some shop spirit with the rest of your fellows. Pull together. Team play succeeds. Do your part toward making your plant the best in your town, and your town the best in the country.

V. The Instinct of Play

Here is the chance to satisfy many inevitable repressed instincts. Make good use of your precious leisure time. Play should be wholesome recreation, not dissipation. Recreation is a change of activities. Find the kind of entertainment which uses those faculties not used in the shop. Any occupation which is different will rest you and will relieve the strain of balked instincts.

Make friends and keep them. If you feel like that caged lion and have a "grouch", try to "talk it out" with a sympathetic friend. Difficulties often vanish or look simpler of solution when talked out. A lonely person is like a boiler with the safety-valve tied down, - liable to explode.

VI. The Instinct of Love (ifc bulletin: includes "(VII.) instinct of worship" of the companion poster)

If possible, choose work which is compatible with family life. A lonely life is unnatural and demoralising. Work for your family more than for yourself. It is love far more than selfishness which gives us our impulse for working.

Improve your ideals. Work and worship ought not to be far apart. Spiritual aspiration has a place in every human heart and can lighten our daily toil. Spend not only Sunday but part of every day in cultivating your best self. The war brought a new impulse towards the spirit of patriotism, humanity and religious aspiration. The same ideals should be cherished in time of peace.

81. The Relation of Health to Work

Fisher had a lifelong interest in health. A whole chapter of his biography, written by his son (Fisher 1956:105-122), was devoted to “Biological Living”. As an economist, Fisher combined his interest in health with his interest in economics, for example by relating labour productivity to the state of public health.

Story 81 contains two seemingly paradoxical recommendations towards employers. In order to increase labour productivity they should:

- raise salaries (Fisher refers to the “Golden rule of Nash”);
- reduce the number of working hours.

Fisher recommended the six-hour day: In many cases an eight-hour day, or a seven-hour day, or even a six-hour day, would be more productive than a ten-hour day.

As mentioned above, Fisher published, at his own expense, the poster “How can the employer help the worker satisfy his fundamental human instincts?”. This could be called the “Code of good behaviour of employers towards their employees”. In response to numerous requests he drafted an analogous poster “Primitive instincts can be guided but not suppressed”, addressed to workmen. This companion poster exists probably only as a “rough draft”, a retyped copy is reproduced above. Fisher enclosed it to a letter of May 13, 1919 to Rev. W. G. Eliot, Jr.

82. Socialism and Communism

Fisher roughly defined socialism as collective property of capital, and communism as equality of income. In 1911 already, Fisher gave a talk on the subject (Fisher 1911b). One year before his passing away, he spoke about “isms” in general: socialism, liberalism, communism,... (Fisher (1946:15). He mentioned unemployment and poverty as the roots of revolutionary movements:

It is this central and ultimate problem of mass welfare which has created the great cults and their leaders, such as Marx, Lenin, Trotsky, Mussolini, Hitler as well as Henry George, Silvio Gesell, and, as it seems, Lord Keynes, whose “General Theory” has touched a responsive chord among so many would-be-reformer economists. Generally the aim is to level down the inequality of economic distribution.

I have studiously kept aloof from all the cults, while recognising some truth in many of them. One reason for this attitude on my part is that without exception the various protagonists start with a false premise, namely that the problem of economic mass welfare is primarily one of distribution whereas, in my opinion, it is primarily one of production... In short no ism is helpful for the masses which kills the goose which lays the golden egg.

83. Inequality of Distribution

Fisher strongly emphasises that the problem of an unstable purchasing power of money is interrelated with the problem of a wrong distribution of income and wealth, as inflation and deflation tend to end up with disturbing that distribution. Various aspects of a wrong distribution were the subject of a good many of his earlier Stories. An attempt has been made to place the Stories on this subject in the following table showing the 4 steps to solve problems (cf IFC Bulletin July 2002, p. 47-49).

Stories on the Distribution of Income and Wealth

	facts (and their measurement)	causes	evils	remedies
Story numbers	33 – 55			79 Social Insurance 80 Minimum standards 82 Socialism and Communism
	83 Inequality of distribution	84 Remedies for Wrong Distribution		

The present Story treats the facts of inequality and of mobility in the social stratification. The next Story deals with their causes and evils, as well as with remedies against them.

1. Facts (and their measurement)

Fisher defines indices or gauges of inequality and social mobility. He calculates a corresponding index number for inequality in the United States. It is something like a simplified Gini measure, but it meets its purpose as the original readers of the Stories were no scholars but trade union members. For mobility, Fisher can only give an index; because of a lack of data, he cannot evaluate the corresponding index number.

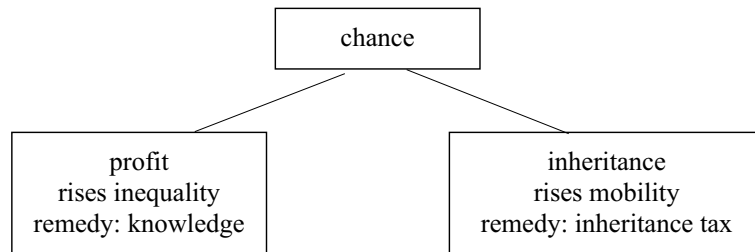
In Story 54, Fisher used the image of an aquarium to explain social mobility: the fishes move upwards and downwards, but there is less space up than down. In an earlier publication (Fisher 1911a:490), he gave an illustration of the aquarium, which was reproduced in the IFC Bulletin of March 2001. p. 45.

It is to mention here that normally, in a persons life, income grows. So, as a consequence of the variety of ages, the income distribution of the population would be unequal, even if everybody had the same income career. Nevertheless, it could be maintained that in such a population there is no inequality: the present values of future incomes of all newborn are equal. One could say that the inequality of distribution is cancelled by the (age-caused) mobility. Paglin (1975) eliminates this age-caused inequality and measures the remaining inequality, the "age-adjusted" inequality. Vogt (1992) applies this method to the labour income of the Swiss population.

84. Remedies for Wrong Distribution (Continuation of the previous Story)

2. Causes

According to Fisher, the profit principle and the inheritance system are the main causes of inequality. Actually, there is only one reason, chance, because profit as well as inheritance may be regarded as an effect of chance. Chance makes inequality grow. Knowledge reduces chance. But there is also an unequal distribution of knowledge, with a strong correlation between wealth and knowledge (because of education costs).



Fisher published much on economics and economic philosophy. But never as a matter of pure philosophy. In the present Story he writes: "There is no such thing as chance, in an absolute way". In a couple of private letters he takes the philosophical position of determinism. So, in a letter of January 15, 1904 to his mother he notes:

I'd like to go into the free will question but it seems as though among other necessities, fate compelled us humans never to agree on that question. One reason is that we are not perfect thinking machines but are influenced by our desires to believe – and one philosopher boldly asserts that we have a right and even a duty to exercise some will and believe!

It is remarkable that, as an effect of chance, Fisher himself lost his fortune in the 1929 stock market crash, four years before he wrote the present Story. His fortune melted down from \$ 10 million to minus half a million (cf IFC Bulletin 7, p. 20-21).

3. Evils

Fisher, as an ethical economist, did not just apply the usual, value-free term "unequal distribution" but the judging term "wrong distribution" (sic!). It is not quite clear what he understood by "wrong distribution", apparently one which, by being too unequal, caused social harm. He advocates as

“right distribution” the one prevailing in the United States treated in the previous Story. All the same, Fisher feared that a tendency towards a hereditary plutocracy would develop.

4. Remedy

Taxes and equality of opportunities are remedies for a wrong distribution. The removal of obstacles to mobility should keep distribution mobile and elastic. A too big inequality in the income distribution can be compensated by greater social mobility. A means to increase mobility is the introduction or raise of inheritance taxes. Another means is the fostering of knowledge.

85. Economics is the Science of Wealth

Fisher defines income as a series of future services or desirable events. This is his original approach (Fisher 1906:328), the very end of his book “Capital and Income”. He had it copied in “My Economic Endeavors” (Fisher 1947) and he underlined it as follows:

To describe in a few words the nature of capital and income, we may say that those parts of the material universe which at any time are under the dominion of man constitute his capital wealth; its ownership, his capital property; its value, his capital-value; its desirability, his subjective capital. But capital in any of these senses stands for anticipated income, which consists in a stream of services or its value. When values are considered, the causal relation is not from capital to income, but from income to capital; not from present to future, but from future to present; in other words, the value of capital is the discounted value of the expected income...

It reminds us of the beginning of his “Theory of Interest” (Fisher 1930:3):

According to the modern theory of relativity the elementary reality is not matter, electricity, space, time, life, or mind, but events.

This sentence summarises the first part of the present Story: income is a series of events. The equation of exchange, treated already in Stories 9 to 11, is the subject of the second part of the present Story.

86. Concluding Summary

Fisher (1946:30) ends his address:

... in our economy, so may the social sciences, as they increasingly become genuine sciences, be brought to bear successfully on our great social problems through this and other foundations, with resulting social betterment for all mankind.

Economic betterment was the chief purpose of Irving Fisher. In modern terminology one might say that he had “improving management” in mind, not just “changing management” as it is common today. Today we need (unfortunately, one might say) – in addition to common economists – economic ethicists. Fisher and probably many others in economic history were both – economists and ethicists – in personal union.

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Collected Stories by Irving Fisher

The present batch of Stories is the last one.

Fisher's Stories on internet

In IFC Bulletin 2, June 1998, pages 17-19, a list of the titles of the 86 Stories was presented. The Stories have been reprinted in successive issues of the IFC Bulletin in 12 clusters. They are available on the IFC web site www.ifcommittee.org.

- | | |
|-------|---|
| 1- 7 | IFC Bulletin 2, June 1998, 17-34: Capital and Income |
| 8-12 | IFC Bulletin November 1998, 23-38: Price indices |
| 13-21 | IFC Bulletin 4, June 1999, 71-86: Supply and demand |
| 22-32 | IFC Bulletin 5, October 1999, 110-129: Interest |
| 33-39 | IFC Bulletin 6, April 2000, 13-20: Division between production factors |
| 40-48 | IFC Bulletin 7, October 2000, 20-30: Distribution, poverty and wealth |
| 49-55 | IFC Bulletin 8, March 2001, 42-52: Distribution, inequality |
| 56-64 | IFC Bulletin 10, October 2001, 70-83: Purchasing power, inflation / deflation |
| 65-70 | IFC Bulletin 11, July 2002, 47-62: Monetary policy |
| 71-74 | IFC Bulletin 12, October 2002, 222-232: Prevention of economic waste |
| 75-79 | IFC Bulletin 15, May 2003, 45-50: Economic Policy and Social Insurance |
| 80-86 | IFC Bulletin 16, July 2003, Health, socialism, concluding summary. |

Milestones in a well-spent life



1880

Irving Fisher in the years ...



1892



1920

Table of Contents of Fisher's "My Economic Endeavors"

In this manuscript Fisher planned to summarize his economic research and thinking. It contains about 500 typed pages, partly with handwritten additions and corrections. The table of contents lists 12 chapters, but only the first 6 are included in Fisher's Papers at Yale University. (Probably, Fisher had never commenced writing the remaining chapters.)

CONTENTS	
Ch. 1	<i>The Determination of Individual Prices</i> Price, Value, Marginal Utility
Ch. 2	Mathematical Method in Economics
Ch. 3	Measuring Marginal Utility
Ch. 4	Capital and Income
Ch. 5	Are Savings Income or Capital or both?
Ch. 6	Income Taxation; <i>the spending tax</i>
Ch. 7	Theory of Interest
Ch. 8	The Scale of Prices (Price Level)
Ch. 9	Stable Money
Ch. 10	<i>Index Numbers</i>
Ch. 11	<i>Distributed Lags</i>
Ch. 12	<i>Odds + Ends</i>

Concordance between the Short Stories on Wealth and the chapters of "My Economic Endeavors"

Chapter No. (Table of Content)	Story No.
1. The Determination of Individual Prices	13-21
2. Mathematical Method in Economics	-
3. Measuring Marginal Utility	-
4. Capital and Income	1-7
5. Are Savings Income or Capital or both?	-
6. Income Taxation, the Spending Tax	(77, 78)
7. Theory of Interest	22-32,
8. The Scale of Prices (Price Level)	8
9. Stable Money	56-70
10. Index Numbers	9-12
11. Distributed Lags	-
12. Odds and Ends	71-76, 79-82, 85-86
Distribution	33-44, 49-55, 83, 84

Presented above is the Table of Contents of "My Economic Endeavors", Fisher's last important manuscript. The subjects of its chapters 2, 3, 5 and 11 have not been treated in the Short Stories. Representative works dealing with these subjects are:

2: "The application of mathematics to the social sciences", Bulletin of the American Mathematical Society, 225-2xx, 1930.

3: "A statistical method for measuring marginal utility and testing..." in Economic Essays contributed in honour of John Bates Clark, 1927.

5: "Constructive income taxation: a proposal for a reform", in vol. xii of "The works of Irving Fisher", 1997.

11: "Note on a short-cut method for calculating distributed lags", Extrait du bulletin de l'Institut International de Statistique, XXIX: 323-327, 1937.

It is astonishing that none of the chapters of "My Economic Endeavors" denotes the subject of distribution, which has been treated so frequently in his Stories.

Irving Fisher and his wife



1933

Motivation for his ...

... career as an economist

The young Irving Fisher was a brilliant teacher at the mathematical department of Yale University. But he switched to the economic department.

One reason was that mathematics was not an adequate topic to discuss with his wife – economics was easier.

... his starting a diary on January 12, 1940

I have recently been regretting the fact that I have never kept a diary. In my nearly 73 years of life hitherto, numberless things have happened of interest to myself, my family, or friends of which no record exists or could now be made with completeness or accuracy, especially to dates.

The chief deterrent from writing a diary has been “lack of time”. That deterrent still exists and may continue indefinitely. But if a “try” is to be made at all it must, I think, be now when I am entering on a new chapter of my life.

For today was the funeral of my darling wife who has been the center around which my whole life has been turning ever since we were married, on June 24, 1893 – in fact ever since we were engaged, on September 24, 1892. Then (on the morning of January 9) after the first paroxysm of grief¹ ... a miracle happened. Instead of feeling that before me lay an unendurable life without her, I felt a sudden new impulse to live for her... Almost involuntarily I dedicated my life to her anew. In my mind’s eye I could see her beautiful, smiling face of expecting something of me I must fulfill... All this happened to me in a few minutes...

1) *Mrs. Fisher died on January 9, 1940 after a heart attack.*

Irving Fisher posing ...

... in February 1947 for a portrait commissioned by "Warren Hunter" for the Irving Fisher Foundation (which never became viable). The portrait was unveiled at the Yale Club of New York following a testimonial dinner in Irving Fisher's honour on the 80th anniversary of his birth, February 27, 1947. The following morning, Irving Fisher was admitted to the Gotham hospital and never emerged alive. He died April 29, 1947, from an inoperable cancer. About three years later the family unanimously decided to destroy the portrait, because it showed him as an ill man.



1947

On the right, a small part of the 1891 portrait of his wife can be seen. The photograph was taken in his home at 119 Park Avenue, Hamden.

Short Stories on Wealth

Irving Fisher

80. Minimum Standards ¹

IN THE last Short Story, I discussed insurance as a method of raising the minimum incomes or preventing their collapse. In this Story, I shall speak of setting minimum standards of living as means towards the same end.

Fixing a legal minimum is an example. The economic objection to a minimum wage is that it artificially raises the rate of wages beyond the “natural” result of supply and demand. Some people will be thrown out of work by the minimum wage, namely those incapable workers who are not worth even that minimum. And the higher the minimum, the more such people will be thrown out of work. We could certainly not enforce a minimum wage of hundred dollars a day without throwing almost everybody out of work. It is clear that, to be at all practical, a minimum wage must be set very low, and aimed merely to help those unfortunate few, at the very bottom of the economic scale.

And then we must be prepared to take care, in some way, of those people who cannot earn even this minimum, those who will be unemployed because of the legal minimum.

For this reason, some people oppose any minimum at all as a useless, if not harmful interference with supply and demand. But from a general point of view, a minimum wage, if not set too high, is a wise if not a necessary part of any complete program for economic betterment. Mere supply and demand will always take advantage of weak bargainers. A legal minimum wage will tend to eliminate the sweat shop, unsanitary conditions and demoralization of the standards of living of working men generally. It is worth a great deal to Labor to eliminate the weakness in bargaining of the lowest grades of labor.

A minimum wage will also tend to protect the whole population from the risk of infectious disease as a by-product of extreme poverty. The risk of epidemics will never be taken care of by any let-alone policy.

Even if the result of a minimum wage is to require us to carry an added tax burden, nevertheless, it is good public policy to make up the difference, to set our standards and maintain them. The most hard-boiled individualist must admit this. It is better, in the end, for Labor, for society in general, and even for employers.

[...]

Judge Olsen, Chief Justice of the Municipal Court of Chicago, has long been an advocate of a farm colony for incapables. He has long had connected with his court-psychiatrist, and he and the psychiatrist came to the conclusion that much of the juvenile crime in Chicago is due to mental defectives whose emotional or intellectual nature or both are stunted. Many crimes are committed just because a person can't earn an honest living. He is hungry and steals and robs or otherwise tries to get a living dishonestly if he can't get it honestly.

Judge Olsen's idea is to segregate these incapables when young – and also to examine their families and find among their brothers and sisters and fathers and mothers other incapables; then without, of course, forcibly putting them in institutions, offering them an opportunity to be supported by the state. They would be told “Here's a farm colony. You will be taken care of,” and Judge Olsen believes that many of them would be glad of the chance.

[...]

1) Released 15 October 1932; publication unknown.

81. The Relation of Health to Work ¹

WE ARE only just now waking up to the importance of this relation: The employer; when he beats down the laborer's wage unmercifully, on the theory "I am just bargaining – just as I would if buying cotton or anything else – I will get this labor for the least I can." does not realize that the other man is at a disadvantage in the bargaining, that the curse of the poor is their poverty and that, in the end, wages thus beaten down will not give the employer a decent day's work. For in such cases the laborer accepts, in his dire distress, a lower wage than in the long run will sustain him in working power. In that case the employer is likely to lose.

This principle applies especially to child labor. It would be funny if it wasn't pathetic to think of how many hours in England they tried to work a child a century ago. A child wasn't built for it, and of course it dwarfed him for life, and not only employers, but England as a nation lost by it.

The same is true to a large extent of women and even of men. Woman's labor is involving strain beyond her physiological capacities, especially in certain phases of her cyclical life, means grave harm and especially to the next generation, for the most important labor of womanhood is not in earning money. It is the labor by which children are brought into the world. The physiology of labor, especially of women's labor, ought to be most carefully considered by the employer even in his own interest. Some employers encourage their women employees to take one day off each month without deduction of pay.

All sorts of instances could be given where a shortening of the hours of labor increased the product. One of the most interesting and extreme cases I know of is that of "Golden Rule Nash." He was a successful clothing manufacturer in Cincinnati. He stumbled on his big idea by accident. Once he had a debt owing him, which the debtor was unable to pay in money. So this debtor turned over to Nash a sweatshop. Nash never had had a sweatshop before and when he realized what was on his hands he was much disturbed. His wife likewise felt that it was a disgrace to be connected with that sort of thing. But he couldn't attend to selling right away because he had a farm out west which he needed first to visit.

So, just to keep the sweatshop going for a few weeks and at the same time not to give up his trip west, he hurriedly visited it – he had never met the employees before – called them all together, and said, "I am going to increase your wages."

He did that merely as a gift, so that he wouldn't lie awake nights thinking he was grinding the faces of the poor. He never thought of his act as good business. On the contrary, he was quite sure it would turn profits into a loss; but was willing to take the loss as a contribution to charity. He thought he could stand it until he could get that white elephant off his hands and let someone else grind the faces of the poor.

So he had the employees file by him one by one, and raised their pay. He noticed in particular one skinny old woman who looked as though she was about to die anyway working her fingers off, and he asked her what she got. It was so absurdly low that he said, "Mother, I don't know what you are worth, but I will multiply that by five." Then he went off on a trip, which took more time than he had expected. He got worried about how much out of pocket he would be. So as soon as he got back, he went to the bookkeeper and said, "how's business?" He replied, "Fine." "How much money have we been losing since I have been away?" The bookkeeper replied, "We are making money." When he came to look into it he was much astonished to find that these people, who, when they were ground down were inefficient for lack of food and soldiering because of resentment, had come to realize that he was a human being, and set out to do something for him in return. He suddenly waked up to the idea that this was an application of the Golden Rule, and that the Golden Rule has a cash value. So he adopted it as a principle in his business, preached it and got the sobriquette of "Golden Rule Nash."

I am convinced that the higher the wages – until you get up to the high salaries where people spend injuriously for themselves – the greater the health, and the greater the efficiency. Moreover, it follows that raising the wages up to a certain point raises efficiency in a greater proportion. The point at which the employer gets the highest return will of course differ with circumstances and with each occupation and individual.

Often it is good business to shorten the hours. If, to take an impossibly extreme case, you would have people working 24 hours a day it is perfectly obvious you had better shorten to 23 to give one hour's sleep. It is perfectly obvious that you can do more in the 23 than you can do in 24 hours. No one ever thought of working people any such hours, but they have worked them 12 or 14 hours, and that is almost equally futile from the standpoint of profits to the employer.

1) *The International Musician*, December 1932.

In many cases an eight-hour day, or a seven-hour day, or even a six-hour day, is more productive than a ten-hour or twelve-hour day. And so, on such a basis the employer can often raise a minimum, just as Nash raised it Without even running foul of the law of supply and demand. Instead of costing something to the employer, it returns something.

Finally, it must be emphasized that the employee's point of view, even when he knows enough of the physiology of labor and of human nature to get the most profit out of his employees, is not important except as a means to an end. The important matter is the welfare of the employees themselves. If the employer will not voluntarily forward that welfare he should be coerced to do either by law or by the force of labor unions. One of the most useful functions of labor unions is to insist on healthful conditions of work and hours of labor – this in addition to getting the highest real wages obtainable.

82. Socialism and Communism ¹

AMONG the most radical cures proposed for poverty are Socialism and Communism. The two are different; but for purposes of this "Short Story" they may be considered together.

Socialism may best be defined as the governmental ownership of capital in place of private ownership – collective property in place of private property. Communism may perhaps be defined as equality of income:

Both aim at reducing the wealth of the wealthy and the poverty of the poor by means of Government ownership and control.

I would more seriously consider radical governmental interference in the distribution of capital and income if I could be convinced that the Government could safely be entrusted with such a job. But, in view of the graft, corruption and inefficiency of our American governmental machinery, I believe we should go slow and should first devote a large part of our energies toward getting good government.

The Russian experiment is of the greatest importance and may teach us Americans many lessons. It is evidently working better than was expected by us who have been brought up under private capitalism. But it is not working any too well, and has, already been forced to take steps back toward capitalism. Man is largely a selfish animal and requires, in most cases, a selfish profit motive to get the best results. That is, the profit motive must be given some place though not as big a place as had been thought.

In Russia the motive of patriotism is being utilized just as it is utilized in all countries in war time. And this patriotic motive is, on occasion, capable of becoming stronger than the profit motive. Whether it can be depended on "after the war is over" is a question. In capitalistic countries this does not seem to be the case; and a large part of the patriotism in Russia today seems to consist in the thought of a sort of warfare of Russian Sovietism against the capitalism of the rest of the world. When and if this war-psychology disappears, because the idea of world conquest by socialism is given up (or because

the world all becomes socialistic!), we shall have the real test of this Russian patriotism. The idea of welfare also exists in another way and even more definitely - that of "class war." The "proletariat" in Russia is conquering the "bourgeoisie." As long as there are "bourgeoisie" this class war will be real. But when there are none left, and there are few now in Russia, how will the fires of class war be kept burning to keep up the patriotic fervor? We must wait and see.

Another feature of the Russian experiment which is also temporary, Russia's Five-Year Plan, as well as her planned economy generally, is largely based on the fact that, under the Czars, Russia had fallen behind other countries industrially. It is now easy for Russia to lay plans to catch up, because the models are all ready to copy. All that is necessary is to import American engineers who can install the technique of a Henry Ford or of an International Harvester Company. As long as Russia is behind other countries, these other countries afford the models toward which she can work and plan.

But even if Russia should be 100 per cent successful in a planned economy, thus dependent on initiating the latest working models of progress, it does not follow that America could make any good use of a planned economy. We would have no working models to copy and our planning would have to be not copying, but pioneering, which might not be successful. Most new ideas fail to work; although the few that do work are what make progress. In America progress is rapid because, for one reason among many, so many millions of minds are constantly devising and trying

1) *The Lather, Cleveland, Vol. XXXIII, No. 5, January 1933, p. 24.*

out new ideas under penalty of individual loss if they fail and with fortunes to be won if they succeed. If we substitute a salaried planning board in Washington of a few score even of the best minds can we accomplish more? Or will individual initiative shrivel up? Or can we strike a golden mean retaining the initiative of millions of ambitious individuals and supplying governmental coordination and planning – as for radio wave-lengths, lighting airways, standardizing sizes and shapes, certifying, conferring, and so on. The last seems to me the probable eventual outcome. And it can come by evolution instead of revolution as in Russia.

Meanwhile, it behooves America to watch Russia sympathetically so that we may adopt what is good in her system, and reject what is bad. We are certainly not perfect ourselves and have, as recent events in the Depression have shown, much to be ashamed of in our boasted industrial system – unemployment, destitution of superannuated workers, industrial disease, accidents and corruption. In most of these respects it would seem, from such reports as have come to me, that Russia is at present ahead.

83. Inequality of Distribution ¹

WE NOW reach the problem of inequality. First, how is inequality, to be measured? There are various ways. The simplest and I think, from a practical point of view, best way of gauging inequality is by means of a distribution curve. This curve begins with the pauper, and ends with Henry Ford – or whoever is the richest. It is worked out in the United States by Mucauley, for the National Committee of Economic Research. This distribution curve shows that one-quarter of the incomes of individuals in the United States are below (about) \$750 a year and one-quarter above (about) \$1,750 a year, leaving the middle half of incomes between these figures. In Other words, the middle half, has a range of about \$1,000, from \$750 up to \$1,750. That is, it ranges in the ratio of from 1 up to 2 1/3 or from 2 1/3 down to 1. In still other words, at the upper edge of the middle half we find an income 2 1/3 times as large as that at the lower edge of that middle half. This gives us a convenient standard of comparison. If at another time or place we find this middle half range greater than in the ratio of 2 1/3 to 1, the inequality of distribution may be said to be greater than in the United States at present, and if less, less.

Of course, the “middle half” is quite arbitrary. We could take the middle third or any other fraction whether at the middle or elsewhere. But the middle half seems the simplest and best, if only one figure is to be used to express the inequality of income. Before we go on, we may note a few more figures for the United States.

The middle income in the United States which is, therefore, also the income of the middle of the middle half is \$1,100 a year: In other words, half of American incomes are below and half above \$1,100 a year. Again, 90 per cent of American incomes are below \$2,200 a year and 99 per cent are below \$9,000 a year.

It would be interesting and valuable statistically – if we could compare different countries and different times – and see whether inequality of Wealth in America is greater or less than elsewhere and whether it is becoming, more or less than those figures show. But unfortunately, there are no such elaborate figures available. All we can say seems to be that our American inequality is probably less than the English and other older countries, and that the inequality is probably increasing slowly. But the only exact or approximately exact inequality gauge of importance is that in America at present the middle half ranges from top to bottom in the ratio of about 2 1/3 to 1.

We may state this gauge in another way which may seem more meaningful to some people. What we have done is to classify all people who receive incomes into four groups, a quarter being in each group. Of the three dividing points which divide all income receivers into these four groups, we took the upper which is \$1,750 and compared it with the lower which is \$750. Evidently we may think of the upper, or \$1,750, as the middle income of the upper half of society and, likewise, we may think of the lower or \$760, as the middle of the lower half. It now we regard these two, the \$1,750 and \$750, as representative of the upper and lower halves, respectively, their ratio may be said to compare the incomes of the upper and lower halves. The ratio of \$1,750 to \$759 tells each half “how the other half lives.” But whether we regard the \$1,750 as the upper limit of the middle half or the middle of the upper half and whether we regard the \$750 as the lower limit of the middle half or the middle of the lower half, we may conveniently call the ratio of \$1,750 to \$750, or 2 1/3 to 1, as the “upper to lower ratio.” This upper to lower ratio seems to be the simplest, and so

1) *The Potters Herald*, January 1933.

the best, single index or gauge of the inequality of distribution.

So much for inequality. But, besides inequality, we have to deal with mobility. It is quite possible, for instance, to have a perpetual continuance of 2 1/3 as to the upper-to-lower ratio and yet, at the same time, to have a rapid and continual churning up of individuals and families moving about between one extreme, wealth, and the other extreme, poverty. That is, a stereotyped distribution does not necessarily imply a stereotyped status or caste of the individuals involved in that distribution is doubtless an evil, it is not as great an evil as is extreme immobility, such as the immobility we find in an oriental caste system, such as Gandhi is trying to break up in India, or in the mediaeval system of status as contrasted with the modern system of free contract. So, besides a gauge of inequality, such as has been given, we need another gauge, a gauge of mobility.

The rate per annum at which people pass out of the middle half, or into it, may be taken as such a measure. This means the frequency of income receivers crossing the \$1,750 and \$750 lines. Thus, if 10 per cent of the middle class income receivers pass, within a year, into the upper and lower quarters, to be replaced by 10 per cent coming from those quarters, then the mobility is said to be 10 per cent. If, instead of 10 per cent, only 5 per cent per annum were so interchanged, the mobility would be said to be half as rapid. Unfortunately, while we already have a figure, 2 1/3, by which to gauge inequality of distribution for this country, we do not yet have any figure whatever for "mobility" in the sense here defined. It may be 10 per cent per annum or more, more or less. It would be a great step forward in the statistics of distribution if we could get a reliable figure for this or any other good gauge of mobility. All we can now say is that many of the rich families today seem to have been poor a generation ago, and most of them poor several generation ago. You hear of the aphorism, "From shirt-sleeves to shirt-sleeves in four generations." But I don't know whether this saying is really anywhere near the truth or not.

I fear that our mobility in America is growing less. We seem to have been more mobile a generation or a century ago than we are today. The very rich in America seem to be following in the footsteps of England's primogeniture custom, where the oldest son gets the lion's share of his father's estate in order to preserve that estate, especially a landed estate, from subdivision. This tended to create and perpetuate an hereditary landed aristocracy in England, while in America we have traces now of a tendency toward an hereditary plutocracy. We have generations of Astors and Vanderbilts, though not as many generations as in England of Rothchilds and Dukes of Buckingham.

Nevertheless, our richest men are still largely among those to whom inheritance has given little help. It is still possible in America society for a John D. Rockefeller, or a Henry Ford, or a John J. Raskob to rise within a lifetime from a working man to a billionaire, or near-billionaire.

It is likewise easy for a man to fall rapidly from the top to near the bottom. In one year, 1930, the Chicago packer, Armour, is believed to have fallen from \$200,000,000 to zero. In 1933 the same happened to Insull.

I believe it is far more wholesome to have a society which is constantly churning up in this way, even if it not wholesome for some of the sufferers, than to have a society in which there is a more or less fixed stratification.

But we have a real cause to look forward to the next century in America with apprehension, for fear that our plutocracy will solidify. I am not much afraid of any growing inequality due to men of enterprise making huge fortunes during their own lifetime. What I am afraid of is the results in the long run of the leaving of those fortunes to those who have never earned them. When those who never did work strut around, while everybody realizes that it wasn't their

brains that made their money, but that they acquired it through the favor of their parents, the situation is at best tolerated, but never welcomed. And some day, as in Russia, it may even not be tolerated.

84. Remedies for Wrong Distribution ¹

IN PREVIOUS short stories I have spoken of the causes which make the distribution of wealth unequal and also of the causes which makes that distribution more or less fixed, or unmovable.

The next question is: Can we and should we do anything about it?

I don't see any very good methods of curing the evils of inequality. But we can reduce them somewhat by recognizing the fact that a large part of inequality comes from "chance" and reducing

1) Released 21 January 1933; publication unknown.

chance.

Of course, there is no such thing as chance, in any absolute way; for, what we call chance merely represents lack of knowledge.

Anything that will reduce chance of risk, that is, will give more knowledge, will tend to reduce the chance distribution which we now get.

If, for instance, everybody could have foreseen what the automobile would do, and everybody was as inventive as Mr. Ford, there would have been such competition from the start to make automobiles that instead of one or two becoming enormously rich in that way, thousands would have become moderately rich.

So, if we knew the crust of the earth better in regard to its capacity to produce gold, we wouldn't find a few people occasionally striking it rich, stumbling on gold mines worth ten or twenty million dollars, we would scientifically exploit the known deposits and multitudes would make a few thousand dollars instead. The chief reason for inequality is chance – the chance of profit and loss – and the diminution of chance will diminish that inequality.

Even the inheritance of wealth may be regarded as a species of good luck for those who inherit.

There are two great keys to the whole problem of distribution:

One is the profit system, which is really what people miscall the capitalistic system (for, of course, you can never * have any system without capital). The other great key to distribution is the inheritance system.

In short, profits and inheritance are the two chief sources of inequality. Inheritance is also the chief source of immobility. Now the most practical proposal that I know of for reducing the immobility of distribution due to inheritance is that of the Italian economist Rignano. According to Rignano, anyone who has property to leave should be subjected to big inheritance taxes. The State should take over one-third of the estate on the first descent, another-third on the second, and practically all of the remaining third on the third descent.

Inheritance would thus still be permitted, but its extremes would be discouraged. No one could have wealth simply by inheritance through three generations. He must bestir himself by that time and show that he has capacity to amass a fortune himself or else lose his wealth entirely. The danger of an hereditary plutocracy would then be greatly lessened. There would be a great equality of opportunity.

The result would not be ideal. But neither would a dead level of equality. We can never reach any ideal millenium and least of all in the distribution of wealth. It behooves us to be practical and not too addicted to dogmas, whether of aristocracy or democracy. There is a falsehood in the idea of a blue-blooded aristocracy and this falsehood grows greater the longer the inheritance of privilege is handed down. But there is a falsehood, too, in the dogma of equality which contradicts the facts of feeble-mindedness being found side by side with genius. Equality of opportunity is not only more practical, but also more nearly true to facts and instincts. But we cannot expect parents to avoid favoring their own families to a reasonable extent and a society in which all favoritism was eliminated would be one destitute of love and friendship.

Nor is Rignano's proposal very radical. It merely intensifies somewhat the existing inheritance taxes and applies them cumulatively so as to prevent a cumulative immobility. It would probably safeguard us against a radicalism which might some day be destructive like that in Russia. It would tend to keep distribution mobile or elastic; that would be a great safeguard; for an immobile society will be in danger of breaking instead of bending.

85. Economics is the Science of Wealth ¹

The foregoing S4 stories complete my series except for a short summary which I shall try to make in this short story and the next.

WEALTH is anything owned. Money is an example, but a relatively insignificant one except as it measures other wealth. Wealth includes all physical property or rights thereto as well as all rights to or in human beings. While we speak of owning a physical thing such as a typewriter, what the ownership really means is a right to the expected services of the typewriter. Every item of property is a right to a series of future services or desirable events. Such is the series of future services of a typewriter, of a house, of a farm, of a half interest in a farm, of a partner's third interest in a business, of a share of the stock of a railway, of a bond, mortgage, personal note, and so on, with myriads of other

1) *The Lather, Cleveland, Vol. XXXIII, No. 7, March 1933, p. 24.*

property rights.

These various series of services constitute income, while the negative services, or “disservices,” constitute outgo; for we cannot usually get services, or desirable events without getting some undesirable ones, too. We cannot enjoy the uses of our dwellings without paying for taxes, repairs, upkeep, or betterments.

The net income of a person, or group of persons, is simply the net value of the services and disservices belonging to that person or group.

Income is the most fundamental factor in economic science. Capital is simply income capitalized. If income is “saved,” that is, not enjoyed immediately but “reinvested” so as to become the capitalization of other income deferred to a remoter future, these savings are no longer income. Every dollar saved is capital; only what is spent and enjoyed is real income. It cannot be both at once. “We cannot have our cake and eat it, too.”

Income and its capitalization comprise the essentials of the whole economic structure, or machine.

We next want to know how this machine works, how the prices which link it together are formed. The simplest price principle is that which applies to the general scale or level of prices. If we should call a cent a dollar, the scale of all prices in dollars would be magnified a hundred fold. The principle here involved is that of the “equation of exchange;” namely, that the scale of prices multiplied by the volume of business transactions per year must be equal to the quantity of money multiplied by its velocity of circulation.

If this velocity remains the same and the volume of trade remains the same, the level of prices will vary with the quantity of money.

So the general level of prices is determined by the quantity of money, its velocity, and the volume of trade.

But to determine the general level of prices does not determine prices completely. Individual prices are as free to vary from the general level as the individual waves of the ocean are free to vary from the general sea level. To determine the general level of prices is really nothing else than to determine the purchasing power of the dollar. It is the same thing to say that the general level of prices has doubled as to say that the purchasing power of the dollar has been cut in two; and to say that the general level of prices has been cut in two is the same thing as saying that the purchasing power of the dollar has been doubled.

Everybody takes into account the purchasing power of the dollar whenever he buys or sells. When he balances in his mind the money he spends or receives against the goods he buys or sells for that money, he must have some idea of what that money is worth in terms of other things. So, also, the purchasing power of the dollar is implied in every bid or offer, that is, in the whole mechanism of supply and demand by which the price of any individual good is determined. What fixes the price level is not supply and demand, but volume and velocity of money and credit. And with the price level thus fixed, supply and demand determine the individual prices.

86. Concluding Summary ¹

IN THE course of these short stories (of which this is the last), we have seen how the general level of prices is determined by monetary causes. Next comes the determination of individual prices by supply and demand. Supply and demand always implies a given price level. That is, it implies a given purchasing power of the dollar. When a man makes a bid for wheat or anything else he makes it in terms of money and he must have some idea of what that money is worth if used for something else.

Each price tends to be fixed at the point at which demand and supply will be equal and the market will be cleared. If for a moment the price is above this point, the supply will exceed the demand and the price will tend to fall; while if it is below this point, demand will exceed supply, and the price will tend to rise. This principle of supply and demand fixing a price so as to “clear the market” applies to the price of everything in a competitive market. Behind demand and supply are the wants of man.

Thus every demand results from balancing the want for a good against the want for the money to buy it with, and so against the want for the other things which that money could buy.

Each sort of price has a story of its own. The most unique sort of price is the rate of interest. This

1) *The Lather, Cleveland, Vol. XXXIII, No. 8, April 1933, p. 16.*

is the premium we pay in next year's money to get spot cash now. When we promise to pay \$105 next year for \$100 now, the rate of interest is said to be 5 per cent. The rate of interest is determined by supply and demand and, back of them, by human wants for present and future real income.

There is always impatience for immediate income as compared with future income. That is why we are willing to pay a premium to get immediate income. That premium is the measure of human impatience – the impatience for one more dollar's worth of enjoyable income today rather than next year.

But quite consistent with this subjective influence on interest is an objective one – the opportunity to invest a dollar of present income so as to secure more than a dollar of future income. This opportunity to invest with gain is offered us not simply by other people, borrowers impatient to spend, but by Nature herself. Nature multiplies her flocks and crops. Again we hear it said that often a "stitch in time saves nine" later. This aphorism suggests a very big rate of return, and such there are, especially after a new discovery or invention. But these big opportunities are exploited so quickly that they also disappear very quickly. The investor usually finds he can get only about the market rate. So the rate of interest which will clear the market tends to be such that it increases the rate of return over cost for an additional dollar invested, just as it measures the impatience for each dollar spent. So the rate of interest may be said to be determined by two factors, one subjective and the other objective. These are: (1) the impatience to enjoy income now, and (2) the opportunity to invest it for future enjoyments.

The problem of the rate of interest leads naturally to the next problem, that of distribution. There are two steps in the study of distribution. The first is about the distribution of income relatively to its sources, namely, labor, land, and other capital. If labor, land, or other capital is hired, the hire is then the income. The hire of labor is wages and the hire of land is land rent and the hire of other capital, factories, houses, typewriters, taxicabs, etc., etc., is other rent. But besides such contractual hire of man and things there is also a residual profit or loss to be considered. This profit or loss takes up the slack and represents the unknown, uncertain speculative part of the income flowing from the various respective sources.

Wages and rent are fixed by supply and demand, varying under varying conditions.

Land rent is somewhat peculiar because land is so nearly fixed in quantity, so nearly permanent, that is, indestructible and uncreatable, and so variable in quality or productivity. Other things equal, the rent of land represents its productivity, which means, in the case of crop land, its fertility, and there is usually land on the margin of cultivation barely worth the labor of cultivating, which bears no rent. The rent of more fertile land will measure its excess of fertility over and above the no rent land.

The second step in the study of distribution is about distribution of income relatively to its owners. How rich or poor in income any person may be now depends on how rich or poor he was at the start, or any time in the past, and how much has been added or subtracted since that time, taken as a starting point. How rich or poor he started depends chiefly on inheritance. The chief cause of inequality of distribution lies in unequal inheritance; but how much is added or subtracted later is also important. Many of our richest men – like Ford, Rockefeller, Raskob – started with almost nothing. The additions which are made may be classified as coming from thrift, industry, ability, luck, force, or fraud.

A few get rich largely by thrift alone – that is, saving income instead of spending it and reinvesting, so that it compounds or rolls up, like a snowball; while many grow poor by thriftlessness. Others owe their success, such as it is, to industry or hard work; others, to superior ability; and still others to good luck in speculation, prospecting, etc. Force and fraud are, of course, illegitimate ways of gaining wealth and income; but they must be reckoned with to make the list complete.

In most legitimate cases of attaining great wealth, several of these causes are at work – usually inheritance to start with, and then thrift, industry, ability and good luck.

How can we improve the economic machinery which has been studied? So far we have reviewed its anatomy and physiology; but to complete the picture we need also to study its pathology and therapeutics, that is, its diseases and their remedies.

The commonest and worst disease consists in variation in the purchasing power of money – inflation and deflation. Inflation robs the creditor and deflation the debtors. Both are wasteful, in the end leading to business depressions and confusion and reduced productivity and unemployment, and produce discontent as well as strikes and lockouts.

Remedies for this disease – the chills and fever of industry – have been found by economists, but as yet have only been partially applied. They consist in two measures: (1) credit control, especially control of bank discount, checking inflation by raising the rate, and checking deflation by lowering it; and (2) gold control through central banks as far as possible, as well as direct control of gold mines or control at the mint of the weight of gold in the dollar.

The other chief betterments which are at all practicable in our economic machinery consists

chiefly of ways of increasing productivity. Increased productivity comes chiefly from stimulating science and invention, including scientific management. We are living in an age of science and mechanical and chemical progress which tends to an extraordinary rapid increase in per capita income.

The productivity per capita of labor and so the increase of wages and of all income may be greatly increased by safeguarding men from illness. This will be a slow process, but the possibilities are great. Also, through birth control, the numbers may be limited which will tend to increase the share per capita.

Besides increasing per capita income, a complete farsighted program for economic betterment must include decreasing the inequalities of distribution. Any communistic leveling, as in Russia, however, tends to defeat itself. It levels down but not up, and the average is apt to be decreased, although we must still keep an open mind as to Russian experience. The most promising way to improve the inequalities and to prevent their becoming stereotyped, is to levy heavy and progressive inheritance taxes, as suggested by the Italian economist Rignano, the rates to be higher if the inheritance lasts through two generations and to be still higher if it lasts through three.

Something can also be accomplished by attacking the whole problem of risk. Insurance is a helpful measure of this sort. Widespread information is another.

But we should not apply any method of improving distribution without care and study and even then only gradually and with caution. The economic machine is more delicate than a watch and rough handling may merely result in its destruction or impairment.

This completes our study of Economics. It has covered four parts corresponding roughly to Anatomy, Physiology, Pathology and Therapeutics. Under Anatomy we studied the bookkeeping of capital and income and their relations. Under Physiology we studied the influences of the price level and of individual prices, including the rate of interest and the influences on the distribution of income relatively to its capital sources and of capital and income relatively to its owners. Under Pathology and Therapeutics we studied inflation, deflation, poverty, vanity, degeneration, inequality of distribution and the various plans of coping with these evils.