

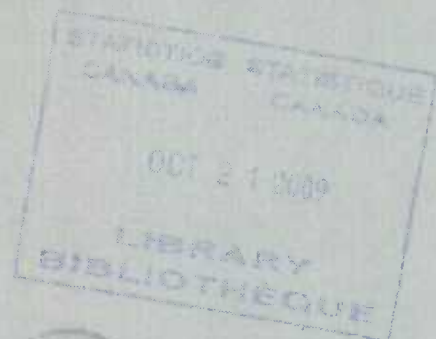
13F0062XPE

c.3



Third Meeting on Household Income Statistics

Papers & Final Report



Canberra Group

Expert Group on Household Income Statistics

Papers & Final Report of the Third Meeting on Household Income Statistics

Statistics Canada
Ottawa, Canada, June 7 - 9 1999

Canberra Group

Expert Group on Household Income Statistics

This document contains the papers and proceedings of the Third Meeting of the Canberra Group, the expert group on Household Income Statistics, which was held in Ottawa, Canada, 7 - 9 June 1999.

The proceedings are prepared by Luc Albert, Kevin Bishop, Phil Giles, Alison Hale, and Karen Maser.

The text is edited by Mike Sheridan, Louis Rouillard and Anita Choquette.

All papers and reports of the Canberra Group meetings can also be downloaded from the Canberra Group's Web site on the Internet, which is maintained by Luxembourg Income Study at the following URL:<http://lissy.ceps.lu/canberra.htm>.

The views expressed are solely the responsibility of the authors.

Keywords: Household income and expenditure statistics; Measurement of economic well-being; International comparisons; Statistical methods; City Groups

PREFACE

The goals and objectives of the Canberra Group are crucial to National Statistical Offices. The need for improvements to national household income statistics is widely recognized, as is the need for improvements to international comparability. Here in Canada, the pressures for better data on household income have been reflected in a recent substantial resurgence in the demand for better information to support policy analysis on a wide array of social and economic concerns. There has been a clear recognition that the analytic capacity of governments and non-government organizations alike has been eroded in recent years, to the point where important policy and program decisions are made without an adequate understanding of their implications or of alternatives which might be available. There has also been a clear recognition that improvements in policy research depend on good data, and that more needs to be done to provide data relevant to the outstanding policy issues. The tangible result of this recognition has been a substantial infusion of money for Statistics Canada to undertake new data development including data relating to income and economic well-being, an important example being a survey of household assets and debts which now is under way.

Additional money, however, is only a partial answer to the challenges facing us in improving our understanding of the complex issues associated with the measurement of household income. From further development and adoption of underlying conceptual frameworks to resolution of specific measurement problems, much remains to be done. Here, in my opinion, the Canberra Group can make a substantial contribution. By bringing together some of the world's most knowledgeable experts in the field of income statistics to share insights and experience, and by collaboratively pursuing research on common problems, it should be possible to achieve significant progress to the benefit of all concerned.

To achieve that progress, however, will require discipline and a clear focus on the Group's activities. The agenda for this meeting, building on the previous sessions in Australia and the Netherlands, touches on a wide array of issues, all of them important, all of them difficult. But in dealing with each of these topics, I would urge you to focus on and articulate the concrete actions, recommendations and follow-up steps which you feel should be taken to achieve the goals and objectives established when the Canberra Group was established some three years ago. In so doing, you will avoid the criticism which, rightly or wrongly, has been levied at some other city groups, namely, that their deliberations have gone on too long, with little results. More importantly, you will contribute in a significant way to improving data which are of fundamental importance in all of our countries.

In closing, let me again extend a warm welcome to all of you, and wish you a meeting which is both enjoyable and fruitful.

D. Bruce Petrie
Assistant Chief Statistician
Social, Institutions and Labour Statistics Field
Statistics Canada
Ottawa, Canada

Table of Contents

Preface	iii
Conference Programme	vi
List of Abbreviations	xi
Session 1	
Terminology for Microdata Concepts and SNA	
Concepts on Income – A Question of Communication	3
Session 2	
Robustness Measure Report Update	33
Session 3	
Income Data Collection in International	
Household Surveys	43
Session 4	
Eurostat's Work on the Quality and Availability of	
Information on the Components of Income	85
Session 5	
Purchasing Power Parities and Options for	
Canberra Group Work	137
Session 6	
Latin American Situation and Update on	
Income Distributions	167
Session 7	
Update on World Bank Measures on Income Distribution	267
Session 8	
A Conceptual Framework for Income Statistics	289
Session 9	
Income Units of Analysis – Update on Sheridan	
and Macredie paper	301
Session 10	
Discussion of Canberra Group Session at the next IARIW	319
Concluding Session	329

3rd Meeting of the Canberra Group

Ottawa, Canada, June 7-9 1999

Monday, June 7, 1999

- 8:30 - 9:00 **Registration, Simon Goldberg Conference Centre**
- 09:00 - 9:30 **Welcome and Opening Remarks**
Mr. Bruce Petrie, Assistant Chief Statistician
Social, Institutions & Labour Statistics, Statistics Canada
- Chair Session 1 & 2:**
Ms. Cathy Cotton, Assistant Director
Income Statistics Division, Statistics Canada
- 09:30 - 10:30 **Session 1**
Terminology for Microdata Concepts and SNA Concepts on Income
-A Question of Communication
- Focus Paper:**
Ms. Anne Harrison, Head, Transition Economies Division
Statistics Directorate
Organisation for Economic Co-operation and Development (OECD)
- Linking Micro and Income Distribution**
- Discussant:**
Mr. Stew Wells, Assistant Chief Statistician
National Accounts & Analytical Studies, Statistics Canada
- Open discussion to all Canberra Group Members
- 10:30 - 11:00 **Break**
- 11:00 - 12:00 **Session 2**
Robustness Measure Report Update
- Focus Paper:**
Mr. Gordon Harris, Analytical Services Division
Department of Social Security (DSS), London UK
- Robustness Assessment Reports: Aims, Progress, and Prospects**
- Discussant:**
Mr. Michael Ward, Principal Economist
International Economic Development Data Group, The World Bank
- Open discussion to all Canberra Group Members

12:00 - 13:30	<p>Lunch Statistics Canada's Executive Dining Room</p> <p>Chair Session 3 & 4: Mr. Mike Sheridan, Director General Labour & Household Surveys Branch, Statistics Canada</p>
13:30 - 15:00	<p>Session 3 Income Data Collection in International Household Surveys</p> <p>Focus Paper: Mr. Daniel Weinberg, Chief, Housing and Household Economic Statistics U.S. Bureau of the Census</p> <p>Income Data Collection in International Household Surveys</p> <p>Discussant: Ms. Maureen K. McDonald, Assistant Director Household Income and Expenditure Section Australian Bureau of Statistics (ABS)</p> <p>Open discussion to all Canberra Group Members</p>
15:00 - 15:30	Break
15:30 - 17:00	<p>Session 4 Eurostat's Work on the Quality and Availability of Information on the Components of Income</p> <p>Focus Paper: Dr. Pieter C.J. Everaers Social & Regional Statistics & Geographical Information System Directorate Statistical Office of the European Communities (Eurostat)</p> <p>Eurostat's Work on the Quality and Availability of Information on the Components of Income</p> <p>Discussant: Mr. Gordon Harris, Analytical Services Division Department of Social Security (DSS), London UK</p> <p>Open discussion to all Canberra Group Members</p>

Tuesday June 8, 1999

Chair Session 5 & 6:

Ms. Maryanne Webber, Director
Income Statistics Division, Statistics Canada

9:00 - 10:30

Session 5

Purchasing Power Parities and Options for Canberra Group Work

Focus Paper:

Mr. Tim Smeeding, Project Director, Luxembourg Income Study (LIS)
Center for Policy Research (CPR), Syracuse University

From 'Relative' to 'Real' Income: Purchase Power Parities and Household Income Microdata, Problems and Prospects

Discussant:

Mr. Ian Castles, Executive Director
Academy of Social Sciences in Australia

Open discussion to all Canberra Group Members

10:30 - 11:00

Break

11:00 - 12:00

Session 6

Latin American Situation and Update on Income Measures

Focus Paper:

Mr. Pedro Sáinz, Chief, Division of Statistics and Economic Projections
United Nations Economic Commission for Latin America and the Caribbean (ECLAC)

Latin American Situation and Update on Income Measures

Discussant:

Mr. Haeduck Lee
Program Coordinator
World Bank

Open discussion to all Canberra Group Members

12:00 - 13:30

Lunch

Statistics Canada's Executive Dining Room

Chair Session 7 & 8:

Mr. Paul van der Laan, Division for Socio-economic Statistics
Statistics Netherlands [Centraal Bureau voor de Statistiek (CBS)]

13:30 - 14:30

Session 7

Update on World Bank Measures on Income Distributions

Focus Paper:

Mr. Michael Ward, Principal Economist

International Economic Development Data Group, The World Bank

Comparing Distribution; Matching Concepts of Income to Measures of Welfare

Discussant:

Mr. Pedro Sáinz, Chief, Division of Statistics and Economic Projections
United Nations Economic Commission for Latin America and the Caribbean (ECLAC)

Open discussion to all Canberra Group Members

14:30 - 15:00

Break

15:00 - 16:00

Session 8

A Conceptual Framework for Income Statistics

Focus Paper:

Mr. Ian Macredie, Director

Labour & Household Surveys Analysis Division, Statistics Canada

The Possible Role of a Conceptual Framework in the Development of International Comparable Statistics on Income, Expenditure and Wealth

Discussant:

Mr. Daniel Weinberg, Chief, Housing and Household Economic Statistics
U.S. Bureau of the Census

Open discussion to all Canberra Group Members

Wednesday June 9, 1999

Chair Session 9 & 10:

Mr. Ian Macredie, Director

Labour & Household Surveys Analysis Division, Statistics Canada

9:00 - 10:30

Session 9

Income Units of Analysis - Update on Sheridan and Macredie Paper

Focus Paper:

Mr. Mike Sheridan, Director General

Labour & Household Surveys Branch, Statistics Canada

Revisiting Statistical Units: Concepts, Definitions and Use

Discussant:

Mr. Paul van der Laan, Division for Socio-economic Statistics

Statistics Netherlands [Centraal Bureau voor de Statistiek (CBS)]

Open discussion to all Canberra Group Members

10:30 - 11:00

Break

11:00 - 12:00

Session 10

Discussion of Canberra Group Session at the next IARIW

Focus Paper:

Mr. Paul van der Laan, Division for Socio-economic Statistics

Statistics Netherlands [Centraal Bureau voor de Statistiek (CBS)]

**The Session on International Standards for Income Distribution
Statistics at the 2000 IARIW Conference**

Discussant:

Mr. Tim Smeeding, Project Director, Luxembourg Income Study (LIS)

Center for Policy Research (CPR), Syracuse University

Open discussion to all Canberra Group Members

12:00 - 13:30

Lunch

Statistics Canada's Executive Dining Room

13:30 - 16:00

Wrap-up Session

Mr. Mike Sheridan, Director General

Labour & Household Surveys Branch, Statistics Canada

Open Forum on Issues for Follow-up

Preparation of Draft Agenda for Next Meeting

Location & Dates for Next Meeting

List of Abbreviations

ABS	Australian Bureau of Statistics
CASEN	National Socio-Economic Survey
CPI	Consumer Price Index
CPS	Current Population Survey
DICAH	Distribution of Income, Consumption and Accumulation of Households
DPI	Disposable Personal Income
ECHP	European Community Household Panel
ECLAC	Economic Commission for Latin America and the Caribbean
EITC	Earned Income Tax Credit (USA)
ENIG	National Household Income and Expenditure Survey (Mexico)
ESA	European System of Accounts
EU	European Union
EUROSTAT	Statistical Office of the European Communities
GCI	Gross Cash Income
GDP	Gross Domestic Product
GNP	Gross National Product
HBS	Household Budget Survey
IARIW	International Association for Research in Income and Wealth
IBGE	Institution: Brazilian Geographical and Statistical Institute Foundation
ICP	International Comparisons Program
ILO	International Labour Organization
INDEC	National Institute of Statistics and Censuses
INEGI	Institution: National Institute of Statistics, Geography and Information (Mexico)
LAS	Labour Accounting Systems
LFS	Labour Force Survey
LIS	Luxembourg Income Study
LSMS	Living Standards Measurement Studies
MIDEPLAN	Ministry of Planning and Economic Policy / Institution: Ministry of Planning and Cooperation
MM	McEwin and McDonald
MS	Member State
NETI	Net Equivalent Total Income
NIA	National Income Accounts
NPIs	Non-Profit Institutions
NPISHs	Non-Profit Institutions Serving Households
NSI	National Statistical Institute
NTI	Net Total Income
OECD	Organisation for Economic Co-operation and Development
PHS	Permanent Household Survey
PNAD	National Household Survey (Brazil)
PNPI	Private Non-Profit Institution
PPP	Purchasing Power Parity
PSUs	Primary Sampling Units
PWT	Penn World Tables
RAR	Robustness Assessment Report
RDPI	Real Disposable Personal Income
SEG	Socio-Economic Groupings
SIPP	Survey of Income and Program Participation
SNA	System of National Accounts
SSUs	Secondary Stage Units
SW	Smeeding and Weinberg
TFSEP	Task Force on Social Exclusion and Poverty
UK	United Kingdom
UN	United Nations
USU	Ultimate Sampling Units

Terminology for Microdata Concepts and SNA Concepts on Income – A Question of Communication

1

Canberra Group



SESSION 1: TERMINOLOGY FOR MICRODATA AND SNA CONCEPTS ON INCOME - A QUESTION OF COMMUNICATION

Chair: Cathy Cotton, Statistics Canada

Focus paper: Anne Harrison, OECD

Discussant: Stew Wells, Statistics Canada

Rapporteur: Statistics Canada

Cathy Cotton opened the session by inviting Anne Harrison to briefly highlight the main points of her paper. Ms. Harrison mentioned that her paper tries primarily to establish bridges between the micro and macro approaches to categorizing income and to establishing distribution of income across household groups. She examined different categories of income and different ways of building income aggregates. She commented on the role of income and presentation of concepts in the standard SNA and its tables. A presentation was suggested to incorporate income distribution within the standard macro aggregate analysis associated with GDP and national income.

Discussant:

Following this, the Chair asked Stew Wells to discuss the paper. He began by saying that he thought Anne Harrison's paper, and the four papers that it built on, were an excellent start. He indicated that he agreed with most of the points she made. He did mention however that the definition of income given in the paper ("the maximum amount that a household can afford to consume during the reference period without having to finance its consumption by reducing its cash, by disposing of other financial or non-financial assets or by increasing its liabilities") is not one that is strictly used by Canada.

The matrix approach used to outline the items included in the micro and macro definition of income was useful in identifying a number of points that need to be reconciled.

Stew Wells indicated that he agreed with several problems/issues identified in the paper:

- 1) that a macro adjustment is needed to deal with things like undistributed earnings and the balance between contributions to and benefits from pension funds. Turning this into a micro measure would be more difficult.
- 2) the inclusion of gross, not net, inter-household transfers. This would help in understanding the importance of things like alimony and child support. Ideally intra-household transfers should also be tracked but this might be not be possible.

The point on which Stew Wells disagreed with Anne Harrison was the proposal for including holding gains in income. These gains have nothing to do with current production and, although they do influence behaviour, they do so in a very different way than wages and salaries. The SNA excludes holding gains for inventories on the corporate side; to include them on the personal side would imply a change on the corporate side as well. If included, it shouldn't be confined to non-inflationary gains; if this were the case everything should be deflated.

As well, Stew Wells indicated that he is reluctant to include pension income in income as he considers it a transfer forward from savings.

If the objective is to match the micro and macro definitions of income and have this widely understood, care must be taken with the names used. There is need for future discussion on terminology.

Stew Wells hoped that, following an agreement on a definition of income, it would be possible to agree on a benchmark level as well.

Discussion:

There was considerable discussion about the treatment of holding gains. The point was made that because people can use this money and because it has an impact on the decisions people make, it is an important concern of those working at the micro level. The focus of the SNA is less on the decisions people make; its added contribution is to provide a broader conceptual framework for looking at income.

It was felt that it is necessary to look at the concept of net worth when considering holding gains. If net worth is revalued, then holding gains need to be considered. Also, as taxes are paid on holding gains, if these gains are not included, taxes should be adjusted as well. Distinguishing holding gains can be important because they are concentrated at the upper end of the income distribution.

Holding gains were also said to be very important for longitudinal data; they are a part of wealth and therefore relevant from the point of view of consumers' behaviour. Although it was felt that these gains need to be included, the question remains how best to do that.

Anne Harrison's proposal to generate tables providing income distribution for subsets of households was thought to be very useful. This was done in Table 6 of her paper. In that table, households were categorized by reference person, initially by those employed and not employed. It was suggested that it might be useful to take a life course approach to establishing these categories, rather than focusing on whether the reference person has a job or not. Households could, for example, be divided into those with and without children. Viewing income in this manner helps to bring the micro and macro worlds together.

In order to settle on a definition of income, it is necessary to decide whether the purpose is to decompose disposable income in the SNA or to produce a good estimate of economic well-being. If there is no conflict between these objectives, there is no problem. If there is a conflict, it is necessary to address those issues where differences exist, for example, holding gains, work expenses and income-in-kind. Three things must be taken into account in addressing the conflicts and the different goals between the SNA and micro-economics:

- WYOTMIWO: What you ought to measure in what order
- WYMTIWO: What you measure today in what order
- WYCMiWO: What you can measure in what order

Daniel Weinberg, in one of the papers Anne Harrison drew on to develop her proposal, used as the guiding concept the command over resources, rather than using a strict accounting framework. Because of the different perspectives of the SNA and micro-economists, concern was expressed about trying to build a bridge between the macro and micro approaches. Examples of issues that need to be resolved are:

- Interest and dividends, if not received, would not affect behaviour. Should they therefore be included in income?
- Are voluntary transfers between households income or consumption?
- Given lottery winnings improve economic well-being, should they be included in income?
- Home production can be for barter, and if so, should be treated like cash earnings. Why, however, is it necessary to distinguish between home production used for barter and for consumption?
- As pension contributions cannot be spent, should they be considered income?

With respect to pension contributions, the point was made that they affect well-being in that, without them, people would otherwise have to save for retirement in some other way.

Anne Harrison responded to these comments by indicating that it is important to go beyond income and articulate income, consumption and accumulation. She indicated that holding gains are included in the SNA, to reconcile the balance sheet. They are not in the SNA concept of income. However, it is possible to come up with alternative measures of income that include real holding gains. There is a need to talk not only about the distribution of income but also the distribution of wealth, and both pensions and holding gains are important in that context.

One of the difficulties in getting a more complete picture of income, expenditures and wealth is that one cannot easily link income and expenditures, because the information is collected separately. This is an operational problem. As well, more comprehensive information is needed on the way expenditures are funded. At present it is not known if they are funded through current income, through dissavings, etc. Currently expenditure surveys collect information on expenditures, not consumption. If information on consumption is needed, it is possible to separate expenditures for people in the household from expenditures for people outside the household.

Stew Well's plea for terminological clarity was soundly endorsed. The point was made that in this session the discussion has been about more than income, it has been about "incomings", which would include items such as receipts from the sale of assets.

The session ended by reiterating the need to break down income to see why people engage in certain behaviour. Income is only part of the picture. Consumption and the accumulation of wealth are key as well. Part of the challenge ahead is to clarify many of the concepts used in this session, including income, consumption, expenditure and well-being. Contrasting the micro and macro perspectives of income provides a very valuable start.

Linking micro and macro income distribution

Anne Harrison
OECD

1. Introduction and summary

The aim of this paper is to try to establish bridges between the micro and macro approaches to categorising income and to establishing distribution of income across household groups. It builds on four papers presented to earlier Canberra group meetings. These are "Towards a uniform household income definition" by Tim Smeeding and Dan Weinberg, "A provisional framework for household income, consumption, saving and wealth" by the ABS further elaborated in "Concepts and definition of household income and international comparisons" by Marion McEwin and Maureen McDonald and "Statistics on the distribution of income, consumption and accumulation of households" by Alfred Franz, Deo Ramprakash and John Walton for Eurostat. This last paper is partially updated in a paper by Pieter Everaus and Lene Mejer entitled "Eurostats's work on the quality and availability of information on the components of income" for this 1999 meeting. The Smeeding and Weinberg paper is updated in "Income data collection in international household surveys" by Dan Weinberg also for this meeting. These six papers are referred to, grouped by author in what follows as SW¹, ABS and Est for convenience. The SW papers come clearly from the micro school. The others all have a macro perspective because of the very strong input from national accountants closely associated with the work.

During and immediately after the 1999 meeting, there was active discussion of the issues raised here. This version of the paper has been extensively revised thanks to the input of Pieter Everaus, Gordon Harris, Paul van der Laan, Maureen McDonald, John Walton and Dan Weinberg. They along with the other authors cited above are the true authors of this paper.

In the first part of the present paper, we examine different categories of income and different ways of building income aggregates. What we are looking for is a series of "boxes" into which we can put agreed types of income so that we may assemble the boxes in different orders to meet the needs of different types of analyses coming from the two traditions. Then we examine the different aggregates to see how far these can be harmonised either by determining a common basis or, where this is not suitable, at least be linked clearly. Lastly we consider the question of terminology and suggest terms which might reasonably be used generally.

In the second part we briefly comment on the role of income and presentation of concepts in the standard SNA and its tables. A presentation is suggested which, if adopted as an additional regular national accounts table it is hoped would help to incorporate income distribution within the standard macro aggregate analysis associated with GDP and national income.

2. Defining income

Before we can talk about reconciling the categories of income, we must be sure that there is agreement about what exactly income is. SW want to include in income "all components that contribute to improving current economic well-being" and include both regular and irregular flows "if they can be spent today". They add that expenditure can only exceed income through a reduction in net worth. National accountants would prefix "current" before expenditure in this last statement and build their definition of income around this.

¹ SW is used when concepts common to both papers are referred to. When a distinction is desirable, the individual papers are referenced as SW98 and W99.

The difference between current and capital transactions is basically that current transactions are complete within the period in question. By the end of the period, they disappear like ripples on water and they have no effect on balance sheets. Capital transactions are precisely those that do have an effect in another period and which impact balance sheets, the measures of wealth. Income has been defined as the maximum which can be spent and leave the person as well off at the end of the period as at the beginning. This is equivalent to saying “the maximum amount that a household can afford to consume during the reference period without having to finance its consumption by reducing its cash, by disposing of other financial or non-financial or by increasing its liabilities”. This definition adopted in the SNA is the one espoused by both the ABS and Eurostat approaches. In fact the elaboration of income elements in the SW paper falls in with this and is therefore seems that we could amend their definition to conform without upsetting their subsequent analysis.

3. Type of income or means of payment

The existing international guidelines on income distribution, the UN publication M61 dates from 1977. It is still labelled provisional and relates to the 1968 version of the System of National Accounts. Both the ABS and Est work aim to update the M61 approach to bring it into line with the 1993 SNA. Both categorise income according to the type of transaction which gives rise to the flow without regard to the medium in which the payment is made. The sequence is basically to measure first income generated in the course of production, then to allow for distribution of property income thus arriving at a concept called “primary income”. The next stage is to account for current transfers, widely interpreted and thus arrive at “disposable income”. This is either spent on consumption or saved. Saving is used either to finance investment or leads to net borrowing or lending.

The micro approach described in SW has the opposite orientation. The means of payment is the main discriminatory factor and the rationale for the payment quite subsidiary. It starts by adding all items deemed to be in cash and reaches a total called “gross cash income”. From this a series of deductions are made to reach “real personal disposable income”. Lastly transactions in kind are added to arrive at “net total income”. SW98 does not go further into the process of explaining how the income is spent so does not deal with consumption, investment or any aspects of personal wealth.

The first step in trying to harmonise these two approaches is clearly to look at a two-dimensional categorisation where both source of income and means of payment are taken into account. It is convenient to do this in four steps,

- (i) flows coming involvement in economic activity, production, for which wage and salary earnings are prototypical;
- (ii) flows coming from the ownership of financial and other assets, such as interest,
- (iii) transfers of a compulsory nature such as taxes, and
- (iv) voluntary transfers such as inter-household gifts and other receipts.

We then briefly consider consumption and accumulation before trying to bring all these together in a single framework and consider the question of aggregates.

4. Income from involvement in production

Table 1 attempts to put the relevant items from the SW paper into a matrix with rows corresponding to the type of income and columns corresponding to the means of payment. The micro headings included from SW98 are A: Cash earnings, H: Value of in-kind earnings and home production, L: In kind market income and O Imputed rent from owner-occupied dwellings. The corresponding entries from W99 are **A**¹ Income from employment (which covers employment and self-employment including production on own account) and **B** fringe benefits (in both cash and in kind.)

Income from employment (**A**) in W99 covers the items A, H and L from SW98 excluding fringe benefits but also includes pension payments (previously in B, other cash market income) as specified in SW98. This aggregate is divided to show income from employment and self-employment separately; also to separate produced goods mainly on own account and production of household services. Incidental sales and barter of goods produced mainly for own consumption should be treated as money receipts. Pension receipts are also separated out. Their treatment is discussed at greater length under transfers, below.

Fringe benefits (**B**) covers the previous item (L); it is also divided between those benefits coming from employment and those from self-employment. A distinction is made between those benefits received in kind (such as subsidised meals) and those which are cash transactions but where the recipient is not free to divert the cash to a use of his own choosing (for example, pension contributions).

O should more correctly refer only to the income element of the imputed rent of owner-occupied dwellings. The costs of maintaining the dwellings must be excluded (and is in national accounts compilations practices).

Table 1

These items are brought together in table 1. Five columns are distinguished because a simple division between cash and in kind does not give us enough flexibility. For in kind transactions we distinguish those that recompense labour (as employee or self-employed) from those that are the imputed value of own-account consumption. This we also separate between goods and services since the SNA and thus many macro-aggregates include the former but not the latter. Lastly we introduce two columns for cash payments. Most entries fall under the first, the cash payments where the recipient has complete and unrestricted freedom to use the receipts as he/she wishes. The second cash column covers those where the use is restricted by the donor; the main reason for doing this is that they are difficult to measure at the micro level and are thus one of the possible differences between micro and macro datasets.

There are four types of income distinguished in the rows; compensation of employees, rewards to self-employment, the value of unpaid housework and the imputed rent of owner-occupied dwellings.

Some finer subdivision and reallocation of the SW terms is necessary to complete the table but given the detailed list of components in each heading (given in W99) this is not difficult.

¹ Bold letters are used to denote headings in W99; non-bold letters stand for headings in SW98.

5. Income from owning and using assets

This section covers W99 item C, income from property. The corresponding item in SW98 was item B, other cash market income though C excludes and B included pensions. All the SNA transactions concerning property income are included here and it is convenient to think of interest and dividends as the prototypical entries. Also included are rent on land and profits from small business capital investment (withdrawals from quasi-corporations in SNA language).

Interest

In all the papers, the contributions of interest to income is measured as incomings less outgoings. There are variations in the exact presentation though. The ABS deducts interest payments in respect of business activities from the net income of these enterprises in table 1 so that only interest payment relating to consumption are left to be deducted at this stage. The SNA permits both forms of recording. When interest is deducted, the remaining income element is entrepreneurial income; when it is not deducted the income element is mixed income as described above. Few countries have implemented entrepreneurial income because of the difficulty of separating income payments into two parts. When the income elements from production/activities and property income are aggregated, the total is arithmetically the same under the alternative recording systems. Nevertheless, it may be helpful to show interest paid as a business expenses separately from interest paid for consumption purposes.

The SNA is recorded throughout on an accrual basis and not on a cash basis. In the case of interest in particular, this can lead to significant differences. For complete reconciliation with macro data, it is desirable to include an item showing interest accruals (payable less actually paid and receivable less received). This item also is one payable in cash but with restricted use.

The SNA proposes recording interest in a rather complex manner. Interest as observed should be separated into an element representing a payment for a service and a "pure" interest element. If interest is so split, interest receivable by households is higher, and interest payable is lower, than otherwise. In consequence, disposable income and consumption will be higher than otherwise but saving will be the same as if no split is made. There is still controversy about how far this is practicable for households in total, still less for a disaggregation of households. This distinction is not followed through in the tables here.

Rents and royalties

There are some entries, for example rental paid for housing included in SW which are not property income in SNA terms. The SNA treats only rent on land as property income. Property income is a payment by one unit to another for the use by the first unit of a non-produced asset owned by the second unit. Payments in respect of housing (complete buildings or rooms), of machinery and equipment are treated as payments for services. They are regarded as income from production and not property income because a man-made asset is made available to the user and the owner is responsible for upkeep. The owner of the asset receives the rental payment, deducts costs including an allowance for the consumption of fixed capital and receives a net income. This would be shown in an SNA context in table 1. (Technically this was so in the 1968 SNA also though a number of countries did not follow the recommendations and M61 also followed the practice of treating house rentals as property income.)

The treatment of royalties has changed between the 1968 and 1993 SNA. They are now treated as payments for a service and thus would be recorded in income from production in table 1.

Irregular income

There are two items included in item C (and previously item F) that require special discussion. These are estates and trusts; and capital gains.

Regular income from estates and trusts would indeed be treated as property income in macro-data. On the other hand, the change of ownership of assets on death are treated as transfers and in particular as capital transfers. This is taken up again below.

Capital gains present considerable conceptual and practical difficulties and require some detailed consideration.

Capital gains.

There is a language problem here stemming from the number of complicated ways of reckoning capital gains. (These are described as holding gains in the SNA to make clear that they refer not only to gains on fixed capital but also, and more importantly, to gains on financial and other assets also.) It is easiest to explain with a simple example. Suppose I buy an asset for 100 and five years later it is worth 500. Over five years there has been a nominal holding gain of 400. If I sell the asset, I have a realised holding gain of 400. If I do not sell the asset I have an unrealised gain of 400. This gain, however, relates to the five year period and for our income calculations, we only want the gain within the relevant accounting period, say a year. Suppose at the end of the previous year the asset was worth 450. During this year, the nominal holding is 50. Suppose the rate of inflation in the year is 10 per cent. Then 40 of this 50 is needed simply to maintain the real value of the asset. This 40 is called the neutral holding gain. The real holding gain is the remaining 10.

What do we want to include in income? The SNA says none of them because income must be measured on the same basis as production where holding gains are rigorously excluded. It can be argued that for some analyses one might want to include the real holding gain of 10. This accords with our definition above of being as well off at the end of the period as at the beginning. Conceivably one might for some purposes want to include the whole of the 50 but never the 400. It is true that expenditure might be financed by selling the original asset but then the sum of interest is the whole of the 500 resulting from the sale. The calculation of the 400 total realised holding gain would be invaluable in an articulation of the distribution of wealth but that is not our concern at the moment.

Not only does the terminology of capital or holding gains present difficulties, they also present considerable difficulties in measurement. The recommendation here is firstly that all holding gains should be excluded from measures of property income. However, real holding gains within the accounting period should be an optional item for inclusion in aggregate measures of income. Neutral holding gains should be confined to explaining changes between opening and closing balance sheets.

Table 2

Items described in this section are brought together in table 2. Three columns are used. Most of the entries fall into the first which is payments in cash with unrestricted use. The second corresponds to the second cash column introduced in table 1; it relates to amounts that should be counted in cash receipts but which are not immediately available to the recipient to spend as he/she desires. It includes interest and dividends due but not yet paid and property income earned by insurance companies on the funds belonging to policy holders. (This last term is discussed under insurance below.) All these belong to households but are not accessible by them. As with column E in table 1, there may be significant problems allocating these items in a micro system and they may remain global adjustment items. The third column, F, relates to payments of interest.

The rows of table 2 cover interest, dividends, rent, rentals and royalties. Again specifying the content of the relevant cells from the detailed list of income components is not difficult.

6. Transfers

The third main set of flows concerning the measurement of income are transfers. Here there is a significant difference between the perspective of the micro-statistician and the macro-counterpart. From the macro point of view, all current transfers are recorded before the derivation of disposable income. The only issue of principle to decide is whether a transfer should be classified as current or capital in nature. The micro concern is different. Does the receipt of a transfer really represent income? Does the payment of a transfer represent a reduction in income or is it rather a decision on how to spend disposable income? To answer these questions it is desirable to examine the rationale for compiling income distribution statistics at all.

Rationale for income distribution statistics¹

Income distribution statistics provide answers to questions. Decisions on conventions about what constitutes income should be guided by an understanding of the questions which producers are seeking to answer, and the questions which our audience(s) think are being answered.

Typically, the main questions concern:

- The number of people on low incomes
- The degree of inequality in incomes
- Where particular groups are placed in the income distribution
- Changes over time in all the above.

'Income' is the concept of choice because it provides a guide to the level of material living standards that people can sustain, given their current economic and social circumstances, without increasing/decreasing their capital.

¹ I am grateful to Gordon Harris for providing this section.

Income distribution statistics also need some guiding principles. For the UK these include:

1. Severe 'mislocation' of any group (of significant size) in the income distribution should be avoided – i.e. the group should not be placed in the wrong segment of the distribution.
2. Double-counting (e.g. including tax-financed transfers in recipients' income, and failing to deduct taxes from tax-payers' income) and zero-counting (e.g. deducting child maintenance from the payer's income but failing to add it to the recipient's income) should be avoided.
3. Where 1 and 2 conflict, priority is given to 1.

7. Applying this rationale

At the present stage of the group's discussion, the intention is to separate transfers into two groups. The first group relates to transactions that do affect disposable income. Many of the transfers falling into this group are compulsory in nature, such as payment of income tax, making contributions to compulsory pension schemes and paying alimony and child support. The second group of transfers include gifts between households and other transactions of a more voluntary nature. Although the recipient may be another household, it would not be sensible for this household to regard such transfer receipts as a reliable source of income. On the whole, these transfers may be treated as transfers of expenditure rather than of income. Each of the two groups, described for simplicity as compulsory and voluntary transfers is described below. At the present writing, the exact borderline between them is a little fuzzy and demarcating it more exactly one of the tasks remaining to the group.

8. Compulsory transfers and regular family support

These include taxes on income, payments related to pensions and other social insurance generally and family support payments. Taxes on income are compulsory transfers paid by households. The other categories listed are both paid and received by households though not always by the same household.

The first question is whether to show receipts and payments separately or consolidated. SW98 suggests that inter-household transfers should be net of payments in order to exclude double counting. The approach taken here follows W99 and records compulsory transfers in two stages, first the receipts and then the payments. The two stage process allows the calculation of the proportion of total income devoted to alimony and child allowances and facilitates the recording of pensions as described below while still ensuring there is no double-counting overall.

Pensions

SW suggest that pensions should be recorded when paid and not when earned. All the "top-down" alternatives suggest a more complex recording. Here there are three items referring to pensions. The first is the contribution made by employers on behalf of active employees. This is recorded as part of employee compensation. The employees then make a transfer to their employer (or a designated pension scheme) of a contribution which includes the whole of this contribution from the employer plus, frequently, a contribution by the employee. This is the second element relating to pensions. The third is the pension benefit paid to retirees.

Both employer and employee contributions to pension schemes are recorded at the time they are made (thus deducting from disposable income of contributors) and benefits from schemes are recorded when actually paid (thus adding to disposable income of beneficiaries). This is reflected in differences in patterns of income and expenditure as between households still in the labour force and those retired.

Criticism is made of the SNA because not all pensions are handled this way but only those qualifying as a social insurance scheme. This is one where the employer or government obliges participation. Note that this includes many schemes described as private pensions schemes if belonging to such a scheme is a condition of employment. It is only schemes undertaken voluntarily, without employer or government compulsion, which are excluded. A large proportion of them will relate to self-employed or even non-employed individuals. Even these people may be covered in some social insurance schemes, however, notably social security. To emphasise that most private pension schemes are included in social insurance, we refer to excluded schemes as non-employee pension schemes. These schemes are treated as use of saving to acquire financial assets which then yield a return. The evolution of these financial assets is tracked by the accumulation of interest, dividends etc. The rationale for treating non-employee pension provision in this way is (i) the practical difficulty of determining when a private individual is providing for a pension rather than simply deploying his/her saving effectively, (ii) policy interest in schemes with a "third party" involvement.

At first sight, it may seem that the benefits paid by a pension fund are similar to the payments of interest and dividends and so should be treated as property income. There are several reasons why the SNA does not do this. The first is that contributions are not like property income payments of interest; in the case of a funded pension scheme, they are additions to the capital of the fund which remain the property of households. However, not all pensions schemes are funded; many, especially in continental Europe, are financed on a pay-as-you-go basis. This means the employer incurs a liability with no matching asset. The process is then more one of redistributing income from present workers to previous workers (reminiscent of the SW proposition to record only the benefits) and for this reason, the SNA treats social insurance contributions and benefits, like insurance premiums and claims, as transfers not property income.

Regular family support

Initially it seems that the SNA does not include transfers between households. This is only because in almost all applications so far, households are treated in aggregate and thus inter-household transfers net out. As soon as the sector is sub-divided, though, it is necessary to include these transfers just as it is necessary to include transfers between different levels of government when that sector is disaggregated.

The most important inter-household transfers are alimony and child support. It would seem logical that these should be covered even if not paid under a court order as long as it was regular and recognised by the donor as an exclusion from his/her regular disposable income and by the recipient as included in his/hers. In principle it may be desirable to include also regular payments to children studying away from home and elderly relatives on the same basis.

This is an area which still needs clarification. There is the desire to reach a criteria on what should be included in regular family support which will produce comparable data across countries despite institutional differences in the degree of judicial obligation in respect of family support. A further consideration is the impact of the definition of the family as a unit. If a child studying away from home is still regarded as part of the same household, then clearly transfers to the student are intra- and not inter-household payments.

9. Voluntary transfers

Once regular family support is removed, two classes of inter-household transfers remain. The first of these cover irregular transfers in cash. These are most likely to be between family members in different households. This reinforces the need for clarity and precision about what constitutes regular family support. In any case, though, it is necessary to allow for irregular cash transfers received and paid. These may not be equal because of interactions with households abroad.

Other transfers are irregular gifts such as presents exchanged between family members and non-family. Often they will take place by someone in household A buying a good and giving it to someone in household B. A uses part of its disposable income to undertake expenditure on behalf of B by buying the gift. B has neither income nor recorded expenditure but benefits by the acquisition and consumption of the gift from A. This distinction between who pays for the goods and who benefits from them will be immediately familiar to national accountants since this is how the provision of goods and services to households free or at reduced prices by government and non-profit institutions serving households is handled.

The products supplied by government and NPISHs are described as both individual consumption expenditure of government and NPISHs and as social transfers in kind. Within the SNA, these are the only transfers in kind which are recorded without imputing a cash transfer to the value of the goods and services concerned and a subsequent purchase of the products. The rationale for this treatment is most easily understood in the case of goods provided in kind by employers. If the goods are the product of the enterprise (say free coal to miners), we want them to show in output and this is how we show the coal being produced and sold. If the goods are bought in, we want the producer's account free of the purchase of these items so by this device show the employee purchasing the goods in question from the supplier to the enterprise.

For the sake of income distribution statistics, we may extend this use of the concept of social transfers in kind to cover voluntary transfers in kind between households and to amend the definitions of actual consumption and consumption expenditure accordingly. Another way of viewing this is to say that we treat voluntary inter-household transfers as transfers of expenditure rather than of income. That is, the actual consumption of the recipient is increased and that of the donor is decreased but disposable income, consumption expenditure and saving for both are unaffected.

Resolving a satisfactory analytical treatment is somewhat easier than solving the practical problems of data collection. Inevitably these transfers are going to be extremely hard to capture well in the basic data. Such errors, though, may not matter too much in the aggregate since on the average gifts in and gifts out will tend to be about the same order of magnitude though on balance maybe rich households give more and poorer ones receive more.

Even though these transfers are between households, some may be between domestic and foreign households. This sum will usually be small relative to domestic transactions. When it is significant (the diaspora sending money to Armenia in the early 1990's for example) there should be some knowledge about it. If a survey is conducted it may be captured; other estimates may be available via Balance of Payments statistics.

Household services performed for other households, care of other people's children and elderly relatives for example, could also be recorded in a similar way with the household providing the service making a transfer in kind of the expenditure corresponding to the imputed output of household services.

Voluntary transfers between households and other units

There are a number of transfers which take place between households and other sectors of the economy which need to be considered. These are payments to and from charities, lotteries and insurance, both life and non-life (accident insurance). They are discussed in turn below. In all cases the proposed treatment has a measure of support from amongst the groups but needs final consideration and confirmation or change.

Transfers to charities

We consider first transfers from households to charities and then from those charities to other "households" including the homeless and those in institutions. Donations may be tiny or very considerable; they may be regular or quite irregular. Charities in the SNA are non-profit institutions serving households, NPISHs. (They are not identical with the concept of "non-profits" as understood in the US; this is another terminological problem to be overcome.) The SNA would treat all transfers to NPISHs as transfers of income so that disposable income of the NPISHs can be calculated according to normal practice. Another reason is that enterprises, government and the rest of the world may make donations to the NPISHs and for these units the notion of transfers of final consumption is not feasible since these units do not have final consumption.

For income distribution statistics, there seem to be two options for dealing with transfers to charities. The first is to regard these as "impersonal" family support and include them with compulsory transfers. This recognises that many households do in fact make regular contributions to NPISHs who do rely on these as part of their normal income. It would also be consistent with the SNA treatment. The second option is to treat them in the same way as voluntary inter-household transfers. This would preserve a symmetry for the payments by households to NPISHs and for transfers by NPISHs to households. In the tables which follow, the second option is used though this is not intended to preclude further discussion of the first option.

Lotteries and gambling

Lotteries and gambling are regarded in national accounts terms as relating to pure redistribution. The difference between total stakes placed and winnings paid is deemed to be a "service" provided by the lottery/gambling enterprise. This difference is shown as expenditure by households. Since the (remaining value of the) stakes and winnings are equal and represent inter-household transfers, they are not shown explicitly in the SNA, indeed are explicitly omitted. As professional statisticians, we should believe that there would be no net redistribution between income groups overall because of lottery or gambling winnings.

There may of course be a difference between winnings and stakes for any group of households, exacerbated in a sample, but there is no reason to suppose that lotteries benefit one group more or less than another.

The assumption that stakes and winnings balance between households assumes government and enterprises do not gamble (which we may accept as reasonable) but also that all gambling involves only local households. This is not strictly so. In some countries (e.g. Monaco) the net inflow may be significant; for some Caribbean islands where UK football pools are much followed, there may be a net outflow. Probably for most countries this concern is more theoretical than practical.

A more pertinent practical consideration is the presumption that, like alcohol and cigarettes, gambling expenditure is systematically under-recorded in household budget surveys. Further, big winners may suddenly be too busy to fill in budget diaries and hardly feature in the raw data. Even if in principle some correction to the aggregate stakes and winnings could be made, in practice it may not happen.

If there were perfect data on stakes and winnings across income classes, it would in principle be possible to separate the stakes into the service part and the part that was the "pure" gamble. This is not a very transparent process, though, and given the reservations above, should probably be avoided in micro data sets. The proposal is therefore to show the total stakes as part of household consumption and to show the winnings (where known) as negative expenditure off-setting these.

There are two immediate objections that can be raised. One is that negative expenditure is not a very elegant concept. The second is that for big winners, the win may seem like a capital rather than current flow. Against this there are two counter-arguments. By number, most wins are small. Even if for an individual household the win is large, for the income group as a whole it may not be so significant. By excluding the winnings from disposable income, we exclude the possibility of the size of the winning influencing the income class of the winning household. On balance, it may be analytically defensible, even preferable, to include even large winnings as "negative expenditure" so that saving includes the balance of the winnings less any immediate corresponding spending from them rather than have possibly negative saving offset by this unusual capital transfer receipt. This is how lottery flows are shown in the accompanying tables but again this is subject to later discussion.

Non-life insurance

Non-life insurance is taken to be synonymous with accident insurance and to include term life insurance. Whole life insurance is discussed below.

The recording of insurance flows is rather complicated in the SNA because of the need to present insurance companies and policy holders consistently. A simpler presentation should probably be sought for household micro datasets and analysis. Here is the SNA story in brief. Insurance companies actually pay out bigger claims than they receive in premiums. They do this by investing premiums paid at the start of the year and keeping the investment income earned. The SNA says in principle those investment earnings should accrue to the policy holders who then pay them back as "premium supplements". Then we take the difference between actual premiums and premium supplements on the one hand and claims payable on the other and call this the service charge of the insurance company. The relevant part of this is included in household consumption. The remaining part of the composite premium is a transfer paid by households and claims are transfers received by households. For the

insurance company, these transfer payments in and out are equal (at least in the long term) but it is not certain that for the household sector they do; there may be some cross-subsidisation between households and enterprises, for example.

Micro-data for premiums and claims may be more complete and more reliable than for lotteries and gambling. At first sight, therefore, it looks as if we could follow the SNA procedure if we wished. This means allocating the premiums supplements across income classes, though and so involving one of the columns which we may want simply to leave as a "reconciliation to SNA" item. A more transparent solution would leave actual premiums in household consumption and again show claims as negative consumption for the sorts of reasons advanced above concerning lotteries. The premium supplements would appear in total only as a reconciliation item in disposable income and a matching expenditure. Thus the recording of premium supplements does not affect saving.

Even with a simplified presentation, the question arises whether some of the claims should be regarded as capital transfers rather than current. For an individual household, the payment to compensate a burglary, the write-off of a car or even the death of a person may seem like a capital transaction. For the insurance company, these are predictable statistically and this calculation is used in determining rates. Across a large enough group of households the number of occurrences will be such that the smaller and more common the risk, the more the insurance payments will seem like a regular and recurrent event. For the insurance company, these are sufficiently common to be treated as current rather than capital payments. In order not to distort national saving, the SNA treatment is to treat all non-life insurance claims as current.

Life insurance

Life insurance policies are a form of saving. Payments of premiums and receipts of claims are treated as financial transactions (and thus of a capital nature) in the SNA. It seems appropriate that they be treated similarly for income distribution analysis.

Pension fund adjustment

There is in fact a fourth SNA item concerning pensions. Households pay contributions into social insurance schemes and receive benefits from them. Over a year, there will be a disparity between the two which shows up as a change in the net equity of pension funds. The funds are regarded as belonging to households and thus should be included in household saving. The SNA places this adjustment to saving in the use of income account so as to exclude it from disposable income but still include it in saving.

The item belongs in the category of cash receipts with restricted use and it may not be possible to disaggregate it. If it could be disaggregated, it would be a step towards recording the evolution of the distribution of wealth. While ultimately desirable, this is beyond the goal of this particular paper.

Inheritances

Inheritances are a transfer and as with some other items above are not generally recorded since they net out for the sector as a whole. With disaggregation they should appear but would be treated in the SNA as capital transfers not current ones. This may give a problem for the

classification of the unit; is the composition of the household before or after the death of one of its members the basis to be used? For single person households who die, do we need a slot for "dead" households in the classification? This topic is not pursued here.

Table 3

The components concerning transfers are brought together in table 3. It is in three parts. The first concerns compulsory transfers and regular family support received. The second concerns the matching payments. The third covers voluntary transfers. As before they are two way tables distinguishing means of payment and type of payment.

10. Introducing income aggregates

By combining the 26 elements contained in tables 1 to 3, we may assemble a single complete table of seven columns and 19 rows relating to various aspects of income. We then introduce another six rows to accommodate suitable aggregates of other rows. This composite table is shown in table 4. By adding a second dimension and a limited amount of further disaggregation, we have a complete reconciliation between macro and micro concepts with a great deal of flexibility.

We start with the elements of compensation of employees, add income from unincorporated enterprises, owner occupied dwellings and household services from table 1. Together they give us a subtotal we may call "Income from production". This is an SNA aggregate rather than an income distribution one but we can qualify it in ways conformable with income distribution. Thus the total in column A is income from production in cash (unrestricted use), the totals across columns A, B, C, and D give the total of cash and kind excluding cash of restricted use but including household services. The totals across A, B, C, and E give the standard national accounts total. These "column" qualifications generalise through what follows. In practice, once the degree of inclusion and exclusion was established for a particular data set, some more compact terminology could be used.

The next items are those related to property income, both receipts and payments and correspond to items in table 2. The total is, obviously, property income. Added to income from production we derive "Primary income".

We then add on compulsory transfers and regular family support as in table 3(i). This gives us total income and again we can distinguish in cash and in kind elements depending on which columns are included in a horizontal aggregation. When we add in column G (the individual consumption expenditure of government and NPISHs) we get to an aggregate prefixed by "adjusted" in SNA terminology.

So far all the rows except for 3 (household services) are standard to the SNA. The next row is the optional item for holding gains and losses which provides for some variation. Added to total income we have a new total we may call "extended total income". Note that in principle this row may contain negative numbers so that extended total income may in practice be smaller than total income.

The next step is to deduct compulsory transfers and regular family support paid to reach the total described as disposable income. As before when adding horizontally, if we include column G we get "adjusted disposable income".

11. Extending the table to consumption and accumulation

It is straightforward to extend table 4 to cover consumption and accumulation. This is done in table 5. Now columns that related to incomings relate to outgoings and vice versa. Here too we can see benefits of the division into the seven columns. For consumption expenditure, we can show it broken down into the element financed from cash of unrestricted use, the value of wages and salaries provided in kind, of own-account production and the value of individual consumption expenditure of government and NPISHs. The sum of columns A, B, and C gives household consumption expenditure as recorded in the SNA and A, B, C and G together give actual household consumption.

Note that we include social transfers in kind in the same row as consumption expenditure so that we may obtain actual consumption by adding horizontally across the different means of payment.

Below consumption we add in the adjustment items for cash transfers paid to households (less those received), transfers to NPISHs, and the terms for lotteries and non-life insurance.

Saving is the difference between total income, consumption expenditure and the adjustment items. If some of the own-production of goods is for capital formation, it will show in column C. The elements of cash income of unrestricted use (column E) automatically form part of saving.

Saving is used to finance capital acquisition but may be supplemented by the receipt of capital transfers, receipts from the sale of assets, receipts from non-employee pensions or from new borrowing. These resources are accounted for by the acquisition of new capital formation (either fixed capital or changes in inventories), by the net acquisition of valuables (fine jewellery, antiques, old masters), by the purchase of non-produced assets (mainly land in the case of households) or a residual acquisition of financial assets or incurrence of liabilities.

Although this part of the table is not elaborated in detail, it is useful to see the potential to take forward the breakdown suggested for income through to consumption and accumulation.

Reconciliation with SNA/macro aggregates

In terms of the columns of table 4, the sum of A, B, C and E less F gives a figure for primary income of households conceptually identical with the SNA. Various micro-studies may optionally exclude some or all of B, C and E; they may include D and G.

The figure for disposable income of households summed across columns A, B, C and E less F will be less than the SNA definition to the extent that:

net irregular transfers of expenditures between household in cash and in kind payable by domestic households to foreign households are less than the corresponding inflow;

lottery and gambling winnings exceed the “pure” stakes (this will be equivalent in theory to transactions with the rest of the world, in practice it will reflect also data deficiencies);

insurance claims by households exceed actual premiums and premium supplements paid by them;

transfers paid to charities.

It is worth summarising again briefly why this divergence from the macro-standards is proposed.

From the household rather than the national point of view, decisions on these types of expenditure are closely related to decisions on consumption expenditure. Nor is it rational for a household to consider incomings from these sources as regular income. Neither is it clear that such receipts should determine the group within a household distribution analysis into which the recipient household falls.

In practical terms, the macro-level differences will generally be small. The micro-data sources are likely to poor in regard to each of these and may distort the results rather than enhance them.

By including column G in disposable income, the SNA concept of adjusted disposable income of households is reached, subject to the three reservations above.

The total of consumption from columns A, B and C is identical with household consumption expenditure in the SNA. If column G is included, actual household consumption is obtained; identical with the SNA/macro concept.

The total of saving across columns A, C and E is identical with the SNA macro figure for household saving.

12. Conclusion

We have developed here a possible theoretical concordance in terms of definitions and presentation between income concepts in the micro and macro traditions. Some further work is needed to agree :

the exact recording of interest payments when these are in connection with a business,

the exact specification of regular family support,

the precise treatment of the four adjustment items concerning irregular inter-household transfers, transfers paid to NPISHs, lotteries and non-life insurance.

To transform this theoretical concordance into practice, it will be necessary to agree the exact definition and classification of the items typically collected in household surveys. The list provided in W99 is the obvious starting place for this.

Table 1: Income from employment including fringe benefits

			Means of payment				
			A	B	C	D	E
			Payment in cash - Unrestricted use	Payment - received in kind	Consumption of own-account production - goods	Consumption of own-account production - services	Payment in cash - Restricted use
Type of income	1	Compensation of employees	Wages and salaries, includes tips, bonuses, holiday pay, sick pay etc.	Provision of goods and services by the employer			Employers' social contributions Actual Imputed
	2	Mixed income (from self-employment)	Net income from self-employment; Non-farm Farm	Goods and services bought for the unincorporated enterprise and consumed by the entrepreneur or family workers	Goods produced by the unincorporated enterprise and consumed by the entrepreneur or family workers		
	3	Value of unpaid household work				Production of household services without remuneration	
	4	Imputed rent of owner-occupied dwellings			Imputed rent of owner occupied dwellings		

Table 2: Property income

			Means of payment		
			A	E	F
			Payment in cash - Unrestricted use	Payment in cash - Restricted use	Corresponding outgoing
Type of income	5	Interest	Interest received (includes interest payments on estates and trusts)	Interest due less actually received (accrual adjustment)	Interest payable - on business activities
	6				Interest payable - for consumption purposes
	7	Dividends	Dividends received including from small business capital investment	Dividends due less received	
	8			Property income on insurance funds attributable to policy holders	
	9	Rent	Rent on land		
	10	Rentals	Rentals on leased rooms/dwellings, buildings etc.		
	11	Royalties	Royalties		

Table 3 (i): Transfers - compulsory and regular family support received

			Means of payment		
			A	B	G
			Payment in cash - Unrestricted use	Payment - received in kind	Individual consumption of government and NPISHs
Type of income	12	Social insurance benefits	Pensions and other benefits paid as part of social insurance schemes - funded - unfunded		
	13	Social security benefits	Child allowances, state pension, unemployment benefits etc.		
	14	Social assistance	Payments to low-income or handicapped people		
	15	Regular family support	Alimony, child support		
	16	Social transfers in kind			State provided education and health Public housing, food stamps, "consumer subsidies" Provision of food, clothes etc. by charities
	17	Adjustment for the change in net equity of households in pension funds		Adjustment for the change in net equity of households in pension funds	

Table 3 (ii): Transfers - compulsory and regular family support paid

			Means of payment		
			A	B	G
			Payment in cash	Payment - received in kind	Individual consumption of government and NPISHs
Type of transfer	18	Taxes on income	Taxes on income		
	19	Social insurance contributions	Social insurance contributions - social security - pension contributions		
	20	Regular family support	Alimony and child support		

Table 3 (iii): Transfers - voluntary received and paid

			Means of payment		
			A	B	F
			Received in cash	Received in kind	Corresponding outgoing
Type of transfer	21	Inter-household transfers	Transfers received from other households in cash	Social transfers in kind received from other households	Transfers paid to other households
	22	Transfers to and from NPISHs	Transfers received from NPISHs	Social transfers in kind received from NPISHs	Transfers paid to NPISHs
	23	Lotteries	Lottery winnings		Lottery stakes
	24	Non-life insurance	Claims		Premiums

Table 4: Income distribution from both a micro and macro perspective

		A: Payment received in cash - Unrestricted use	B: Payment - received in kind	C: Own-account production – goods and OOD	D: Own-account production - services	E: Payment received in cash - Restricted use	F: Corresponding outgoing	G: Individual consumption of government and NPISHs
1	Income from production	Wages and salaries	Wages and salaries			Employers' social insurance contributions		
2 (10,11)		Mixed income from self-employment	Mixed income from self-employment	Mixed income from own-account production - goods				
3					Income from own account household services			
4				Operating surplus from owner-occupied dwellings				
Sub-total	I	<i>Income from production</i>						
5	Net property income	Interest received				Interest due less paid	Interest payments – related to production	
6							Interest payments – related to consumption	
7		Dividends received				Dividends due less received		
8						Property income attributes to insurance policy holders		
9		Rent (on land)					Rent (on land)	
Sub-total	II	<i>Property income (net)</i>						
Sub-total	III	<i>Primary income (=I+II)</i>						

Table 5: Extension to consumption and accumulation

		A: Acquired with cash -Unrestricted use	B: Acquired in kind	C: Own-account production –goods and OOD	D: Own-account production - services	E: Acquired via cash - Restricted use	F: Corresponding incomings	G: Social transfers in kind
Matches 16. includes part of 22		Consumption expenditure less social transfers in kind to other households	Wages and salaries, mixed income received in kind	Consumption of own account production of goods and OOD	Consumption of own account household services			Individual consumption of government and NPISHs plus social transfers in kind from other households
21	Irregular transfers of expenditure in cash and in kind	Irregular transfers in cash to other households domestically and in the rest of the world less corresponding incomings						
22		Transfers to NPISHs						
23		Lotteries and gaming stakes less winnings						
24		Non-life insurance premiums less claims				Property income attributes to insurance policy holders		
17						Adjustment for the change in net equities of households in pension funds		
		<i>Saving</i>		<i>Saving</i>		<i>Saving</i>		

Saving equals disposable income less consumption less irregular transfers of expenditure in cash and in kind. This can only appear for the two cash columns plus the own account column where saving is exactly equal to fixed capital formation and changes in inventories of own produced goods.

Table 5 (continued): Extension to consumption and accumulation

		A: Acquired with cash -Unrestricted use	B: Acquired in kind	C: Own-account production –goods and OOD	D: Own-account production - services	E: Acquired via cash - Restricted use	F: Corresponding incomings	G: Individual consumption of government and NPISHs
	Accumulation	Fixed capital formation		Fixed capital formation			Sales of fixed capital	
		Changes in inventories		Changes in inventories				
		Acquisition of valuables					Sales of valuables	
		Acquisition of land					Sale of land	
		Private pension contributions					Private pensions benefits	
		Capital taxes paid (inheritance taxes)					Capital transfers received (inheritances)	
		Acquisition of other financial assets				Interest due less paid; dividends due less paid; adjustment for the change in net equities of households in pension funds	Incurrence of other financial liabilities	
		<i>Net accumulation</i>				<i>Net accumulation</i>		

Net accumulation in column A = saving column A less accumulation entries in column A less accumulation entries column F

Net accumulation in column E = saving column E



Robustness Measurement Report (RAR) Update

2

Canberra Group

SESSION 2: ROBUSTNESS MEASUREMENT REPORT (RAR) UPDATE

Chair: Cathy Cotton, Statistics Canada

Focus paper: Gordon Harris, Department of Social Security, London, UK

Discussant: Michael Ward, International Economic Development Data Group,
The World Bank

Rapporteur: Statistics Canada

Cathy Cotton opened the session by inviting Gordon Harris to briefly highlight the main points of his paper. In response to that request Mr. Harris gave background information on RARs, provided progress since the Netherlands meeting and proposed a series of questions to be discussed during this meeting.

Discussant:

Following this, the chair asked Michael Ward to discuss the paper. He began by stating that imperfect data can result from a number of things:

- the concepts may not be adequately defined;
- the definitions and classifications may not mesh with the concepts;
- the measures can sometimes be inadequate because of the problems and cost of doing the job properly.

This can lead to several types of errors:

- 1) good data measuring the wrong thing;
- 2) bad data measuring the right thing because of problems with non-response, etc.;
- 3) bad data measuring the wrong thing.

It was suggested that we not try to achieve robustness all in one go, but start by generating metadata; this is indeed the right way to proceed.

Longitudinal data will ensure greater robustness. At the moment, the information available is primarily from cross-sectional studies. It is necessary to look at the relationship between income, expenditure and well-being over time, using longitudinal data. Such data will make it possible, for example, to see how asset sales fit into the picture.

Who should make the judgement about the robustness of the data? This can best be done by the people putting the numbers together. Statisticians have a high degree of independence and self-judgement; being honest about the robustness of the numbers is to their advantage because it can highlight areas where future funding should be allocated. The second level of judgement would be an independent outside review by someone with a wealth of experience. As well, making the data available to users who will use the information in a number of different ways can strengthen robustness.

Robustness therefore can be improved by: getting the concepts right; finding the sort of errors most likely to have occurred; trying different survey procedures; looking at robustness in relation to other metadata; looking at the metadata to see what's missing, and relying on analytical users to tell you if the data make sense.

Discussion:

There was general agreement that these reports are very useful and that it is important to build on the work already done. The fact that the reports exist is a tremendous credit to Gordon Harris.

A number of suggestions were made about ways in which the RARs could be extended:

- 1) As it is not possible to get everything from the robustness assessment questionnaire, Eurostat has added some detective work to the assessment, in the form of visits from highly experience statisticians. Peter Everaers felt that these visits have helped to enhance the RAR process.
- 2) The information from the RARs can be used to develop meta-information systems, allowing users to click on a concept/item of interest, then on a country, etc. Such a system is being built by Eurostat and should be ready within the next year.
- 3) The RAR could include a question on the three worst things about the survey. Such a question would require those filling out the RAR to report issues that might otherwise be missed.

As well, the use of the RARs could be extended to a wider audience if some of the analytical and income distribution reports on the Web contained links to the reports. Another potential user could be auditors general. In Canada, the Auditor General recently completed a review of a number of surveys. One of the challenges in doing this work was obtaining all the required information about the surveys. The use of RARs by users such as auditors general can help to build public confidence in the numbers.

It might also be useful for RARs to be completed by those putting together macro numbers for the SNA. There is a good deal of documentation on deficiencies in the SNA numbers and material on the reasons why one source is preferred over another. It is clear, for example, that the treatment of imputed rent is not consistent in the SNA. However, although similar information does exist for the SNA, it has not been put in a single package like the RARs.

The notion of doing special topic reports was discussed in some detail. In some countries it does not make sense to do RARs every year as comparisons of income data from surveys with the SNA are only done periodically. In the in-between years special topic reports would be very useful and could stimulate more activity in the area of data quality and comparability. Topics that were suggested for these reports include: self-employment, income-in-kind and imputed rent. A full paper could be written on any one of the questions in the RAR. It might deal, for example, with coverage, sampling methodology, etc. Quality profiles on such topics are now compiled by the U.S. Bureau of the Census.

Gordon Harris asked for feedback on whether a formal accreditation process for the RAR is required. This was thought to be a good suggestion and, after some discussion, it was proposed that RARs be judged by a peer review group of five or six experts who are seen to be objective and neutral. This was regarded as preferable to asking the institution involved in doing the RAR to make this judgement. If this proposal is adopted, people should be encouraged to consult with one or more members of the panel. Also, a change should be made to the first page of the RAR to indicate who reviewed it.

Discussion of the RARs resulted in a number of other relevant points being made. One was that, as important as quality issues are, there is also a need for statisticians to understand the policy issues and to identify ways in which the data are not adequate for policy purposes. This would also be beneficial in seeking funds to improve surveys. The other point dealt with users of the data and the need to educate them in the appropriate use of the information.

The session ended with strong support for the RARs. It was agreed that the following question should be brought forward for discussion in a later session: Should it be recommended that everyone collecting income data do a RAR? Encouraging people to think about quality when creating the data will help to avoid many problems. Institutionalizing the reports will ensure that they continue to be updated.

ROBUSTNESS ASSESSMENT REPORTS: AIMS, PROGRESS AND PROSPECTS

By Gordon Harris

1. Background

a) Income distribution statistics present a picture of incomes in each country. But imperfect data may cause the picture to be inaccurate. To judge whether it is inaccurate, we need to know:

- the extent and nature of these imperfections; **and**
- their practical effects on results.

b) High quality statistical reports will provide an assessment of the robustness of results presented. (For Eurostat publications on income, a protocol has recently been agreed with the intention of ensuring that appropriate metadata is quoted alongside results, and that the selection of results to be published is guided by an understanding of their robustness.) However, there are significant obstacles to relying solely on the quality of individual authors or institutions:

- producers of individual analyses, of particular aspects of income distribution, may find it difficult to assess whether their conclusions are vulnerable to imperfect data; it is a very large task to gather and appraise the metadata needed to assess robustness; this is especially difficult when working with data from countries other than one's own;
- some producers of income analyses may lack either the skill or the motivation to assess robustness; they may not have absorbed the necessary disciplines;
- even where there are local experts with a good understanding of data imperfections *and their practical implications*, 'health warnings' may be forgotten when results from one source are quoted elsewhere; so readers of these 'downstream' publications may not be able to judge robustness.

c) An initiative to produce Robustness Assessment Reports (RARs) was agreed at the first meeting of the Canberra Group. By the time of the second meeting in Voorburg in March 1998, RARs had been produced for Australia, Canada, Netherlands, UK and USA. The amount of information in these varied considerably; but they did identify strengths and weaknesses in each country's dataset; and provided some indications of their implications for results. Inevitably these strengths and weaknesses differed in some important respects – itself useful knowledge. Some common themes emerged:

- incomplete population coverage is not a threat to providing an accurate picture of the broad distribution of income;
- microdata on incomes appears to capture too little property/investment income; this may lead to underestimation of inequality;

- income data for the self-employed is regarded as unreliable as a guide to living standards, so statements about poverty among the working population need to be tested for sensitivity to inclusion of the self-employed;
 - results for students, and hence for young adults as a whole, are vulnerable to incomplete population coverage and/or incomplete data.
- d) Even in these 5 countries, it appeared that there is much still to be done in assessing the practical effects of data imperfections.

2. Progress since the last meeting

Preparation of reports

- a) The RAR form has been expanded to incorporate suggestions made at the Voorburg meeting. Many additional countries have been preparing RARs. Official statisticians in Norway and Sweden have prepared reports; the findings for these 2 countries are broadly consistent with the 'common themes' noted in paragraph 3 above, except that the Norwegian and Swedish Income Distribution Surveys appear to be much more successful in capturing investment income.
- b) ECLAC have co-ordinated the production of RARs in their sphere, and RARs are now available for Argentina, Brazil, Chile, Mexico and Peru. In Europe, progress has benefitted from a Eurostat initiative to commission RARs from each Member State, covering their component of the European Household Panel Survey (all MS except Sweden) and (also from EFTA countries) their household budget survey or other main source of income distribution data. By early June, in addition to those for Norway and Sweden, Eurostat had received RARs from Austria, Belgium, Finland, France, Germany, Greece, Italy, Luxembourg, Netherlands, Portugal and United Kingdom. In a separate initiative for Germany, Gert Wagner and colleagues have prepared initial reports covering the SocioEconomic Panel and the household income and expenditure survey. For New Zealand, reports are in preparation for the household budget survey (HES) and the income survey supplement to the Labour Force Survey.
- c) USA have updated their RAR work, producing a report for the data relating to 1997. Netherlands have updated the RAR on their Income Panel Survey. Canada have updated and provided considerably more information in their RAR. In addition to updating the RAR for results from the Family Expenditure Survey, UK is also preparing a RAR for the Family Resources Survey, which began in 1992 and will in future be the main source for official low-income statistics.
- d) So RARs are extending in their breadth of coverage. It will be easier to judge whether their *depth* is improving when more results from the various updating exercises are available.

Dissemination

- a) Thanks to LIS, the 5 RARs produced in 1997-98 have been placed on the Canberra Group's website hosted by LIS. In May 1999 LIS installed a hit counter for the RARs page.

b) In the USA, the findings contained in RARs have been disseminated via working papers and professional journal articles. In the UK, the initial RAR was circulated to income analysts in the research community, receiving a good reception; and a sales pitch for the RARs exercise has been made to Government statisticians.

3. Next steps

Questions for discussion at Ottawa include:

- (a) How much use is being made of the information in the RARs produced to date ? If the use is modest, does this reflect limitations on their content, or on the effectiveness of dissemination?
- (b) RARs themselves vary in the amount of information they provide. How can we set and maintain high standards for RARs, without deterring people from making the effort to produce them? Do we need some kind of 'challenge' function to assess draft RARs? If so, who should provide it?
- (c) To be really useful, RARs need to assess the practical effects of imperfect data on *results*. As one way of promoting this – without setting ourselves so large a task that we cannot achieve it – should we seek to produce annual cross-national reports on special topics? (Eg the incomes of workers.)
- (d) What additional efforts should we be making on dissemination of RAR findings?

Revised June 1999



International Data Collection in International Household Surveys

3

Canberra Group

SESSION 3: INTERNATIONAL DATA COLLECTION IN INTERNATIONAL HOUSEHOLD SURVEYS

Chair: Mike Sheridan, Statistics Canada

Focus paper: Daniel Weinberg, U.S. Bureau of the Census

Discussant: Maureen K. McDonald, Australian Bureau of Statistics

Rapporteur: Statistics Canada

To open the session, Daniel Weinberg discussed the salient points of the paper, which presents the results of a metasurvey of income data collection practices by 17 surveys in 13 countries. The goal of the survey was to determine whether meaningful international comparisons are possible.

Two major findings were presented:

- the simpler the measure and the more focused on cash, the more likely it is to be collected
- comparable, comprehensive, conceptually rigorous international measure of household income is not feasible at this time

Following this second finding, it was proposed to adopt a practical approach to income measures which would make them less comprehensive but would make international comparisons more meaningful. Seven modifications were suggested to meet this practical approach:

- omit realized capital gains
- omit maternity benefits
- omit home production
- omit interhousehold transfers, except alimony and child support
- do not deduct work expenses and mandatory deductions, except income and payroll taxes
- omit fringe benefits
- omit government health services and education

Discussant:

Following this presentation, the Chair invited Maureen K. McDonald to discuss the paper. She started by congratulating the authors for having carried out the metasurvey which contains significant information. In particular, the survey results are valuable for their mapping of the varying institutional arrangements in different countries for social transfers and taxation. A major challenge to the development of a meaningful income measure is the accommodation of these international differences. Then, she addressed three questions:

- Underlying approach (bottom-up versus top-down) - does it matter?
- Concept of income - do we have agreement?
- Proposed working definition - adopt or amend?

First, regarding the bottom-up (or building-block) approach versus the top-down (or concept-first approach), she presented the advantages of each. The building-block approach promises a quick path to a working definition. Individual components of income are considered in terms of data availability and included or discarded from the total income definition on the criterion of whether data are widely available or not. On the other hand, the concept-first approach leaves in clear view the ultimate goal of improvement on current practices. It is important to keep in mind not only what is possible but how the current definitions could be improved. Ms. McDonald also believes that the concept-first approach would result in a definition that is more internally consistent and defensible as a whole.

The second question compared two alternative concepts of income:

- Smeeding-Weinberg's approach which describes income as receipts that can be spent today. This definition would be useful for drawing up policies on the alleviation of poverty.
- SNA's approach which defines income as the maximum amount a household can consume without reducing its real net worth. This definition would be more appropriate for addressing broader policy issues relating to income inequality.

Next, she discussed the proposed definition of income. In general, she views the proposed definition as too narrow. Some of the proposed exclusions could represent significant amounts of money.

Finally, she concluded with suggestions for future work. She agreed with the proposal in the paper that clearer definitions of the terms are needed. Another fruitful area of work might be to carry out sensitivity testing on the effects of using a less than ideal measure of income, by comparing two countries with different income/tax arrangements. Four areas were suggested for this testing:

- government versus private provisions for retirement pensions
- cash versus in-kind social transfers
- direct versus indirect taxes
- market versus home production

Discussion:

The group discussion focused primarily on whether a building-block or concept-first approach is preferable. In fact, some members felt that both are appropriate and are not necessarily incompatible. One could make international comparisons now on what is possible, while at the same time developing a framework which is more complete and comprehensive.

Income Data Collection in International Household Surveys

by
Daniel H. Weinberg

U.S. Census Bureau

Washington, DC 20233-8500

USA

May 19, 1999

<Daniel.H.Weinberg@cmail.census.gov>

* The author is Chief of the Housing and Household Economic Statistics Division at the U.S. Census Bureau. This paper reports the results of research and analysis undertaken by Census Bureau staff. It has undergone a more limited review than official Census Bureau publications. This report is released to inform interested parties of research and to encourage discussion. This paper has been prepared for the meeting of the Canberra Group on Household Income Statistics in Ottawa, Ontario, Canada June 7-9, 1999. The author would like to particularly thank the individuals who provided the information on their national income surveys without whom this paper would not have been possible; their names are listed in Appendix Table 1. I would also like to thank Nancy Gordon and Maureen McDonald for their comments and suggestions to this paper and Gordon Harris, Michael Sheridan, and Timothy Smeeding for their comments on the draft questionnaire.

1. Introduction

At the second meeting of the Canberra Group on Household Income Statistics, Timothy Smeeding and Daniel Weinberg listed a comprehensive set of income components in the hope that a uniform definition or set of definitions could be computed by participant statistical agencies (see Smeeding and Weinberg, 1998). While agreement was not fully reached on the appropriate components of a definition, it was nonetheless felt to be valuable to carry out a survey of the income components that are actually collected on international household income surveys. This paper reports on the information collected by that survey — a “metasurvey” (survey about surveys). It is basically an attempt to create a data base useful for further discussion.

Three distinct approaches are on the table for consideration at this point. One approach, which might be termed “top-down”, is to take the income concepts included in the United Nations System of National Accounts and derive a consistent microeconomic definition of household income (see Anne Harrison, 1999). A second, more “bottom-up” approach, is to step back and first define an “ideal” concept of household income, and then derive a working definition from that conceptual model (see Marion McEwin and Maureen McDonald, 1998). A third approach is to choose a guiding concept and derive a working definition directly, eschewing the complete theoretical, ideal, or (necessarily) consistent “full” income definition in favor of plunging ahead to a practical definition (see Timothy Smeeding and Daniel Weinberg, 1998).

While the value of guiding conceptual principles is undeniable, this paper takes as its goal the development of a working definition that can be used to make international comparisons of household income. The conceptual discussion should continue as it is only within that framework that we can understand fully what we have (or are missing). For example, pensions can either be considered a fringe benefit and counted when the employer sets aside money in a pension fund for the benefit of the worker, or it can be considered as income when received during retirement. Smeeding and Weinberg argue that one should include pensions when received, not when earned; in other words, not as a potential claim against an illiquid asset, but rather as a contributor to current economic well-being. The strength of a conceptual framework is to make those choices clear.

The next section of the paper discusses alternate sets of income concepts and their components — three Smeeding-Weinberg (1998) definitions; a recent Eurostat (1998) definition of disposable income, developed to compare well-being across members of the European community; and the definitions derived from the McEwin-McDonald (1998) conceptual approach.¹ Section 3 presents the methodology used to collect information for this paper. Section 4 then discusses the general results of the survey. Section 5 addresses the practicability of collecting the three sets of definitions mentioned in Section 2. Finally, Section 6 focuses on whether the possibility exists to create a reasonably uniform working definition across the countries participating in the metasurvey. I want to urge members of the Canberra Group to review the components of their national survey as I have presented them, and to send me any corrections needed. I also want to urge those countries not represented in the list to send information on their national survey to me for inclusion in the next version of this paper.

¹Whether their concept of income was practical was not addressed by McEwin and McDonald. Hopefully, the tabulations presented below can help answer that question.

2. The Components of Income

Smeeding and Weinberg (hereafter SW) divided the sources of income into 15 major components, which they aggregated into three summary measures or definitions. Table 1, reproduced from their paper, corrected for a typographical error, shows these major components and summary measures.

Major component *a*, cash earnings, includes such income components as wages, salaries, sick pay, vacation pay, and farm and non-farm self-employment income. Component *b* measures other cash market-based income such as interest, dividends, rents, royalties, and pensions. Components *c*, *d*, *e*, and *f* represent other sources of cash income — respectively non-means-tested and means-tested transfers, other regularly received cash income, and net realized capital gains. Components *a-f* are aggregated to form their *Gross Cash Income* definition.

Because households do not have all their cash income available for consumption, the next four components attempt to measure potential “drains” from that income. Component *g*, net cash interhousehold transfers, includes such transfers as alimony, child support, and gifts both into and out of the household. Component *h* is an attempt to account for the value of in-kind earnings and goods produced at home and either used for the household’s consumption, bartered for other consumption goods, or sold for cash. (In developed market-driven economies, this component is small; in contrast, in developing countries it may be large.) Two other adjustments are made (deductions for nondiscretionary work expenses (*i*) and for net direct income and payroll taxes (*j*) to reach their second aggregate definition — *Real Disposable Personal Income*. The remaining components *k-o* cover other in-kind income elements — *k* is interhousehold transfers (e.g. child care), *l* is fringe benefits like company cars, *m* and *n* are non-means-tested and means-tested noncash transfer programs, respectively, and *o* is the value of imputed rent for owner-occupied dwellings. The sum of all these income components equals *Net Total Income*.

Eurostat, the European Community’s statistical agency, has recently undertaken to develop a common income definition across members of that community.¹ Table 2 presents that definition, which includes many of the same elements of the SW definition, albeit in different order. *Disposable Income* is defined as the sum of eight components. Component *a* is total compensation of employees, including fringe benefits and employer-sponsored social benefits. Component *b* is termed *Mixed income* and includes three elements — self-employment income, imputed rent for owner-occupied dwellings, and income from home production.

Components *c* and *d* are property and transfer income, respectively, and component *e* includes all other money income receipts. The next three components *f*, *g*, and *h*, are subtracted from the first five. These consist of net taxes (*f*), miscellaneous disbursements (*g*), and voluntary personal transfer payments out (*h*).

As noted earlier, McEwin and McDonald (hereafter MM) take a different approach, presenting a conceptual framework for thinking about income — focusing first on regular receipts of cash and then non-cash income to the current account, and finally accounting for changes to asset value in a capital account. Table 3 describes their framework. *Gross Regular Cash Income* consists of employee income (*a*), profits or losses from unincorporated businesses (*b*),

¹ Adraft version of that definition was presented at the second meeting of the Canberra Group, in the Hague, Netherlands, March 1999.

property income (*c*), and cash transfer income of all kinds (*d*). From this, they subtract component *e* — direct taxes (excluding taxes on capital gains) — to obtain *Disposable Cash Income*. To this, they then add various types of non-cash income (components *f-k*), such as non-cash transfers, imputed rent, etc.) to obtain *Disposable Regular Cash and In-Kind Income*. Turning to the capital account, net capital transfers (in cash, component *l*, and in-kind, component *m*) are then added to obtain *All Cash and In-Kind Receipts Other Than Capital Gains*. To obtain *Full Income*, also termed *Economic Well-Being*, they then add in all accrued (i.e., both realized and unrealized) capital gains (*n*) (minus taxes on those gains, *o*), plus other lump-sum irregular changes in the capital account (*p*).

3. A Survey of Income Data Collection Practices

Of course, existing household surveys have had no reason to organize their data collection of income components according to the SW definition, though possibly the Eurostat definition may force changes in the data collection policy of the European Household Panel. Moreover, good data collection practice requires asking the most detailed questions about those components most difficult to collect and more summary questions about easier-to-collect concepts. Accordingly, my data collection instrument was organized into nine sections, each oriented toward a different “macro” concept. The nine types of income are, (A) Income From Employment, (B) Fringe Benefits, (C) Income From Property, three types of income from government — (D) Universal Benefits, (E) Social Insurance, and (F) Transfer Programs, (G) Private Transfers, (H) Deductions From Income, and (K) Income From Other Sources. These, along with the precise components asked about, are shown in Table 4.¹

After the prototype table of income components was developed, it was reviewed by three members of the Canberra Group, and changes were made. Instructions were prepared and the questionnaire (as a blank table) was sent to all members of the Canberra Group in four formats — as Word and WordPerfect documents, and as Lotus 1-2-3 and Excel spreadsheets. Respondents were asked to give me responses in the most convenient format for them by December 31, 1998.

Responses were eventually received from individuals in 13 countries, representing 17 income surveys. As responses trickled in, the questionnaire was revised to reflect the addition of new sources of income. In mid-March 1999, the questionnaire responses as revised by the author, along with the new income components identified by the respondents, were sent back to the original respondents for review, along with clarifying questions. As of this writing, not all correspondents have responded to this second request, and thus the entries must be considered a work in progress. Furthermore, not all respondents always understood what income component was being described in the short description provided on the questionnaire, and I did not always understand how to describe the new income components contributed by the respondents. Besides language differences, there are substantial institutional differences among countries. Consequently, further revisions are not only possible but likely as the components are further clarified.

¹ For the ease of those who have reported data to me, the original code numbers are included in this draft.

Respondents were asked to note the following about each component:

- (1) whether it was collected at all;
- (2) if not, indicate that by “N” unless it was imputed (allocated) by the statistical agency conducting the survey, (denoted “I”);
- (3) if so, then whether it was collected as a separate income component (denoted “S”) or jointly with another component (denoted “J”); and
- (4) if jointly, which components were collected together.

If a component was collected only by inference in some sort of summary Acatch-all@ question, the respondent was asked to mark the component “N”. In the March 1999 follow-up, respondents were also asked to mark “O” if an income component was not applicable to their country. The complete survey responses as revised are presented in Appendix Table 1 and an initial analysis of the results is presented in Section 4. Table 5 lists the surveys by country. Four countries — Finland, Netherlands, Norway, and Sweden — reported on the data available to them from the administrative records they use to report income distribution statistics.

4. Metasurvey Findings

Table 6 answers the question, “Is the income component collected at all?” For this table, all “S”, “J”, and “I” responses are considered as “yes” answers and are denoted “X” in the table. When counting the number of countries responding “yes”, responses of “O” are added as well (if a country does not have a program or income component, it implicitly collects its value – zero).

Three kinds of income from employment (A) are collected on every survey in every country included here — wages and salaries from the main and other jobs (A1-2), bonuses (A4), and net nonfarm self-employment income (A10). A few other income components are collected by nearly all countries — tips (A3) by all countries except Korea and Sweden, and net farm self-employment (A11) and pensions (A12) by all countries except Korea.¹ A few more are collected by more than half the countries — profit-sharing including stock options (A5) in 9 countries; employer-paid disability-based income (A6), severance pay (A7), and foreign pensions (A17) in 8 countries; and union sick pay (A8), lump sum retirement payments (A13), non-periodic draws from retirement accounts (A14), and additional pensions (A18) in 7.

Worth particular note is the relative dearth of information collected on home production, either for home use (A15) or for barter transactions (A16). Six countries did collect information on the former (Finland, Germany, Malaysia, Mexico, the Netherlands, and Norway), but only Mexico and the Netherlands collected the latter. This income component was seen as key by SW to creating an international income measure that would be comparable across countries at various stages of development. Also note that only one country, Mexico, collects information on unrealized capital gains, a key component of MM’s Full Income measure.

¹A component is considered collected if at least one survey in that country collects that component. For example, both components B1 and B2 are considered collected by the United States even though their Current Population survey (USA 1) collects B2 and not B1 while their Survey of Income and Program Participation (USA 2) collects B1 and not B2.

Data collection on fringe benefits (B) is much more sparse. Only two are collected by more than half the countries reporting — company cars (B6) in 7 countries, and subsidized meals (B7) in 9. In contrast, income from property (C) is much more widely collected. Interest received (C1), dividends (C3), and rental income (C4) is collected in all 13 countries; royalties (C2) and payments from estates and trusts (C5) is collected in 10 and 11, respectively. Realized capital gains (C6) is collected in about half (7).

Determining the full coverage of data collection on government programs is more difficult, as some programs listed may not be offered in all countries. For example, the United States does not collect information on universal family or child benefits (D1) as it is not offered by the U.S. government.

Two countries (Italy and Germany) have not yet responded to the revised request and the table may have to be revised later when they do. Information on universal family and child benefits (D1) is collected in 12 of the 13 countries surveyed. No other universal government program received widespread data collection, though 7 do collect data on maternity benefits (D4). Most striking was the failure of any country to collect information on public education (D3) programs, suggesting that despite discussion at the last meeting, it would not be feasible to include them in any uniform measure and, therefore, allowing us not to worry about adjusting education benefits for differences in quality.

The next category of government programs was social insurance (E). Collection of information on these non-means-tested programs was reasonably widespread. Every country collected information on retirement and survivors insurance (social security) (E1), on disability or disablement insurance (E2); on unemployment benefits (E3), and on veterans' benefits (E6); 12 collected workers' compensation for on-the-job injuries (E4). Scholarships and other educational assistance (excluding loans) (E5) were collected by 10 countries as was sickness/medical benefits (E8). Eight collected information on child care (E9) and 6 on student loans (E7). In other words, close to a majority of countries collected (or did not offer) every social insurance program.

Transfer program benefits, including tax credits (F), were collected by a reasonable number of countries. General welfare benefits (F2) were collected in all countries, and 12 collected information on old age pensions (F11), or they did not exist. As was true for social insurance, close to a majority collected information on every transfer program (only 6 countries covered publicly owned housing, F7, and other tax credits, F17).

Three private transfers (G) are broadly collected — alimony received (G1) by all countries, child support received (G2) by 11 of 13, and regular gifts (G5) by 10 of 13. One-time gifts (G4) are collected by half the countries (7 of 13) as are other regular payments (G7), by 8 of 13. In-kind interhousehold transfers (G3) are collected by only 2 countries — Malaysia and Mexico.

Deductions from income (H) are clearly part of understanding economic well-being, and 25 different types were part of the survey. Only three were collected (or imputed) by 10 countries — alimony paid (H3), child support paid (H4), and income taxes (H15). Roughly half the countries (6-8 of 13) collected a number of other deductions — mortgage and non-mortgage interest (H1 and H2), public health insurance premiums (H10), child care costs (H12), payroll taxes (H16), government-mandated contributions to pension plans (H17), property (real estate) taxes (H18), and tax refunds (H19).

Three kinds of “other source” income (K) were collected by more than half the countries – profits from life insurance (K2) private sickness, accident, and hospital insurance (K3), and net imputed return on the equity in one’s own home (K6) were collected (or imputed) by 7 countries. Also military family allotments were collected by 6 countries.

The next section will discuss whether the income components collected could be used to create any of the aggregate definitions of income discussed in Section 2.

5. Consistency of Data Collection Practice with Income Frameworks

This section will compare the data collection practices described in broad detail above with the three frameworks for income definition described in Section 2. Since the ultimate goal of this comparison is to determine whether meaningful international comparisons are possible, it is important to focus on the key components of each definition, rather than on the minor components whose omission would have little effect on overall income statistics. Accordingly, Table 7 presents my interpretation of the major and minor income components of the SW income definition, and Tables 8 and 9 present the same information for the Eurostat and MM definitions, respectively. I must emphasize that this distinction between major and minor components is the author’s opinion only. Furthermore, my interpretation of the components of the Eurostat and MM definitions have not been vetted by the authors of those paper.

Table 10 reorganizes Table 6 according to the SW definitions in Table 1 and also indicates whether the data are collected separately, jointly, or are imputed. Table 11 reorganizes Table 6 according to the Eurostat components of income presented in Table 2, and Table 12 does the same for the MM definitions in Table 3. Each country’s ability to compute these measures is discussed below. For the purpose of the discussion, I will focus only on what I consider key components of each definition, as shown in Tables 7-9. One topic for discussion, of course, is whether this list of major and minor components should be modified.

SW Gross Cash Income. Gross Cash Income is an income definition that can be collected almost completely by every country in the survey. The most serious shortcomings are two — realized capital gains (C6) and maternity benefits (D4) are collected by only 7 countries. It should be noted though, that several countries, most notably Germany, the Netherlands, Norway, and Sweden, would have difficulty in reporting an unambiguous measure, as many collect fringe benefits jointly with cash compensation (see Appendix Table 1).

SW Real Disposable Personal Income. Real Disposable Personal Income is more problematic to collect than Gross Cash Income. More than half its major components are collected by less than half the countries. Most problematic (collected by 4 or fewer countries) are home production for barter (A16), payments made on behalf of another household (H5), interhousehold cash transfers (gifts) (H6), transportation costs (H7), mandatory payments for employer-sponsored pension plans (H8), union and professional dues (H9), and employer reimbursements for non-discretionary work expenses (H11).

SW Net Total Income. Only four of the remaining major elements of Net Total Income are collected by more than half the countries while six are not (government health care services (D2) and in-kind interhousehold transfers, G3, are collected by only 2 countries). Most notably unable to collect these extra components are Australia (one of nine components), Canada (zero), Korea (one), and the United Kingdom (two).

Eurostat Disposable Income. The components of the Eurostat Disposable Income definition vary substantially in their ability to be reported on by the countries in this sample. The countries that rely on administrative records, along with the United Kingdom, seem to do the best at measuring Eurostat's definition of employee compensation (which includes many fringe benefits). Less than half of the components of employee compensation (*a*) are collected by more than half the countries (5 of 12). Only one mixed income (*b*) component is measured at all well — self-employment income (A10, A11) — while the other two — home production (A15, A16) and imputed rent (K6) — are not. Income from property (*c*) and transfer income (*d*) are measured fairly well by most countries, as are other money income (*e*) and taxes (*f*) (with some substantial omissions of payroll tax (H16) data collection). Finally, measurement of voluntary transfers out (*h*) is spotty with several countries doing poorly — Australia collects only one major component of five, Canada two, Germany two, Korea none, Netherlands one, Norway two, Sweden one, and the United States one.

MM Measures. All the 22 major elements of MM's Gross Regular Cash Income are collected by more than half the countries in the sample; only one (D4, maternity benefits) is collected by fewer than 10 countries. However, their next summary measure, Disposable Regular Cash and In-Kind Income, fares relatively poorly. The 14 incremental major components needed to complete this measure are measured by half the countries in only five cases, and even that number assumes that taxes on capital gains can be identified separately from all income taxes (a component not asked about on my survey). Finally, as noted earlier, only 1 country collects information on unrealized capital gains, making it difficult to reach their Full Income measure.

6. Development of a Practical Income Measure

How feasible is the creation of a comparable, comprehensive, and conceptually rigorous international measure of household income? According to the analysis in Section 5, the answer is "not very feasible". This section will make some suggestions to modify the comprehensive measures in such a way as to make them less comprehensive but more comparable.

Suggestion #1. Omit realized capital gains (C6). This is a problem only for both German surveys, which collect the information jointly with dividends (C3) and estates and trusts (C5) on the Income and Expenditure Survey, and with interest received (C1) and dividends (C3) on the Socio-Economic Panel Survey.

Suggestion #2. Omit maternity benefits (D4). Sweden collects these jointly with the parenting payment (F12), a minor component.

Suggestion #3. Omit home production (A15, A16). Smeeding and Weinberg argued that home production might be one of the most important components to measure to allow reasonable income comparisons between developed and developing countries. If the suggestion to omit this component were adopted, one possibility worth pursuing is to investigate the prevalence of home production in developed countries through a separate study that would allow its imputation. In developing countries, careful methodological work on how to best measure the components should be undertaken, perhaps coordinated by an international agency.

Suggestion #4. Omit interhousehold transfers and payments (G3, G5, H5, H6) except alimony and child support paid and received (G1, G2, H3, H4). These monetary and in-kind transfers are hard to measure and few countries do so. The United Kingdom measures payments on behalf of another household (H5), jointly with alimony and child support paid, so this component would be slightly overstated there. Also, Malaysia might have difficulty separating in-kind transfers from other transfers so they could be excluded.

Suggestion #5. Do not deduct work expenses and mandatory payments from income (H7, H8, H9, H10, H11); except to deduct taxes (H15, H16). While it makes theoretical sense to deduct work expenses from employee compensation (if only to make better within-country comparisons between households with workers and those without), the inability to make those measurements suggests it be avoided. Norway would have difficulty not measuring public health insurance premiums, as they are collected jointly with income taxes. Perhaps an imputation could be developed there to subtract their value. Payroll taxes would need to be collected or imputed in Australia, the Canadian Survey of Consumer Finances, Italy, Korea, Malaysia, Mexico, Norway, and Sweden.

Suggestion #6. Omit all fringe benefits (B). While a substantial (and growing) part of employee compensation, fringe benefits have always been difficult to measure and value, especially as they may be worth more (or less) to the employee than the employer pays for them (due in part, perhaps, to tax considerations).

Suggestion #7. Omit Government-Subsidized Health Services (D2). Health care is delivered to citizens in so many different ways, from universally available (government-provided), to government-subsidized (universally or categorically), to market-provided. Getting a universally consistent measure seems unlikely, especially given quality variations (which includes waiting time for elective procedures).

Table 13 presents the resultant list of major income components were all seven of these suggestions adopted; Table 14 presents the survey results on collectibility for this more limited, working definition for all the countries in the study. Of the 26 major income components identified as critical for the possible working definition presented in Table 13, only two countries in the study collect fewer than 20 – Korea (15), and the Canadian Survey of Consumer Finances (19).

The next steps seem to be the following:

- a decision on whether this working definition should be used as the appropriate vehicle for international comparisons or whether a return to first principles to derive a theoretically consistent measure is preferable;
- then, if it is appropriate, clarification of whether the list of major income components suggested in Table 13 is the correct list or whether it should be amended;
- discussion about the importance of excluding minor components or just measuring their effect; and
- clarification of the exact definitions of each income component to be included in the working definition to reduce confusion across participating countries (I would suggest that the approach used by the Luxembourg Income Study might be the appropriate approach to harmonizing these component definitions.)

Further discussions are needed on how to treat minor income components collected jointly with the major ones noted in the table. One possibility is to ignore their impact; alternatively, one could try to measure it or reword surveys to separately measure the major components. Besides reviewing my proposed list of major and minor income components, each country should examine its own survey(s) compliance with the proposed definition.

Case Study: United States

As an illustration of an individual country's ability to meet the measurements requirements of this "working" definition, I present the case of the United States Current Population Survey (CPS), denoted USA 1 in the tables. The CPS is currently used to measure official income and poverty statistics for the U.S. The CPS needs to make only one substantial change — measure alimony and child support paid to another household (H3, H4). However, because of joint income component data collection, the CPS-based working household income definition would also include the following minor income components: tips (A3), bonuses (A4), severance pay (A7), foreign pensions (A17), additional voluntary pensions and annuities (A18), royalties (C2), income from estates and trusts (C5), government disability support (F10), and military family allotments (K1). Some assessment would need to be made to determine the likely implications of including these components.

The second U.S. survey, the Survey of Income and Program Participation (SIPP), is denoted USA 2 in the tables. A recent expert panel (Connie Citro and Robert Michael, 1995) has proposed that the SIPP rather than the CPS become the source of official income and poverty statistics for the U.S., as it has less underreporting of income than the CPS, when compared to benchmarks. The SIPP would need to make the following changes to be able to measure the "working" income measure: (1) measure the value of rental allowances, housing subsidies, and publicly owned housing (F4 and F7), (2) measure alimony paid (H3), and (3) impute a rental equivalent value for owner-occupied housing (K6). The SIPP-based working household income definition would also include the following minor income components: tips (A3), bonuses (A4), foreign pensions (A17), additional voluntary pensions and annuities (A18), government disability support (F10), and military family allotments (K1).

References

Citro, Constance F. and Robert T. Michael (eds.). Measuring Poverty: A New Approach. Washington, DC: National Academy Press, 1995.

Eurostat [Statistical Office of the European Communities]. Recommendations of the Task Force on Statistics on Social Exclusion and Poverty." October 1998.

Harrison, Anne. "Terminology for Microdata Concepts and SNA Concepts on Income – A Question of Communication." Paper prepared for the Canberra Group on Household Income Measurement meeting in Ottawa, Canada, June 1999.

McEwin, Marion and Maureen K. McDonald. "Concept and Definition of Household Income for International Comparisons." Paper prepared for the Canberra Group on Household Income Measurement meeting in the Hague, Netherlands, March 1998.

Smeeding, Timothy M. and Daniel H. Weinberg. "Toward a Uniform Household Income Definition." Paper prepared for the Canberra Group on Household Income Measurement meeting in the Hague, Netherlands, March 1998; revised October 1998.

Table 1. Smeeding-Weinberg October 1998 Alternate Income Definitions.

- a. Cash Earnings
plus
- b. Other Cash Market Income
plus
- c. Cash (non-means-tested) Non-conditional Transfers
plus
- d. Cash Means-tested Assistance
plus
- e. Other Regularly Received Money Income
plus
- f. Realized Capital Gains
equals **GROSS CASH INCOME**
plus
- g. Net Cash Interhousehold Transfers
plus
- h. Value of In-Kind Earnings and Home Production
(used for consumption or barter, or sold for cash)
minus
- i. Net Work Expenses (nondiscretionary)
minus
- j. Net Direct Income and Payroll Taxes
equals **REAL DISPOSABLE PERSONAL INCOME**
plus
- k. Net In-Kind Interhousehold Transfers
plus
- l. In-Kind Market Income
plus
- m. In-Kind Non-conditional Assistance
plus
- n. In-Kind Means-tested Assistance
plus
- o. Imputed Rent for Owner-Occupied Dwellings
equals **NET TOTAL INCOME**
divided by
Equivalence Scale
equals **NET EQUIVALENT TOTAL INCOME**

Source: Smeeding and Weinberg (1998), Table 1 (corrected).

Table 2. Eurostat October 1998 Disposable Income Definition.

- a. Compensation of Employees
(wages and salaries including in-kind compensation, overtime payments, paid holidays, profit sharing, company shares, compensation for work expenses, employer payments for social benefits including health and retirement benefits, other lump sum income)
plus
- b. Mixed Income
(self-employment income, imputed rent for owner-occupied dwellings, income from home production)
plus
- c. Income from Property
(rents, dividends, interest, withdrawals, returns on insurance funds)
plus
- d. Transfer Income
(benefits and assistance programs including both government and privately funded social programs – examples are unemployment benefits, old age pension, retirement pension, family allowances, sickness benefit, education allowances, housing allowances, social welfare, survivors' pension)
plus
- e. Other Money Income
(includes proceeds from non-life insurance net of premiums, cash and in-kind interhousehold transfers received)
minus
- f. Net Direct Income, Wealth, and Payroll Taxes
(includes compulsory contributions to Social Security, etc.)
minus
- g. Disbursements
(property income payable, miscellaneous current transfers)
minus
- h. Voluntary Transfer Payments Out
(cash and in-kind interhousehold transfers paid)
equals: **DISPOSABLE INCOME**

Source: Eurostat (1998), Annex 2.1

Table 3. McEwin-McDonald February 1998 Full Income Definition.

Regular Receipts – Current Account (a-m)

- a. Employee income (wages and salaries, pay for time not worked such as holiday pay)
plus
- b. Profit/loss from unincorporated enterprises
plus
- c. Property Income (interest, dividends, net rent, royalties)
plus
- d. Transfer income (social security cash pensions, benefits and allowances; private pensions and annuities; interhousehold transfers)
equals **GROSS REGULAR CASH INCOME**
minus
- e. Direct income taxes, compulsory fees and fines
equals **DISPOSABLE CASH INCOME**
plus
- f. Employee income in-kind
plus
- g. In-kind property income (excludes imputed rent from owner-occupied dwelling)
plus
- h. In-kind non-cash transfers from other households
plus
- i. In-kind benefits from government under social security schemes
plus
- j. Value of other government in-kind transfers (health, education, etc.)
plus
- k. Other (non-market) income (imputed rent, value of unpaid household work)
equals **DISPOSABLE REGULAR CASH AND IN-KIND INCOME**
plus

Irregular Receipts — Capital Account (o-t)

- l. Cash capital transfers received
plus
- m. In-kind capital transfers received
equals **ALL CASH AND IN-KIND RECEIPTS OTHER THAN CAPITAL GAINS**
plus
- n. Net (accrued) capital gains/Long term rate of return on net worth
minus
- o. Capital gains taxes
plus
- p. Other changes in volume (losses through natural disasters after compensation)
equals **ECONOMIC WELL-BEING OR FULL INCOME**

Source: McEwin and McDonald (1998), Appendix 2.

Table 4. Income Component code list

		INCOME COMPONENT
[old #]	code #	
	A	INCOME FROM EMPLOYMENT
1	A1	wages and salaries (main job)
2	A2	wages and salaries (other jobs)
3	A3	Tips
4	A4	Bonuses
5	A5	profit-sharing including stock options
6	A6	disability-based income
7	A7	severance pay
8	A8	union sick or disability pay
9	A9	union strike pay
10	A10	(net) nonfarm self-employment
11	A11	(net) farm self-employment
12	A12	pensions or other periodic retirement
13	A13	lump sum retirement payout
14	A14	non-periodic draw from retirement account
15	A15	home production for home use
16	A16	home production for barter transactions
17a/72	A17	foreign pensions
17b	A18	additional voluntary pensions/annuities
	B	FRINGE BENEFITS
18	B1	contributions to retirement (pension) plans
19a	B2	contributions to health insurance
19b	B3	contributions to life insurance
19c	B4	contributions to employer insurance schemes
19d	B5	contributions to national insurance schemes
20a	B6	company cars
20b	B7	subsidized meals
20c	B8	subsidized (low-interest) loans
20d	B9	subsidized housing, electricity
21	B10	employer share of payroll taxes
22a	B11	subsidized vacations
22b	B12	subsidized child care
	C	INCOME FROM PROPERTY
23	C1	interest received
25	C2	royalties
26	C3	dividends
27	C4	rental income
28	C5	estates, trusts
29	C6	realized capital gains
30	C7	unrealized capital gains
31a	C8	profits from small business capital investment

	D	INCOME FROM GOVERNMENT – UNIVERSAL BENEFITS
32	D1	family or child benefits/credits/allowance
33	D2	government-subsidized health care services
34	D3	public education
35a	D4	maternity benefits/allowances/grants

	E	INCOME FROM GOVERNMENT – SOCIAL INSURANCE
36	E1	social security (retirement and survivors) benefits
37	E2	disability insurance/incapacity/disablement
38	E3	unemployment benefit/job search allowance
39	E4	workers' compensation (on-the-job injuries)
40	E5	scholarships & education assistance (excluding loans)
41	E6	veterans' benefits
42a	E7	student loans
42b	E8	sickness/medical benefit
42c	E9	child care

	F	INCOME FROM GOVERNMENT – TRANSFER PROGRAMS
43	F1	child support assurance (public) benefits
44	F2	public assistance or general welfare benefits
44a	F3	public assistance for elderly
45	F4	rental allowances (housing subsidies)
46	F5	food subsidies or vouchers
47	F6	foster child benefits
48	F7	publicly owned housing
49	F8	surplus food and clothing
50a	F9	unemployment benefits
50b	F10	disability support
50c	F11	age pension
50d	F12	parenting payment
50e	F13	other transfer programs
50f	F14	Social Fund
50i	F15	child tax credit
50j	F16	earned income tax credit
50k	F17	other tax credits

	G	PRIVATE TRANSFERS
52	G1	alimony received from another household
54	G2	child support received from another household
55	G3	in-kind interhousehold transfers
56	G4	one-time cash interhousehold transfers received (gifts)
57	G5	regular cash interhousehold transfers received (gifts)
58	G6	inheritances
59a	G7	other regular payments from outside household

	H	DEDUCTIONS FROM INCOME
24a	H1	interest paid on mortgage loans
24b	H2	interest paid on non-mortgage loans
51	H3	alimony paid to another household
53	H4	child support paid to another household
53a	H5	payments on behalf of another household
53b	H6	interhousehold transfers paid (gifts)
60a	H7	transportation costs
60c	H8	employer-sponsored pension plans

Canberra Group

60d	H9	union and professional dues
60e	H10	public health insurance premiums
61	H11	employer reimbursements for non-discretionary work expenses
62a	H12	child care costs
62b	H13	home help services
63	H14	employer reimbursements for discretionary work expenses
64	H15	income taxes
65	H16	payroll taxes
66	H17	other government-mandated contributions to pension plans
67	H18	property (real estate) taxes
68	H19	tax refunds
69	H20	sales or value-added taxes
70a	H21	medical expenses
70b	H22	government-mandated contributions to unemployment insurance
70c	H23	compulsory fees and fines
70d	H24	health insurance premiums
70e	H25	repayments of student loans

K INCOME FROM OTHER SOURCES		
71	K1	military family allotments
31b/73	K2	profits from life insurance
73a	K3	private sickness, accident, hospital insurance
73b	K4	unemployment/redundancy insurance
74	K5	lottery or gambling winnings
75	K6	net imputed return on the equity in one's own home
76a	K7	Friendly Society benefits

Note: old # indicates the number used in data collection; code # indicates the number used in the text.

Table 5. Surveys Included in this Study.

Australia	Survey of Income and Housing Costs
Canada	1. Survey of Consumer Finances
	2. Survey of Labour and Income Dynamics
Finland	Income Distribution Survey (administrative records)
Germany	1. Income and Consumption Survey
	2. [German] Socio-economic Panel Study
Italy	Bank of Italy Survey of Household Income and Wealth
Republic of Korea	National Survey of Family Income and Expenditure
Malaysia	Household Income Survey
Mexico	National Survey of Income and Expenditure in Households
Netherlands	Income Panel Survey
Norway	Income Distribution Survey (administrative records)
Sweden	Income Distribution Survey (administrative records)
United Kingdom	1. Family Expenditure Survey
	2. Family Resources Survey
United States	1. Current Population Survey
	2. Survey of Income and Program Participation

Table 6

Income component	Australia	Canada 1	Canada 2	Finland	Germany 1	Germany 2	Italy	Korea	Malaysia	Mexico	Netherlands	Norway	Sweden	UK 1	UK 2	USA 1	USA 2	Number of countries
------------------	-----------	----------	----------	---------	-----------	-----------	-------	-------	----------	--------	-------------	--------	--------	------	------	-------	-------	---------------------

A INCOME FROM EMPLOYMENT																		
A1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	13
A2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	13
A3	X	X	X	X	X		X		X	X	X	X		X	X	X	X	11
A4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	13
A5		X	X	X	X	X		X		X	X	X	X	X	X			9
A6				X	X					X	X	X	X	O	O	X	X	8
A7				X	X	X				X	X	X	X	X	X	X	X	8
A8				X	O	O				X	X		O	X	X	X	X	7
A9				X	X					X	X			X	X	X	X	6
A10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	13
A11	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	12
A12	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	12
A13				X	X		X			X	X	X	X				X	7
A14		X	X	X	X		X			X	X		X	O	O			7
A15				X	X				X	X	X	X						6
A16										X	X							2
A17	X			X			X			X	X	X		X	X	X	X	8
A18	X			X			X			X			X	X	X	X	X	7
B FRINGE BENEFITS																		
B1				X					X			X					X	4
B2				X	X	X			X		X					X		5
B3				X					X			X						3
B4									X	O	X	O						4
B5					O	O			O	O	X	O						5
B6				X			X		X		X	X	X	X				7
B7				X			X	X	X	X	X	X	X	X	X			9
B8				X						X	X	X	X					4
B9				X					X	X	X	X	X					6
B10					X	X			X	X	X		X					5

Table 6 (continued.)

Income component	Australia	Canada 1	Canada 2	Finland	Germany 1	Germany 2	Italy	Korea	Malaysia	Mexico	Netherlands	Norway	Sweden	UK 1	UK 2	USA 1	USA 2	Number of countries
B11				X						O	X	X						4
B12						X				X	X	X	X					5
C INCOME FROM PROPERTY																		
C1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	13
C2	X	X	X	X				X	X	X	X	X	X	X	X	X	X	11
C3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	13
C4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	13
C5	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	11
C6		X	X	X	X	X				X		X	X			X	X	7
C7										X								1
C8				X					X	X		O		X	X			5
D INCOME FROM GOVERNMENT – UNIVERSAL BENEFITS																		
D1	O	O	O	X	X	X	X		O		X	X	X	X	X	O	O	12
D2					O	O										X		2
D3																		0
D4		O	O	X	X	X						X	X	X	X	O	O	7
E INCOME FROM GOVERNMENT – SOCIAL INSURANCE																		
E1	O	X	X	X	X	X	X	X	O	X	X	X	X	X	X	X	X	13
E2	O	X	X	X	X	X	X	X	O	X	X	X	X	X	X	X	X	13
E3	O	X	X	X	X	X	X	X	O	O	X	X	X	X	X	X	X	13
E4	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	12
E5				X		X	X	X	X	X	X	X	X	X	X	X	X	10
E6	X	X		X	X	X	X	X	O	X	X	X	O	X	X	X	X	13
E7				X	X	X				X		X	X	X	X			6
E8	O	O	O	X	X					X	X	X	X	X	X	O	O	10
E9	O	O	O	X	O	O			O	X				X				7
F INCOME FROM GOVERNMENT – TRANSFER PROGRAMS																		
F1	X	X	X	X	X	X	X		O	X				X	X	O	O	9

Table 6 (continued.)

Income component	Australia	Canada 1	Canada 2	Finland	Germany 1	Germany 2	Italy	Korea	Malaysia	Mexico	Netherlands	Norway	Sweden	UK 1	UK 2	USA 1	USA 2	Number of countries
F2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	13
F3		X	X	X	X	X	?	O	O	X	X	O	O	X	X	X	X	11
F4	X			X		X	X		X	X	X	X	X	X	X	X		11
F5	O			O	O	O	X		X	X		O	O		X	X	X	9
F6	X			X	X	X	X		O	O		X	X	X	X	X	X	10
F7				X	X	X	X			O			O			X		6
F8				O	O	O	X		O	O		O	O					7
F9	X	O	O	X	X	X	?	O	O	O	X		X	X	X	O	O	11
F10	X	O	O	X	X	X	?	O	O	X			X	X	X	X	X	10
F11	X	X	X	X	X	X	?	O	X	X	X	O	X	O	O	O	O	12
F12	X	O	O	X	O	O	?	O	O	X			X	O	O	O	O	10
F13	X	O	O	X	O	O	?	O		X	X		X	X	X	O	O	10
F14	O	O	O	O	O	O	?	O		X	X	O	O	X	X	O	O	11
F15	X	X	X	O	O	O	?			O		X	O	O	O			8
F16	O	O	O	X	O	O	?					O	O	O	O	X	X	8
F17	O	X	X	X	O	O	?						X	O	O			6
G PRIVATE TRANSFERS																		
G1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	13
G2	X	X	X	X	X	X	X	X	X	X		X		X	X	X	X	11
G3									X	X								2
G4		X		X	X		X			X		X					X	7
G5	X	X		X	X		X	X	X	X					X		X	10
G6					X				X	X		X					X	5
G7	X			X	X	X			X	X	X				X	X	X	8
H DEDUCTIONS FROM INCOME																		
H1				X		X	X			X	X	X	X	X	X			8
H2				X	X	X	X			X	X	X	X					7
H3			X	X	X	X	X		X	X	X	X	X	X	X			10
H4	X		X	X	X	X	X		X	X		X		X	X		X	10
H5				X			?		?	X				X	X			3
H6				X			?		X	X								3
H7				X						X		X	X					4
H8			X						?	X				X	X			3
H9			X	X					?	X		X						4

Table 6 (continued.)

Income compo- nent	Austra- lia	Can- da 1	Can- da 2	Finland	Germa- ny 1	Germa- ny 2	Italy	Korea	Malaysia	Mexico	Nether- lands	Norway	Sweden	UK 1	UK 2	USA 1	USA 2	Number of countries
H10	X			X	X	X			?		X	X	O	O	O			7
H11				X										X	X			2
H12			X	X		X						X	X				X	6
H13													X					1
H14				X														1
H15	X	X	X	X	X	X			X		X	X	X	X	X	X	X	10
H16			X	X	X	X					X			X	X	X	X	6
H17			X	X	O	O			X		X	X		X	X			7
H18				X	O	O					X	X	X	X	X	X	X	7
H19				X	X							X	X	X	X		X	6
H20					O	O								X				2
H21			X	X				O				X	X					5
H22			X	X	X	X				O				X	X			5
H23									X									1
H24			X	X	X	X					X							4
H25				X									X					2
K INCOME FROM OTHER SOURCES																		
K1	O			X	O	O				O	X					X	X	6
K2				X	X		X			X	X	X					X	7
K3	X			X	X		?			X	X		X	X	X		X	8
K4				X			?			O	X	O						4
K5					X					X	X	X					X	5
K6				X	X	X	X		X	X	X					X		7
K7				X								O		X	X			3

Key: blank=not collected; ?=unclear; X=asked in some way or imputed; O=not applicable.

See Table 4 for key to income components, Table 5 for key to surveys. "Number of countries" entry counts the number of countries in which at least one of the surveys reported on collects the information, plus the number of countries that the correspondent indicated that the component did not exist (code "O").

Table 7. Major and minor income components of the Smeeding-Weinberg income definitions.

Major elements		Minor elements	
GROSS CASH INCOME (GCI) = a + b + c + d + e + f			
a	CASH EARNINGS		
A1	wages and salaries (main job)	A3	tips
A2	wages and salaries (other jobs)	A4	bonuses
A10	(net) nonfarm self-employment	A7	severance pay
A11	(net) farm self-employment	A8	union sick or disability pay
A9	union strike pay		
b	OTHER CASH MARKET INCOME		
A12	pensions or other periodic retirement	A5	profit-sharing incl. stock options
C1	interest received	A6	disability-based income
C3	Dividends	A17	overseas pensions
C4	rental income	A18	additional voluntary pensions/annuities
		C2	royalties
		C1	interest received
		C5	estates, trusts
		C8	profits from small business capital investment
		H1	interest paid on mortgage loans
		H2	interest paid on non-mortgage loans
		K2	profits from life insurance
c	CASH NON-CONDITIONAL TRANSFERS		
D1	family or child benefits/credits/allowance	E4	workers' compensation (on-the-job injuries)
D4	maternity benefits/allowances/grants	E5	scholarships & education assistance (excluding loans)
E1	social security (retirement and survivors) benefits	E7	student loans
E2	disability insurance/incapacity/disablement	E8	sickness/medical benefit
E3	unemployment benefit/job search allowance	E9	child care
E6	veterans' benefits		
d	CASH MEANS-TESTED ASSISTANCE		
F2	public assistance or general welfare benefits	F1	child support assurance (public) benefits
F3	public assistance for elderly	F10	disability support
F4	rental allowances (housing subsidies)	F11	age pension
F9	unemployment	F12	parenting payment
		F13	other transfer programs
		F14	Social Fund

Table 7 (continued)

Major elements	Minor elements
----------------	----------------

e OTHER REGULARLY RECEIVED MONEY INCOME

- F6 foster child benefits
- K1 military family allotments
- K3 private sickness, accident, hospital insurance
- K4 unemployment/redundancy insurance
- K7 Friendly Society benefits

f NET REALIZED CAPITAL GAINS

- C6 realized capital gains

$$\text{REAL DISPOSABLE PERSONAL INCOME (RDPI)} = \text{GCI} + g + h - i - j$$

g NET CASH INTERHOUSEHOLD TRANSFERS

- G1 alimony received from another household
- G2 child support received from another household
- G5 regular cash interhousehold transfers received (gifts)
- H3 alimony paid to another household
- H4 child support paid to another household
- H5 payments on behalf of another household
- H6 interhousehold transfers paid (gifts)
- G4 one-time cash interhousehold transfers received (gifts)
- G6 inheritances
- G7 other regular payments from outside household

h VALUE OF IN-KIND EARNINGS AND HOME PRODUCTION

- A15 home production for home use
- A16 home production for barter transactions

i NET NONDISCRETIONARY WORK EXPENSES

- H7 transportation costs
- H8 employer-sponsored pension plans
- H9 union and professional dues
- H10 public health insurance premiums
- H11 employer reimbursements for non-discretionary work expenses
- H12 child care costs
- H13 home help services
- H14 employer reimbursements for discretionary work expenses
- H17 other government-mandated contributions to pension plans
- H21 Medical Expenses
- H22 government-mandated contrib. to unemployment ins.
- H23 compulsory fees and fines

j NET DIRECT INCOME AND PAYROLL TAXES

- H15 income taxes
- H16 payroll taxes
- F15 child tax credit
- F16 earned income tax credit
- F17 other tax credits

$$\text{NET TOTAL INCOME} = \text{RDPI} + k + l + m + n + o$$

Table 7 (continued)

Major elements		Minor elements	
k	NET IN-KIND INTERHOUSEHOLD TRANSFERS		
G3	in-kind interhousehold transfers		
l	IN-KIND MARKET INCOME		
B1	contrib. to retirement (pension) plans	B3	contributions to life insurance
B2	contrib. to health insurance	B4	contributions to employer insurance schemes
B6	company cars	B5	contributions to national insurance schemes
B7	subsidized meals	B8	subsidized (low-interest) loans
B10	employer share of payroll taxes	B9	subsidized housing, electricity
		B11	subsidized vacations
		B12	subsidized child care
m	IN-KIND NON-CONDITIONAL ASSISTANCE		
D2	government-subsidized health care services	D3	public education
n	IN-KIND MEANS-TESTED ASSISTANCE		
F5	food subsidies or vouchers	F8	surplus food and clothing
F7	publicly owned housing		
o	IMPUTED RENT FOR OWNER-OCCUPIED DWELLINGS		
K6	net imputed return on the equity in one's own home		
NOT INCLUDED			
		A13	lump sum retirement payout
		A14	non-periodic draw from retirement account
		C7	unrealized capital gains
		H18	property (real estate) taxes
		H19	tax refunds
		H20	sales or value-added taxes
		H24	health insurance premiums
		H25	repayments of student loans
		K5	lottery or gambling winnings

NOTE: See Table 1 for components of Smeeding-Weinberg income definitions.

Table 8. Major and minor income components of the Eurostat disposable income definition.

Major elements		Minor elements	
a	COMPENSATION OF EMPLOYEES		
A1	wages and salaries (main job)	A3	tips
A2	wages and salaries (other jobs)	A4	bonuses
B1	contributions to retirement (pension) plans	A5	profit-sharing including stock options
B2	contributions to health insurance	A7	severance pay
B6	company cars	A8	union sick or disability pay
B7	subsidized meals	A9	union strike pay
B10	employer share of payroll taxes	B3	contributions to life insurance
H7	Transportation costs	B4	contributions to employer insurance schemes
H8	employer-sponsored pension plans	B5	contributions to national insurance schemes
H9	union and professional dues	B8	subsidized (low-interest) loans
H10	public health insurance premiums	B9	subsidized housing, electricity
H11	employer reimbursements for non-discretionary work expenses	B11	subsidized vacations
		B12	subsidized child care
		H12	child care costs
		H13	home help services
		H14	employer reimbursements for discretionary work expenses
		H17	other government-mandated contributions to pension plans
		H21	medical expenses
		H22	government-mandated contrib. to unemployment ins.
		H23	compulsory fees and fines
b	MIXED INCOME		
A10	(net) nonfarm self-employment		
A11	(net) farm self-employment		
A15	home production for home use		
A16	home production for barter transactions		
K6	net imputed return on the equity in one's own home		
c	INCOME FROM PROPERTY		
C1	interest received	C2	royalties
C3	dividends	C1	interest received
C4	rental income	C5	estates, trusts
		C8	profits from small business capital investment
		K2	profits from life insurance

Table 8 (continued)

Major elements		Minor elements	
d	TRANSFER INCOME		
A12	pensions or other periodic retirement	A6	disability-based income
D1	family or child benefits/credits/ allowance	A17	overseas pensions
D2	government-subsidized health care services	A18	additional voluntary pensions annuities
D4	maternity benefits/allowances/grants	E4	workers' compensation (on-the-job injuries)
E1	social security (retirement and survivors) benefits	E5	scholarships & education assistance (excluding loans)
E2	disability insurance/incapacity/disablement	E7	student loans
E3	unemployment benefit/job search allowance	E8	sickness/medical benefit
E6	veterans' benefit	E9	child care
F2	public assistance or general welfare benefits	F1	child support assurance (public) benefits
F3	public assistance for elderly	F10	disability support
F4	rental allowances (housing subsidies)	F11	age pension
F5	food subsidies or vouchers	F12	parenting payment
F7	publicly owned housing	F13	other transfer programs
F9	unemployment	F14	Social Fund
		D3	public education
		F8	surplus food and clothing
e	OTHER MONEY INCOME		
G1	alimony received from another household	A13	lump sum retirement payout
G2	child support received from another household	A14	non-periodic draw from retirement account
G5	regular cash interhousehold transfers received (gifts)	F6	foster child benefits
		K1	military family allotments
		K3	private sickness, accident, hospital insurance
		K4	unemployment/redundancy insurance
		K7	Friendly Society benefits
		G4	one-time cash interhousehold transfers received (gifts)
		G6	inheritances
		G7	other regular payments from outside household
f	NET DIRECT INCOME, WEALTH, AND PAYROLL TAXES		
H15	income taxes	F15	child tax credit
H16	payroll taxes	F16	earned income tax credit
		F17	other tax credits
g	DISBURSEMENTS		

Table 8 (continued)

Major elements		Minor elements	
h	VOLUNTARY TRANSFER PAYMENTS OUT		
G3	in-kind interhousehold transfers		
H3	alimony paid to another household		
H4	child support paid to another household		
H5	payments on behalf of another household		
H6	interhousehold transfers paid (gifts)		
	NOT INCLUDED		
C6	realized capital gains	C7	unrealized capital gains
		H1	interest paid on mortgage loans
		H2	interest paid on non-mortgage loans
		H18	property (real estate) taxes
		H19	tax refunds
		H20	sales or value-added taxes
		H24	health insurance premiums
		H25	repayments of student loans
		K5	lottery or gambling winnings

NOTE: See Table 2 for components of Eurostat disposable income definition.

Table 9. Major and minor income components of the McEwin-McDonald income definition.

Major elements		Minor elements	
GROSS REGULAR CASH INCOME (GRCI) = a + b + c + d		a	EMPLOYEE
INCOME			
A1	wages and salaries (main job)	A3	tips
A2	wages and salaries (other jobs)	A4	bonuses
		A5	profit-sharing incl. stock options
		A6	disability-based income
		K1	military family allotments
b	PROFIT/LOSS FROM UNINCORPORATED ENTERPRISES		
A10	(net) nonfarm self-employment	C8	profits from small business capital investment
A11	(net) farm self-employment		
c	PROPERTY INCOME		
C1	interest received	C2	royalties
C3	dividends	C1	interest received
C4	rental income	C5	estates, trusts
		K2	profits from life insurance
d	TRANSFER INCOME		
A12	pensions or other periodic retirement	A8	union sick or disability pay
D1	family or child benefits/credits/allowance	A9	union strike pay
D4	maternity benefits/allowances/grants	A17	overseas pensions
E1	social security (retirement and survivors) benefit	A18	additional voluntary pensions/sannuities
E2	disability insurance/incapacity/disablement	E4	workers' compensation (on-the-job injuries)
E3	unemployment benefit/job search allowance	E5	scholarships & education assistance (excluding loans)
E6	veterans' benefits	E8	sickness/medical benefit
F2	public assistance or general welfare benefits	F1	child support assurance (public) benefits
F3	public assistance for elderly	F6	foster child benefits
F4	rental allowances (housing subsidies)	F10	disability support
F9	unemployment benefits	F11	age pension
G1	alimony received from another household	F12	parenting payment
G2	child support received from another household	F13	other transfer programs
G5	regular cash interhousehold transfers received (gifts)	F14	Social Fund
H3	alimony paid to another household		
H4	child support paid to another household		
H5	payments on behalf of another household		
H6	interhousehold transfers paid (gifts)	G7	other regular payments from outside household
		K3	private sickness, accident, hospital insurance
		K4	unemployment/redundancy insurance
		K7	Friendly Society benefits

Table 9 (continued)

Major elements		Minor elements	
DISPOSABLE CASH INCOME (DCI) = GRCI - f			
e	DIRECT INCOME TAXES		
H15	income taxes (but see s below)	F15	child tax credit
H16	payroll taxes	F16	earned income tax credit
		F17	other tax credits
		H17	other government-mandated contributions to pension plans
		H22	government-mandated contributions to unemployment insurance
		H23	compulsory fees and fines
DISPOSABLE REGULAR CASH AND IN-KIND INCOME (DRCII) = DCI + h + i + j + k + l + m			
f	EMPLOYEE INCOME IN-KIND		
B1	contributions to retirement (pension) plans	B3	contributions to life insurance
B2	contributions to health insurance	B4	contributions to employer insurance schemes
B6	company cars	B5	contributions to national insurance schemes
B7	subsidized meals	B8	subsidized (low-interest) loans
B10	employer share of payroll taxes	B9	subsidized housing, electricity
H10	public health insurance premiums	B11	subsidized vacations
		B12	subsidized child care
		H21	medical expenses
g	IN-KIND PROPERTY INCOME		
A15	home production for home use		
A16	home production for barter transactions		
h	IN-KIND NON-CASH TRANSFERS FROM OTHER HOUSEHOLDS		
G3	in-kind interhousehold transfers		
i	IN-KIND BENEFITS FROM GOVERNMENT		
F5	food subsidies or vouchers	E9	child care
F7	publicly owned housing	F8	surplus food and clothing
j	OTHER GOVERNMENT IN-KIND TRANSFERS		
D2	government-subsidized health care services	D3	public education
k	OTHER NON-MARKET INCOME		
A15	home production for home use	N/A	value of unpaid household work
A16	home production for barter transactions		
K6	net imputed return on the equity in one's own home		
l, m	CASH AND IN-KIND TRANSFERS RECEIVED		
		A7	severance pay
		A13	lump sum retirement payout

Table 9 (continued)

Major elements	Minor elements
	A14 non-periodic draw from retirement account
	G4 one-time cash interhousehold transfers received (gifts)
	G6 inheritances
	K5 lottery or gambling winnings
FULL INCOME = DRCII + cash and in-kind capital transfers + r - s + t	
n	NET (ACCRUED) CAPITAL GAINS
C6	realized capital gains
C7	unrealized capital gains
o	CAPITAL GAINS TAXES
p	OTHER CHANGES IN VOLUME
	NOT INCLUDED
H7	transportation costs
H8	employer-sponsored pension plans
H9	union and professional dues
H11	employer reimbursements for non-discretionary work expenses
	E7 student loans
	H1 interest paid on mortgage loans
	H2 interest paid on non-mortgage loans
	H12 child care costs
	H13 home help services
	H14 employer reimbursements for discretionary work expenses
	H18 property (real estate) taxes
	H19 tax refunds
	H20 sales or value-added taxes
	H24 health insurance premiums
	H25 repayments of student loans

NOTE: See Table 3 for components of McEwin-McDonald income definitions.

Table 10. Does each country collect the major components of the Smeeding-Weinberg income

14-May-99																		
Income component	Australia	Canada 1	Canada 2	Finland	Germany 1	Germany 2	Italy	Korea	Malaysia	Mexico	Netherlands	Norway	Sweden	UK 1	UK 2	USA 1	USA 2	Number of countries
GROSS CASH INCOME (GCI)																		
A1	J	J	J	J	J	S	J	J	J	S	J	J	J	J	J	J	J	13
A2	J	J	J	S	J	S	J	J	J	S	J	J	J	J	J	J	J	13
A10	J	S	S	S	S	J	S	J	S	S	J	J	J	J	J	S	S	13
A11	J	S	S	S	S	J	S		J	S	J	S	J	J	J	S	S	12
A12	J	S	S	J	S	S	S		S	S	J	J	S	S	S	J	J	12
C1	J	S	J	S	S	J	I	S	S	S	S	S	J	S	S	S	S	13
C3	S	S	J	J	J	J	S	S	J	S	S	S	J	S	S	S	S	13
C4	S	J	J	S	S	J	S	J	S	S	S	S	S	S	S	J	S	13
C6		S	S	S	J	J				S		S	S			I	I	7
D1	O	O	O	J	S	I	J		O		I	S	J	S	S	O	O	11
D4		O	O	S, I	S	S						S	J	S	S	O	O	7
E1	O	J	J	S	J	J	S	J	O	S	J	J	S	S	S	S	S	13
E2	O	J	J	S	J	J	S	J	O	S	S/J	J	S	J	J	S	S	13
E3	O	S	S	S	S	S	S	J	O	O	S	S	J	S	S	S	S	13
E6	S	S		S	S	S	S	J	O	S	J	J	O	S	S	S	S	13
F2	S	J	J	J	S	S	J	J	J	S	J	S	S	S	S	S	S	13
F3		J	J	J	S	S	?	O	O	S	J	O	O	S	S	J	J	11
F4	J			S		S	J		J	S	S	S	S	S	S	I		11
F9	S	O	O	S	S	S	?	O	O	O	J		J	S	S	O	O	11
REAL DISPOSABLE PERSONAL INCOME (RDPI) = GCI +																		
A15				I	S				J	S	J	J						6
A16										S	J							2
G1	J	J	J	J	J	J	J	J	S	S	S	J	S	J	J	S	S	13
G2	S	J	J	J	J	J	J	J	J	S		S		J	J	S	S	11
G5	J	J		J	J		J	J	J	J					S		S	10
H3			J	J	J	J	J		S	S	S	J	S	J	J			10
H4	S		J	J	J	J	J		S	S		J		J	J		S	10
H5				S			?		?	S				J	J			3
H6				S			?		S	S								3
H7				S						S		S	S					4
H8			S						?	S				S	S			3

Table 10 (continued) Does each country collect the major components of the Smeeding-Weinberg income definitions?

Income component	Australia	Canada 1	Canada 2	Finland	Germany 1	Germany 2	Italy	Korea	Malaysia	Mexico	Netherlands	Norway	Sweden	UK 1	UK 2	USA 1	USA 2	Number of countries
H9			S	S					?	S		S						4
H10	I			S	I	I			?		I	J	O	O	O			7
H11				J										S	S			2
H15	I	S	S	S	S	I			S		I	J	J	S	S	I	S/I	10
H16			S	S	S	I					S			S	S	I	I	6
	NET TOTAL INCOME = RDPI +																	
B1				J					S			J					S	4
B2				J	I	I			J		J					I		5
B6				J			J		J		S	J	J	I				7
B7				J			J	J	J	S	J	J	J	I	S			9
B10					I	I			J	S	I		J					5
D2					O	O										I		2
F5	O			O	O	O	J		J	S		O	O		I	S/I	S/I	10
F7				S	I	S	S			O			O			I		6
G3									J	S								2
K6				I	I	I	S		S	S	I					I		7

KEY: blank=no answer or not collected; S=separate question; J=collected jointly with another source (see Appendix Table 1 for details); I=imputed; ?=unclear; O=not applicable.

NOTES: See Table 4 for key to income components, Table 5 for key to surveys, and Table 7 for key to Smeeding-Weinberg income components. "Number of countries" entry counts the number of countries in which at least one of the surveys reported on collects the information, plus the number of countries that the

Table 11. Does each country collect the major components of the Eurostat disposable income

																			14-May-99
Income component	Australia	Canada 1	Canada 2	Finland	Germany 1	Germany 2	Italy	Korea	Malaysia	Mexico	Netherlands	Norway	Sweden	UK 1	UK 2	USA 1	USA 2	Number of countries	
a COMPENSATION OF EMPLOYEES																			
A1	J	J	J	J	J	S	J	J	J	S	J	J	J	J	J	J	J	13	
A2	J	J	J	S	J	S	J	J	J	S	J	J	J	J	J	J	J	13	
B1				J					S			J					S	4	
B2				J	I	I			J		J					I		5	
B6				J			J		J	S	J	J	J	I				8	
B7				J			J	J	J	J	J	J	J	I	S			9	
B10					I	I			J	S	I		J					5	
H7				S						S		S	S					4	
H8			S						?	S				S	S			3	
H9			S	S					?	S		S						4	
H10	I			S	I	I			?		I	J	O	O	O			7	
H11				J										S	S			2	
b MIXED INCOME																			
A10	J	S	S	S	S	J	S	J	S	S	J	J	J	J	J	S	S	13	
A11	J	S	S	S	S	J	S		J	S	J	S	J	J	J	S	S	12	
A15				I	S				J	S	J	J						6	
A16										S	J							2	
K6				I	I	I	S		S	S	I					I		7	
c INCOME FROM PROPERTY																			
C1	J	S	J	S	S	J	I	S	S	S	S	S	J	S	S	S	S	13	
C3	S	S	J	J	J	J	S	S	J	S	S	S	J	S	S	S	S	13	
C4	S	J	J	S	S	J	S	J	S	S	S	S	S	S	S	J	S	13	
d TRANSFER INCOME																			
A12	J	S	S	J	S	S	S		S	S	J	J	S	S	S	J	J	12	
D1	O	O	O	J	S	I	J		O		I	S	J	S	S	O	O	11	
D2					O	O										I		2	
D4		O	O	S, I	S	S						S	J	S	S	O	O	7	
E1	O	J	J	S	J	J	S	J	O	S	J	J	S	S	S	S	S	13	
E2	O	J	J	S	J	J	S	J	O	S	S/J	J	S	J	J	S	S	13	
E3	O	S	S	S	S	S	S	J	O	O	S	S	J	S	S	S	S	13	
E6	S	S		S	S	S	S	J	O	S	J	J	O	S	S	S	S	13	

Table 11(continued) Does each country collect the major components of the Eurostat disposable income definition?

Income component	Australia	Canada 1	Canada 2	Finland	Germany 1	Germany 2	Italy	Korea	Malaysia	Mexico	Netherlands	Norway	Sweden	UK 1	UK 2	USA 1	USA 2	Number of countries
F2	S	J	J	J	S	S	J	J	J	S	J	S	S	S	S	S	S	13
F3		J	J	J	S	S	?	O	O	S	J	O	O	S	S	J	J	11
F4	J			S		S	J		J	S	S	S	S	S	S	I		11
F5	O			O	O	O	J		J	S		O	O		I	S/I	S/I	10
F7				S	I	S	S			O			O			I		6
F9	S	O	O	S	S	S	?	O	O	O	J		J	S	S	O	O	11
e OTHER MONEY INCOME																		
G1	J	J	J	J	J	J	J	J	S	S	S	J	S	J	J	S	S	13
G2	S	J	J	J	J	J	J	J	J	S		S		J	J	S	S	11
G5	J	J		J	J		J	J	J	J					S		S	10
f NET DIRECT INCOME, WEALTH, AND PAYROLL TAXES																		
H15	I	S	S	S	S	I			S		I	J	J	S	S	I	S/I	10
H16			S	S	S	I					S			S	S	I	I	6
h VOLUNTARY TRANSFER PAYMENTS OUT																		
G3									J	S								2
H3			J	J	J	J	J		S	S	S	J	S	J	J			10
H4	S		J	J	J	J	J		S	S		J		J	J		S	10
H5				S			?		?	S				J	J			2
H6				S			?		S	S								2

KEY: blank=no answer or not collected; S=separate question; J=collected jointly with another source (see Appendix Table 1 for details); I=imputed; ?=unclear, O=not applicable.

NOTES: See Table 4 for key to income components, Table 5 for key to surveys, and Table 8 for key to Eurostat income components. "Number of countries" entry counts the number of countries in which at least one of the surveys reported on

Table 12. Does each country collect the major components of the McEwin-McDonald income

Income component	Australia	Canada 1	Canada 2	Finland	Germany 1	Germany 2	Italy	Korea	Malaysia	Mexico	Netherlands	Norway	Sweden	UK 1	UK 2	USA 1	USA 2	Number of countries
GROSS REGULAR CASH INCOME (GRCI)																		
A1	J	J	J	J	J	S	J	J	J	S	J	J	J	J	J	J	J	13
A2	J	J	J	S	J	S	J	J	J	S	J	J	J	J	J	J	J	13
A10	J	S	S	S	S	J	S	J	S	S	J	J	J	J	J	S	S	13
A11	J	S	S	S	S	J	S		J	S	J	S	J	J	J	S	S	12
A12	J	S	S	J	S	S	S		S	S	J	J	S	S	S	J	J	12
C1	J	S	J	S	S	J	I	S	S	S	S	S	J	S	S	S	S	13
C3	S	S	J	J	J	J	S	S	J	S	S	S	J	S	S	S	S	13
C4	S	J	J	S	S	J	S	J	S	S	S	S	S	S	S	J	S	13
D1	O	O	O	J	S	I	J		O		I	S	J	S	S	O	O	12
D4		O	O	S, I	S	S						S	J	S	S	O	O	7
E1	O	J	J	S	J	J	S	J	O	S	J	J	S	S	S	S	S	13
E2	O	J	J	S	J	J	S	J	O	S	S/J	J	S	J	J	S	S	13
E3	O	S	S	S	S	S	S	J	O	O	S	S	J	S	S	S	S	13
E6	S	S		S	S	S	S	J	O	S	J	J	O	S	S	S	S	13
F2	S	J	J	J	S	S	J	J	J	S	J	S	S	S	S	S	S	13
F3		J	J	J	S	S	?	O	O	S	J	O	O	S	S	J	J	11
F4	J			S		S	J		J	S	S	S	S	S	S	I		11
F9	S	O	O	S	S	S	?	O	O	O	J		J	S	S	O	O	11
G1	J	J	J	J	J	J	J	J	S	S	S	J	S	J	J	S	S	13
G2	S	J	J	J	J	J	J	J	J	S		S		J	J	S	S	11
G5	J	J		J	J		J	J	J	J					S		S	10
H3			J	J	J	J	J		S	S	S	J	S	J	J			10
DISPOSABLE REGULAR CASH AND IN-KIND INCOME (DRCII) = GRCI +/-																		
A15				I	S				J	S	J	J						6
A16										S	J							2
B1				J					S			J					S	4
B2				J	I	I			J		J					I		5
B6				J			J		J	S	J	J	J	I				8
B7				J			J	J	J	J	J	J	J	I	S			9
B10					I	I			J	S	I		J					5
D2					O	O										I		2
F5	O			O	O	O	J		J	S		O	O		I	S/I	S/I	10

Table 12(continued) Does each country collect the major components of the McEwin-McDonald income

Income component	Australia	Canada 1	Canada 2	Finland	Germany 1	Germany 2	Italy	Korea	Malaysia	Mexico	Netherlands	Norway	Sweden	UK 1	UK 2	USA 1	USA 2	Number of countries
F7				S	I	S	S			O			O			I		6
G3									J	S								2
H15	I	S	S	S	S	I			S		I	J	J	S	S	I	S/I	10
H16			S	S	S	I					S			S	S	I	I	6
K6				I	I	I	S		S	S	I					I		7
	FULL INCOME = DRCII +																	
C6		S	S	S	J	J				S		S	S			I	I	7
C7										S								1

KEY: blank=no answer or not collected; S=separate question; J=collected jointly with another source (see Appendix Table 1 for details); I=imputed; ?=unclear, O=not applicable.

NOTES: See Table 4 for key to income components, Table 5 for key to surveys, and Table 9 for key to McEwin-McDonald income components. "Number of countries" entry counts the number of countries in which at least one of the surveys reported on collects the

Table 13. Major Income Components of a Working Income Definition for International Comparisons

A1	wages and salaries (main job)	Cash	Add
A2	wages and salaries (other jobs)	Cash	Add
A10	(net) nonfarm self-employment	Cash	Add
A11	(net) farm self-employment	Cash	Add
A12	pensions or other periodic retirement	Cash	Add
C1	interest received	Cash	Add
C3	dividends	Cash	Add
C4	rental income	Cash	Add
D1	family or child benefits/credits/allowance	Cash	Add
E1	social security (retirement and survivors) benefits	Cash	Add
E2	disability insurance/incapacity/disablement	Cash	Add
E3	unemployment benefit/job search allowance	Cash	Add
E6	veterans' benefits	Cash	Add
F2	public assistance or general welfare benefits	Cash	Add
F3	public assistance for elderly	Cash	Add
F4	rental allowances (housing subsidies)	Cash	Add
F5	food subsidies or vouchers	In-Kind	Add
F7	publicly owned housing	In-Kind	Add
F9	means-tested unemployment benefits	Cash	Add
G1	alimony received from another household	Cash	Add
G2	child support received from another household	Cash	Add
H3	alimony paid to another household	Cash	Subtract
H4	child support paid to another household	Cash	Subtract
H15	income taxes	Cash	Subtract
H16	payroll taxes	Cash	Subtract
K6	net imputed return on the equity in one's own home	In-Kind	Add

Table 14 - Can the proposed practical income definition be collected?

Income component	Australia	Canada 1	Canada 2	Finland	Germany 1	Germany 2	Italy	Korea	Malaysia	Mexico	Netherlands	Norway	Sweden	UK 1	UK 2	USA 1	USA 2	Number of countries
A1	J	J	J	J	J	S	J	J	J	S	J	J	J	J	J	J	J	13
A2	J	J	J	S	J	S	J	J	J	S	J	J	J	J	J	J	J	13
A10	J	S	S	S	S	J	S	J	S	S	J	J	J	J	J	S	S	13
A11	J	S	S	S	S	J	S		J	S	J	S	J	J	J	S	S	12
A12	J	S	S	J	S	S	S		S	S	J	J	S	S	S	J	J	12
C1	J	S	J	S	S	J	I	S	S	S	S	S	J	S	S	S	S	13
C3	S	S	J	J	J	J	S	S	J	S	S	S	J	S	S	S	S	13
C4	S	J	J	S	S	J	S	J	S	S	S	S	S	S	S	J	S	13
D1	O	O	O	J	S	I	J		O		I	S	J	S	S	O	O	11
E1	O	J	J	S	J	J	S	J	O	S	J	J	S	S	S	S	S	13
E2	O	J	J	S	J	J	S	J	O	S	S/I	J	S	J	J	S	S	13
E3	O	S	S	S	S	S	S	J	O	O	S	J	S	S	S	S	S	13
E6	S	S		S	S	S	S	J	O	S	J	J	O	S	S	S	S	13
F2	S	J	J	J	S	S	J	J	J	S	J	S	S	S	S	S	S	13
F3		J	J	J	S	S	?	O	O	S	J	O	O	S	S	J	J	11
F4	J			S		S	J		J	S	S	S	S	S	S	I		11
F5	O			O	O	O	J		J	S		O	O		I	S/I	S/I	10
F7				S	I	S	S			O			O			I		6
F9	S	O	O	S	S	S	?	O	O	O	J		J	S	S	O	O	11
G1	J	J	J	J	J	J	J	J	S	S	S	J	S	J	J	S	S	13
G2	S	J	J	J	J	J	J	J	J	S		S		J	J	S	S	11
H3			J	J	J	J	J		S	S	S	J	S	J	J			10
H4	S		J	J	J	J	J		S	S		J		J	J		S	10
H15	I	S	S	S	S	J			S		I	J	J	S	S	I	S/I	10
H16			S	S	S	I					S			S	S	I	I	6
K6				J	I	I	S		S	S	I					I		7
Number of major components collected (maximum = 26)																		
	21	19	21	26	25	26	22	15	24	23	22	22	22	23	24	24	22	

KEY: blank=no answer or not collected; S=separate question; J=collected jointly with another source (see Appendix Table 1 for details); I=imputed; ?=unclear, O=not applicable.

NOTES: See Table 13 for key to income components, Table 5 for key to surveys. "Number of countries" entry counts the number of countries in which at least one of the surveys reported on collects the



Eurostat's Work on the Quality and Availability of Information on the Component of Income

4

Canberra Group

SESSION 4: EUROSTAT'S WORK ON THE QUALITY AND AVAILABILITY OF INFORMATION ON THE COMPONENTS OF INCOME

Chair: Mike Sheridan, Statistics Canada

Focus paper: Dr. Pieter C.J. Everaers, Eurostat

Discussant: Gordon Harris, Department of Social Security, London, UK

Rapporteur: Statistics Canada

Dr. Everaers was invited by the Chair to highlight the main components of his paper. Dr. Everaers proceeded by describing the concept of disposable income as recommended for Eurostat statistics on household income and then examined various approaches for data harmonization. He presented the input required for a pragmatic model describing the iterations required and their results.

Discussant:

The Chair invited Gordon Harris to discuss the paper presented to the session. Gordon Harris noted that his comments will first be on the broad structure of Eurostat's approach to data harmonization, followed up by a few specific issues. Basically there are three approaches which can be taken when trying to achieve data harmonization:

1. Start from a conceptual basis, try to agree to best concept and push for everyone to adopt it. There are two problems with this. First there is no uniquely correct best concept - often a definition of income that works for one group of the population may not work for another group. The second obstacle is that the types of trade-offs between what you would like to do and what you can do will vary by country depending on the data sources (e.g. administrative data vs. survey data), the socio-economic differences (e.g. proportion of the population with a specific characteristic) and cultural differences (extent to which certain income sources are even available). It is difficult to imagine National Statistical Institutes (NSIs) being able to agree to a concept and then drive it forward.
2. The opposite extreme is to just use whatever is universally available. The main disadvantage to this is that it is an arbitrary outcome based on whatever is collected at the moment and thus seems rather unambitious. The consensus from earlier discussions today was that we should be able to do better than that, at least in the long term, but it does have merit as a starting point.
3. The third approach is an iterative one somewhere between the two previous approaches - this is the approach used by Eurostat: Start with an initial concept and then determine what is practical. (The advantages and disadvantages of this approach are given in the paper.) In discussing this approach, author was quite right to stress the importance of understanding differences between countries in their concepts and interpretation of concepts.

Related to the area of data comparability, comparable concepts are necessary but you also need data of high quality and, if you are using anything other than the very broadest definition of income, you must have comparable socio-economic structures in the countries being

compared. (Otherwise you may end up with the situation where an income component not included may be an important component in one country but not in another.) This is why the work Eurostat is doing in moving to try to quantify the various income components and determine their impact on results is vitally important. On the consultation process used by Eurostat, Gordon Harris noted that while it is true that one needs to consult the experts within the national statistical institutions, one should try to expand the consultations to expert users of the data who may have different views.

On a more specific point, Gordon Harris wondered why imputed rent was included in income since it seems to have a very modest effect on poverty rates, even though the impact on median income by including it differed significantly by country.

In finishing, Gordon Harris supported the invitation in the paper for other countries to join into the iterative process being conducted by Eurostat. He felt that if the ideas mentioned in this paper could be combined with those in the papers by Anne Harrison and Daniel Weinberg (presented in earlier sessions), the Canberra Group would be in the position to make considerable progress.

Discussion:

The Chair then opened the discussion to the floor. Following up on the comment by Gordon Harris on the impact of including imputed rent in income, a discussion ensued on this topic. The delegates made various suggestions and remarks.

On impact of including imputed rent in income - while inclusion of imputed rent may not affect the percentage of the population in poverty, the composition of who is poor could be quite different based on whether imputed rent was included or not.

Calculation of imputed rent

- There was concern about having enough donor records to be able to reliably impute rents – since some countries have a very low proportion of renters. Also, there may be some “rental units” which could distort any calculations. For example, in the UK there are some rented publicly owned dwellings that basically have a market value close to zero because under normal circumstances no one would live in the dwelling. (People only take the accommodations until they can qualify for a better dwelling.) Inclusion of such dwellings in the imputed rent calculations could have a significant impact. Also, you often need information on the quality of the dwelling and the neighbourhood it is in, in order to do a good job of calculating imputed rent – information not often collected in household surveys.
- It was mentioned that Statistics Netherlands had tried an elaborate method for calculating imputed rent but they discovered that a simple model was just as good.
- The question was raised on how does one include changes in imputed rent over time – i.e. what do you do when rents are increasing more than the general CPI? In some countries, information from property tax records is used to update imputed rent calculations and in this way inflationary changes can be included.

It was noted that OECD is in the process of bringing out a glossary of SNA terms, which may be helpful in the work being done by Eurostat and the Canberra Group. Dr. Everaers felt this Group should go one step further and expand this glossary to include specific income terminology used for income microdata.

Eurostat's Work on Quality and Availability of Information on the Components of Income

by
Pieter C.J. Everaers
Lene Mejer

Directorate E. Social and Regional Statistics and Geographical Information Systems

Eurostat : Statistical Office of the European Communities

Batiment Bech
L-2920 Luxembourg
Luxembourg

Tel: +352 4310 35550
Fax: +352 4301 34415
Email: petrus.everaers@eurostat.cec.be

1. General introduction

The System of National Accounts and its European specification (ESA, European System of Accounts) allows the harmonized aggregated description of the income of private households. In European social statistics, description and analysis of individual household income is rather new. This description of household income has, because of the specific national taxation policies and social protection schemes, merely been a task of the National Statistical Institutes. Until recently the international harmonization of income statistics was mainly done in the field of academic research and/or activities were limited to a selected number of countries. As a consequence of the Maastricht and Amsterdam Treaties there is a profound need for comparable statistical information on social economic characteristics of categories of persons and households of the Member States and their regions. Household income is considered one of the main determinants of social economic discrepancies and seen as one of the variables vulnerable for policy intervention via social protection schemes, etc. Eurostat considers household income a very important variable in the description of poverty and social exclusion.

Based on these considerations an objective of Eurostat's social statistics is to construct high quality statistics on household income. Eurostat collects harmonized information on household income via the European Community Household Panel (ECHP) and the Household Budget Survey (HBS). Some Member States also use the Labor Force Survey (LFS) for collecting information on income. For many purposes these sources deliver the needed statistical information, however there are some fields in which a higher level of accuracy (regional as well as categorical) is needed. An example is the statistics on poverty and social exclusion. Next to these harmonized European sources the Member States make use of other (national best) sources for income statistics. In the past five to eight years, one of the main themes in the discussions between Eurostat and the Member States is the comparability of the harmonized sources and the so-called 'best national sources'. With respect to, for example, income this has led to more fundamental discussions on the quality of the ECHP. Harmonization (of variables) and integration (of statistical sources) as well as Quality Reports and meta information systems are considered main tools in the struggle against the incomparability of results from different sources.

Since 1995 Eurostat has become more active in the field on household income methodology from the perspective of revising the 1977 UN provisional Guidelines on Statistics of the Distribution of Income and Accumulation of Households. This revision ended (for the present) with the so-called DICAH report (Franz, Walton and Ramprakash, 1998). A provisional version of the DICAH report was presented in the Canberra group meeting in 1998. A definitive version of the report is planned for the end of 1999. The provisional report will then be supplemented with detailed information on the methodology and content of the income statistics at present in use in the Member States.

The recent demand (1997/1998) of the European Council - inspired by the content of the Amsterdam Treaty - for statistics on poverty and social exclusion speeded up the work of the harmonization of the income variable, as part of the work on the harmonization of a set of core variables on persons and households (see Everaers, 1998d). By doing this work Eurostat followed actively the ongoing discussion between experts on income statistics (e.g. in the meetings of the Canberra group and the CEIES, advisory board to Eurostat, see Everaers and Baigorri 1999) on the harmonized measurement on household income. The two Canberra group meetings combined theoretical considerations with presenting empirical results, reviewing existing practices and reconsidering available theory. However, the demand for EU comparable income statistics asks for pragmatic decisions in a rather short time.

After a short description of the recognition of the need for further harmonization of social statistics (chapter 2) the general lines of the pragmatic approach, as chosen by Eurostat, to reach the objective of comparable statistical information as well as to develop a sound theoretical base will be sketched (chapter 3). In this chapter also some forthcoming steps will be presented.

The discussion on the harmonization of Household Income Statistics concentrates on several issues: the unit of analysis, the concepts and definitions to be used, the statistical sources for income statistics etc. In chapter 4 these main issues for international comparative income statistics are described. Emphasis will be laid on the pragmatic approach more than to reach both a sufficiently high level of practical information as making steps forward to comparable concepts and definitions over the Member States. In the chapters 5 to 7 the actual choices made by Eurostat on these issues are confronted with these existing theoretical notions; a definition of Disposable Income related to National Accounts, a hierarchy in income components, and related parts of the methodology of measuring income. This methodology is described in detail. The seventh chapter deals with a short summary of main problems and some recommendations for the work on comparable statistics on household income.

To summarize the content of the paper along the lines of its title: The quality will be discussed along the lines of the procedures of the harmonization project which covers the harmonization of income, the robustness assessment reports as part of a meta information system and the meta information system itself. Quality of the harmonized sources ECHP and HBS with respect to the covering of the components of the recommended income concept is also described.

Availability is described along the line of the harmonized sources of Eurostat and mainly the ECHP and the information available from comparable sources for income statistics in the Member States of the EU.

2. Recognizing the need for further harmonization of European Social Statistics

2.1 A common social and economic policy

The Maastricht Treaty and later the Amsterdam Treaty clearly settled a consistent social policy on the agenda of the European Commission. Since the mid nineties, via several special summits, the social domains have grown in importance. For example, the recent Social Action Plan (European Commission 1998a) and the Employment Guidelines (European Commission 1998b) describe a need for comparable statistical information. This information allows (in great detail) to monitor the developments (convergence or divergence) in European social matters.

In the early nineties, Eurostat, like several NSI's, has set up projects to reach more comparability of data in the field of social economic developments. Examples are the regulation of the Labor Force Survey (LFS) questionnaire and the harmonization of the Household Budget Survey (HBS). Since 1994 input harmonization is implemented in the European Community Household Panel (ECHP) (see also Grais, 1998 for an overview of harmonization efforts).

The advantages of sources like the ECHP are obvious. However, considering user demands, these sources also have disadvantages. With respect to detailed (regional) information on specific domains they are considered inferior to many Member States' specific data sources.

The European harmonized surveys enable EU wide comparative analysis on specific domains. However, a combined analysis of background characteristics and varying theme specific variables is - because of the limited scope of the harmonized surveys and the sample size and sample design - hardly possible.

This issue of differences between 'Eurostat's harmonized sources' and the 'best national sources' has been discussed in detail in the second session of the Mondorf seminar (1996). An idea launched in the beginning of the nineties was to develop another European harmonized survey - providing harmonized information on a European wide set of social indicators. The decreases in budgets as well as the increase in the use of administrative data and registers led several Member States to prefer alternative methods to the launching of a new large European survey. These methods, to reach the stadium of comparable results, are based on the concept of integration. Therefore, since 1996 the integration of data from different sources is high on the agenda of Eurostat.

Integration (of social statistics) is defined as the combination of data from different sources of social statistics in order to obtain information that is superior to the information provided by the source data as such.

The concept of integration applies to the combination of data derived from different sources (output harmonization, using macro data) as well as the combination of the sources (input harmonization, integration of surveys). The first application uses statistics for the same variable, derived from different sources, as linking element of other statistics from these sources. The second application concentrates on the combination of questionnaires or questionnaires and administrative or register information of individual persons or households.

The first step in integration is harmonization of concepts and definitions. Harmonization work starts with selecting the main sources (for specific variables) and comparing the variables (definitions, concepts, and classifications) as well as the quality of the outcomes. By coordinating the concepts, procedures etc (e.g. via selecting the best practice) the practical steps in the harmonization work start.

2.2 Background to the harmonization of the variable household income

Until the end of the eighties the international comparison of the income situation of specific household groups was not a policy issue; the comparability of household income, concepts as well as the methodology used, was also very low. Household income statistics were - as a consequence of the differing situations in the Member States - seen as NSI specific.

With the emerging unification of the European financial market, the need for a further harmonization of the available income statistics has been recognized in the beginning of the nineties. Many countries experienced an era of economic growth. This has led to a renewed interest in the distribution of economic welfare, as well as in the dynamics of income. Statistical information based on the SNA is no longer sufficient to fulfill these user demands on the influence of income on the economic well being of households, its dynamics and the demand for social benefits. At present, at the end of the nineties, there is a clear need for high quality statistical information allowing to monitor the policy objectives, as for example formulated in the Social Action Program (European Commission, 1998a) and the Employment Guidelines (European Commission, 1998b).

2.3 Earlier activities of Eurostat on the harmonization of household income

An approach based on the ex post harmonization of existing data on income proved not to be successful. Differences between the existing sources for income statistics proved to be unbridgeable. Therefore, Eurostat launched in 1992/1993 the initiative for the European Community Household Panel (abbreviated ECHP). This survey provides, based on input harmonization, currently the only statistical source for yearly European household income statistics. The survey suffers with respect to income data from some insufficiencies. The sample size does rarely allow for regional analysis. Member States are forced to use additional national sources to calculate regional income distributions. Another insufficiency is the differences (in results as well as methodology) between the survey based income statistics (from ECHP) and statistics based on register data.

Coordinated concepts and comparable methodologies and a clear description of these issues via meta information, are important tools for improving the quality of household income statistics and a prerequisite for the improvement of international comparability of income statistics. These tools for harmonization include the description of the methodologies of NSI's income statistics and qualitative as well as quantitative descriptions of the differences between income components from different statistical sources including concepts and data collection methodologies used. A start with this harmonization work has been made by participation in the Canberra group on Household Income Statistics. The aim of this group is to enhance national household income statistics by developing standards on conceptual and practical issues related to the production of income distribution statistics. The development and implementation of international guidelines and standards will improve comparability. The proceedings of the meetings of this group show in great detail the main issues of harmonization of household income that are currently under discussion.

3. The Eurostat pragmatic approach for harmonization

3.1 Household income: a complex variable

In principle the work of the Canberra group can be characterized as international harmonization of the household income concept. For international harmonization several routes are open (See Grais 1998). In harmonization the use of a common concept and/or the use of common measurement rules are the central issues. The (agreed) concepts can be applied to results from existing statistical sources (output harmonization) or to the design of statistical sources and operationalisation of specific variables (input harmonization). The effort to invest in this harmonization work is dependent on the complexity of the concept to be harmonized and the similarities between existing sources and tools.

The enormous complexity of the household income concept is obvious. Household income is a theoretical construct. As a consequence the operationalisation and measurement are based on a large number of assumptions and help theories. This implies that the number of approaches to the theme of income is manifold: taxation, short term prosperity of households, life long prosperity, economic and social wellbeing, wealth, minimum standards of living and social protection schemes. In these approaches normative elements play an important role. These norms are also clearly related to different societal and political systems and will change over time.

As a consequence of the importance of the issue of income and wealth in our societies and the position of central authorities, very specific statistical sources for income statistics (often as a by-product of administrative procedures) are developed, strongly molded to national demands. As income is such an important issue in the societal organization as well in day to day life specific languages/meanings (culturally defined) are developed in this domain.

3.2 An ideal approach for harmonization

The ideal method for developing on a supra national level, a commonly accepted income concept will be organized along the following lines.

- Agree, in an international forum on the definition of the area/domain the concept will be used for.
- Suppose a certain paradigm is available, the international forum should agree on selecting, out of the existing theories, that theory on income that is most appropriate to describe the defined area.
- Restrict based on help theories and assumptions the theoretical definition to a work definition. The ideal working definition is a valid (and accepted) representation of the theoretical definition.
- Based on more concrete measurement assumptions, the work definition can be operationalised in a set of variables and a calculation scheme. The validity of the variables depends on the quality (and level of acceptance) of the assumptions.
- Develop statistical sources to measure the household income, translate concepts, variables questions, etc.

International bodies not under pressure to publish international comparable information within a limited time period can apply this approach. It offers the possibility to discuss in plenary sessions best practices, show quantitative examples and discuss fundamental decisions. On a worldwide scale many viewpoints based on different societal systems and cultures will be discussed and balanced to their advantages and disadvantages.

Most harmonization work cannot follow this ideal model, not only because of time restrictions but also because of the impact and value of existing practices. More pragmatic approaches have to be chosen. A rigid pragmatic approach is to choose one best practice and implementing this in other sources. For some – rather scarcely used – variables this can be successful. For example, at present Eurostat is working on statistics on Accidents at work. The variables in this item are still not much used, so implementing one best practice is not so difficult.

3.3 The pragmatic approach

However, for complex variables with a long history in different sources - like household income – the above sketched procedure will not work. For this reason Eurostat follows in the harmonization work a different approach. This approach is based on a stepwise (iterative) procedure, fitting a model of the harmonized variable to existing statistical information as well as to theories. Quantitative and qualitative information gathered by each iteration allows to distinguish misfits with existing data and theories and to formulate recommendations for improvements.

The start of the present work on the harmonization of the household income was made as a subproject of the work of the Eurostat Task Force on Social Exclusion and Poverty (Eurostat, 1998a). The harmonization of the income variable is part of the Action program (Eurostat 1998b) on the harmonization of a set of core variables on persons and households. Income is selected as one of the core variables (see Everaers, 1999). For the other core variables similar routes to reach a higher level of harmonization are designed.

The input for the model

The model subject to the iterations is a household income concept and a set of distinguished sub components and their descriptions. The start model is based on three inputs:

1. A theoretic model easily applicable and with links to other domains of statistics. The theoretic model is based on the model described in the DICAH report. This model is related to the National Accounts.
2. Knowledge about a limited set of statistical sources for income statistics. As the persons responsible for the start version have roots in income statistics in some Member States (Netherlands, Austria) the start model is biased.
3. An exemplified harmonized European source (ECHP) to get an impression of the amounts covered by the distinguished components. The ECHP 1994 and the Household Budget Survey (HBS) data 1994 give impressions on the influence of the components to the total income.

The first iteration

In Annex 1 the start model for the first iteration is presented. The objective of the first iteration was to consolidate a general rather abstract model.

The members of the Task Force on Social Exclusion and Poverty (Eurostat 1998c) were asked to fill in the model with information on the availability and accessibility of the distinguished components as well as to inform about the specific problems in general as well as with specific (sub) components.

The outcome of the first iteration was a list of specific sub components to be added, descriptions of specific problems and suggestions for solutions. Comparison of the results of the ECHP and HBS showed the problems with components like Imputed Rent, Income from Self employment, and Income in kind. The first iteration ended in November 1998. The information presented in the chapters 5 to 7 of this paper are based on the results of the first iteration.

The second iteration

The results of the first iteration, the approval of the recommendations of the TFSEP by the Statistical Programming Committee of Eurostat (members are the Director Generals of the Statistical Offices in the Member States) and especially the fact that there were no remarks on the chosen income definition, allowed the second iteration to start.

The objective of the second iteration is to gather as much as possible quantitative and qualitative information on the improved model. This information should function as the input for a meta information system on sources for income statistics and availability and accessibility of components and sub components of the chosen concept. The second iteration is subcontracted to a consultant for Eurostat (an important advantage of an international formalized institute above a scientific network like the city groups).

The model for this iteration has not only been improved along the lines described above, but has also benefited from the work of Daniel Weinberg (1998/1999) and Gordon Harris (1998) as part of their activities for the Canberra group. The model for the second iteration is presented in Annex 2. The quantitative example chosen is shown as Annex 3.

The inventory as sent out contains two elements, the list of components and sub components and the inventory on the quality/robustness. The consultant visits as much as possible the experts in the Member States and assists them in filling in the inventories, answering specific questions, etc. This second iteration is presently running and will be finalized at the end of the summer. First results of this iteration are very promising, with respect to the information gathered but especially with respect to the number of improvements still to be done.

The third iteration

The results of the second iteration will be used to build the zero version of a meta information system. The meta information system and the specific knowledge gathered when assisting the Member States will be used to discuss the impact and validity of the recommendations of the DICAH report.

The objective of the third iteration is therefore to improve the base of the model. The form of this iteration will be mainly an expert meeting (autumn 1999). The meeting will probably result in recommendations for changes in the operationalisation of the concept of Disposable Income as it is based on the provisional DICAH report. A definitive version of the DICAH report is foreseen for the end of 1999.

The fourth and next iterations

The meta information system will allow the experts in the Member States to compare the information of their sources and components with those of other Member States. The information system will allow a selection of the main problem areas and give specific detailed information on these areas. A fourth iteration will via a meeting (not yet planned) concentrate on highlighting and formulating recommendations for solving these problem areas. This iteration is planned the first half of the year 2000.

The objective of the harmonization work is to have at the end comparable income data. This implies that the results of the fourth (and earlier) iterations have to be implemented/translated in the Member States sources for income statistics. For the implementation in the MS's sources a set of strategies will be developed. Fifth and next iterations could deal with a refining of the concepts and a further improvement of the measurement rules and recommendations. The maintenance of the meta information system and a regular update of the information will be a main task for after the fourth iteration/step.

3.4 Advantages and disadvantages of the approach

The approach described above has some important advantages above the ideal model for harmonization.

- a. The duration of the harmonization work is restricted to two or three years. The players in the Member States will be more or less the same.
- b. Right from the beginning (after the first iteration) the chosen concepts and measurement rules can be used.
- c. As the start situation will be rather biased because of the limited number of persons who selected the start model, the model will gain with every next iteration in neutrality and will become more and more applicable to more diverging situations.
- d. The procedure is rather flexible in that sense that neither the theory nor the practical situation is dominating one direction.
- e. The commitment of the Member States to the final model will be very high.
- f. The result is based on a high level of detailed knowledge of specific (statistical) problems.

However, the disadvantages are also obvious. The main disadvantages are:

- a. The theory chosen at the start will dominate the final results, not everyone will be as happy with the chosen input.
- b. The method is quit demanding with respect to the amount of time and budget to invest.
- c. The final results could be mainly based on practical experience rather than scientific considerations.

Based on the results of the first and partly the second iteration some issues have become clearer with respect to the experience and knowledge needed to contribute to this type of harmonization work. The two most important experiences will be discussed here.

The experience and knowledge of the persons involved in the procedure

The impact of the experts in the Member States statistical offices on the final result is rather large. This implies that the selection and the access to other experts within the NSI's are of vital importance. The experts should be able to relate the (per definition) abstract start model) with the very specialized knowledge on very specific subsub components of their own income statistics. Different backgrounds and levels of experience will clearly influence the impression of comparability of the MS statistics.

The culture and language problem

This issue is even more serious. As household income is described as a rather complex theoretical construct, the operationalisation will be based on many assumptions and help theories. These assumptions and help theories are cultural and societal bound. This and the history of the position of governmental institutions in income (tax, social protection, etc) and the way the income concept is a fundamental part of day to day life, mean that components of the variable income are bound to very specific use of language. Therefore, the names of (sub) components in English are not easily translated into other languages. A linking scheme based on the functional equivalence (see Van Deth, 1998) of terms and concepts is needed. Without such an instrument results after the second or third iteration will be useless. Some examples of the confusion on the terminology will be presented at the city group meeting.

4. The main theory and its implications

4.1 Issues for international comparable household income statistics

Compared to other variables of persons and households the concept of income contains many dimensions. The operationalization of the variable is dependent on its use in a conceptual model (e.g. as a background or as a target variable) and related to the underlying theory. The concept can be limited to the cash monetary situation, to the monetary situation including non-cash elements or, very general, to a situation of economic well being. The operationalization of the income concept for example in poverty statistics, can differ enormously from the concept used to describe the status of a person based on income. By history, the income schemes, social protection schemes and cultures as well as taxation policies between the countries differ widely. Harmonizing household income statistics need to be done via a set of transparent discussions and decisions on several related issues. These issues are covered by the following three main themes. Specific methodological aspects are mentioned in these three themes.

- the main theory and its implications; the selected concepts and their definitions as well as the calculation scheme,
- the available statistical sources and their quality,
- the units for collecting and for analysis (persons or households.)

4.2 Theoretical frameworks

Existent theory on income distribution and income measurement is rather voluminous. However, in general, the theories current in use are mainly based on the income concept as developed by Hicks (1946) and further elaborated by Hill (1989). Hicks described economic actors and their ability to consume during a certain period without getting poorer. He defined income as the maximal amount of value of money to be consumed by a person during a certain period with the expectation to be at the end of the period at least in the same situation as at the beginning of the period. This income concept concentrates on disposable income. The discussions in the Canberra group meeting in 1998 circled around three possible conceptual models: the concept as described in the provisional DICA report, the concept as described by Ewin and McDonald (1998) and the one as described by Smeeding and Weinberg (1998).

Based on these and comparable theories many of the issues of discussions on harmonization of the income concept can be structured. As income statistics can be generated not only by household income statistics but also on the level of the SNA, it is recommendable to find as many parallels between the macro (SNA) and micro approach of household income. The dispute on the components to be included and excluded from the different income concepts can merely be seen as modifications and interpretations of these concepts from the viewpoint of disposable income. These discussions concentrate on issues like including non-cash income, windfall profits, irregular income etc.

The second step in the delineation of an income concept is the selection and definition of the components (and sub-components) to be included in the operationalization of the chosen concept. This process is inter-related with the quality of statistical sources and can, therefore, be a very pragmatical step. The ongoing discussions in this field concentrate on issues from economic well being, determined by all available sources, to very limited monetary cash income definitions solely based on current and earlier activities. Smeeding and Weinberg

(1998) and Ewin and McDonald (1998) give an overview of concepts.

In the context of international harmonization the first issue to tackle deals with the development of a set of uniform components. These components include income from activity, income from property, from benefits, social benefit payments, tax payments and other money income. Most of the authors are in favor of concepts in which cash and non-cash components are included, as well as regular and irregular components and on a concept in which the definition of income is designed as a hierarchy of income components (a classification). This will facilitate aggregation to broader definitions that are internationally comparable. The UN Provisional Guidelines on Statistics of the Distribution of Income Consumption and the Accumulation of Households (abbreviated DICAH) is one of the existing broader frameworks in which existing concepts for both macro- and micro statistics are embodied. Franz, Walton and Ramprakash (1998) describe this framework.

4.3 Recommendations of Eurostat: results of the first iteration

The provisional DICAH report is chosen as the reference for Eurostat. This report facilitates a pragmatic approach to implement the National Account concept of income on the individual (household) level, and moves from monetary income to a wider concept including elements like income in kind and imputed rents. It is also based on extensive theory of the distribution of income and describes the income concept and its components in relation to the European System of Accounts (ESA) in a hierarchical way. The provisional DICAH report forms the basis for the input of theory for the first iteration in the harmonization procedure.

Disposable Income is calculated as the addition of income from activity, income from property and received income transfers minus compulsory payable transfers and voluntary transfers. It is recommended to identify the following eleven components.

- + Income from Activity
 - Components : 1. Compensation of employees,
 - 2. Income from self employment,
 - 3. Operating surplus of the owner occupied dwelling,
 - 4. Income from activity not yet covered
- + Income from Property
 - Component : 5. Income from Property
- + Transfer Income received
 - Components: 6. Social Security Benefits and Social Welfare Assistance,
 - 7. Other money income
- Compulsory payable transfers
 - Components : 8. Taxes on Income and wealth,
 - 9. Social security contributions
 - 10. Other disbursements
- Voluntary Transfer Payments
 - Component : 11. Inter household transfers received

Based on the above mentioned recommendation, the reliability of the income concept should be sought, in principle, at the component level, which would, in this regard, function as the first level of the classification. In Annex 1 this income concepts is elaborated in more detail. In Eurostat 1998c more detailed information is provided.

5. The available statistical sources and their quality

5.1 Choice of sources

The discussion on the sources for income covers two distinct aspects. The first is related to the issue of the income concept. When measuring economic well being, an operationalization based on the household's capacity to consume and save has to be based on information on income. The relation to the household's actual consumption and the way it finances this consumption is an approach from the consumer's side. Both approaches need different data.

The availability and accessibility of information on the person and household level on income and consumption is a second point for discussion under this issue. Many statistical sources exist in the different countries with a very broad range of characteristics. The history of national income statistics is clearly related to the tax system and social protection schemes in the countries. In some countries European countries income statistics is based on the registers available for taxation purposes. These contain information on a wide range of income components. In some other countries only survey information can provide an insight view in the income situation of persons and households. To give a sufficiently detailed overview, in a third group of countries data from registers have to be adjusted with survey data.

The sources differ with respect to the components included as well as with the coverage of the groups in society. The different sources also have strong and weak methodological points, like sampling errors, non-response, flexibility etc. (see Van der Laan 1998). Quality reports on the sources for income sources are able to show these imperfections (See Harris, 1998).

5.2 Sources for European Household Income Statistics

To investigate the possibilities of using the theoretically selected income concept in the available European and Member States' sources, Eurostat has launched an inventory to gather information on the availability and accessibility of income concepts and sub components. This work is part of the project on the Harmonization of a set of core variables on persons and households. The main objective of this project is to recommend for each of the selected core variables a definition, operationalization and classification to be used in European as well as national sources for social statistics, uniform for survey-based data sets as well as those based on registers and administrative sources. Disposable income is one of the core variables.

In the inventory the Eurostat harmonized sources ECHP and HBS are also included. For several Member States the ECHP is the main source for income statistics. For all Member States except one (Sweden), the ECHP is the only data source on a annual basis measuring household income in a comparable way (see Annex 5 and Annex 7). The ECHP is considered most suitable for EU comparable statistics on household income.

Income is also measured from the HBS although the periodicity of the survey differs by country. The HBS is the principal output harmonized cross-sectional survey collecting data on income in all European Union countries. In The HBS income is considered an important background variable, however, the measurement needs improvement for a better level of comparability. A list of the different components of income recorded by Member States is given in Annex 6. A more complete description can be found in the Eurostat publication: "Household budget surveys in the EU: Methodology and recommendations for harmonization" (1997).

5.3 Income components in the ECHP and HBS

In the ECHP most of the eleven components are reasonably covered. However, specific calculations or assumptions have to be formulated for the component *Operating surplus of the owner occupied dwelling* (Imputed rent). A procedure for measuring this component is being studied by Eurostat (see Annex 4). *Income from activity not yet covered* including benefits in kind is, at present, not covered in the ECHP. Other components such as income from self-employment are difficult to measure. These components will be discussed in some more detail.

In the computations for the waves 1994-1996 of the ECHP, Eurostat used as the basic concept total net monetary income of the household, using the calendar year as the reference period, while employing the size and composition of the household as measured at the time of the interview. This income includes all monetary receipts by the household or by its individual members, including irregular or lump sum receipts, as well as transfers from other households. However, it excludes one time exceptional receipts such as inheritance or other 'windfalls'. The income is meant to be net of income tax and social insurance deductions. Imputed rent of owner occupied dwelling or any other income in kind is not included.

Imputed rents

The ECHP provides information on rents paid by tenants and the costs incurred by owners (capital repayments etc.). These two amounts are not comparable. The owner's costs do not correspond to the true market price of a house or flat, since they include interest and capital repayments (the latter can be treated as savings).

In order to obtain a rent for owners which approximates to the market price, Eurostat suggests a method of imputation based on the rents paid by tenants for similar type of accommodation. The missing rents of tenant households or households which, for whatever reason, do not pay rent, are imputed using the same method (see Annex 1).

Simulation models, based on HBS data, show the effect of including imputed rents in the definition of income. In the following table, the results of this exercise are shown.

Income in kind

Relevance of including Imputed Rent in the Income definition

country	MEDIAN PER ADULT EQUIVALENT		POVERTY RATE(50%)		POVERTY RATE(60%)		POVERTY RATE(70%)	
	ECHP definition	with imputed rent	ECHP definition	with imputed rent	ECHP definition	with imputed rent	ECHP definition	with imputed rent
Belgium	499,311	598,383	9.9	9.6	15.3	13.7	22.3	20.6
Denmark	195,570	209,357	7.7	7.8	16.6	16.8	25.0	24.6
Greece	1,504,459	1,756,580	14.6	12.3	21.1	19.3	28.7	26.5
Spain	901,833	1,080,532	8.4	7.5	15.8	13.7	24.4	22.0
Netherlands	38,380	41,898	7.7	8.1	15.8	16.3	25.8	25.9
Portugal	899,129	1,001,278	12.4	12.1	20.1	19.4	26.9	26.7
Finland	100,338	112,873	6.9	6.3	14.7	14.2	23.8	22.7

Other income from work or other informal income (own account production etc.) - income in kind - is considered to be, for some Member States, an important sub-component of the Disposable Income. It is also a well-known fact that within Member States the relative importance of income in kind differs between household types; in particular it is important for agricultural and self-employed households. As mentioned above this component is not recorded at present in the ECHP.

Simulations based on HBS data describe the effect of including Income in Kind in the definition of income. The percentage of poor persons changes by including income in kind.
Income from self employment

In the ECHP, income from self-employment (Component 2) (Mixed Business Income) is

Relevance of including Income in Kind in the Income definition

country	MEDIAN PER ADULT EQUIVALENT		POVERTY RATE(50%)		POVERTY RATE(60%)		POVERTY RATE(70%)	
	ECHP definition	with income in kind	ECHP definition	with income in kind	ECHP definition	with income in kind	ECHP definition	with income in kind
Belgium	499,311	500,498	9.9	9.8	15.3	15.2	22.3	22.2
Denmark	195,570	196,079	7.7	7.7	16.6	16.7	25.0	25.2
Greece	1,504,459	1,559,878	14.6	13.8	21.1	19.9	28.7	27.5
Spain	901,833	909,643	8.4	8.2	15.8	15.3	24.4	23.8
Portugal	899,129	949,490	12.4	11.2	20.1	18.3	26.9	26.4
Finland	100,338	100,963	6.9	6.9	14.7	14.6	23.8	23.9

treated differently between some of the Member States. The main difference relates to the method of questioning and calculating the net level of the self-employment income (i.e. after deduction of business operation costs). Special emphasis should be put on the transparency of this measurement in the Member States versions of the ECHP. Guidelines have to be developed with respect to the documentation of Member States in measuring these elements and this documentation has to be added to meta information on income measurement. By studying panel data on the income of the self-employed a more stable measurement of income for this group is foreseen.

6. The units for distribution and analysis

6.1 Theoretical notions

The discussion of the unit for collecting data, for distribution, for analysis and for publication is related to the objective of the income measurement. An individual might be preferred as the statistical unit when analyzing the relationship between earnings and educational attainment. However for an analysis of the distribution of income it is usually more meaningful to group the households according to the way income is potentially shared within families. A clear definition of the household and the household related variables (dwelling, family) are the

prerequisite for these decisions. An overview of the statistical units is available from Sheridan and Macredie (1998). For the individualization of household components, the aggregation of individual components and to make households of different size comparable a whole set of methodologies is available (for example on equivalence scales).

The analysis and the publication of the results ask for decisions on statistical techniques and methods. A choice has to be made from a wide range of measures for central tendency and distribution.

6.2 Eurostat's recommendations: first iteration

The position of income as a target or a background variable is important for the selection of the unit for distribution as well as analysis. The main activities of Eurostat regarding income until now concentrate on statistics on poverty. The present recommended practice for this analysis is to take persons as the units of distribution and analysis. Social policies relate to both individuals and households. The use of households as a unit of measurement in statistical analyses is complex because of differences in definition as well as in household size and composition.

Using individuals is less affected by differences in household size and composition and therefore a more robust unit for analysis, and makes it possible to undertake statistical analysis at the level of the total population as well as for specific sub-groups. The use of individuals as the unit of analysis does not preclude using other units where this may be more relevant and useful, such as household which is considered an important supplementary unit of analysis for assessing and developing social as well as other policies related to the family.

In practice each person is assigned the equivalised income of his/her household as a person-level variable. Persons are ranked in ascending order of this assigned equivalised income, and the number of persons and the equivalised income assigned to each (both appropriately weighted) are cumulated to construct percentiles of the distribution. Thus, the median is the level of equivalised income, which divides the (weighted) distribution of persons ranked according to their assigned equivalised income, into two equal halves. Similarly, 'proportion of poor' may be defined as the proportion of persons with equivalised income below, say 60% of the median equivalised income.

Equivalence scales

Eurostat uses the 'modified OECD scale' for equivalisation. This scale assigns a weight of 1.0 to the first adult, 0.5 to each subsequent adult defined as a person aged 14+, and 0.3 to each child aged under 14. Other scales which have been commonly used are the original OECD scale (which takes the above mentioned weights as 1.0, 0.7 and 0.5, respectively), and the 'square-root scale' (which takes the equivalised size as the square root of the actual household size).

Comparison poverty rates based on different equivalent scales



Source-Eurostat - ECHP wave 2

The issue of unit of analysis is especially relevant for poverty analysis: for example the unit used for counting poor people using a poverty line as previously defined. The choice of showing statistics such as 'the proportion living in poverty' in terms of counting households or persons residing in those households has been analyzed by Eurostat.

The effect of taking the household rather than the person as the unit of analysis is small, though generally in the direction of slightly increased values of the inequality indices. This may reflect the fact that single person households, especially those of the aged, tend to be below the median income, and receive relatively more weight with the household as the unit than with the person as the unit. The pattern of results depends in a complex way on the differences in household size and composition but overall the effect is small, as noted above.

Measurements of disparity and inequality

Income distributions are skew and difficult to characterize. For this reason several measures apart from those of central tendency are needed in order to have better description on the disparity in inequality. For example Gini or Atkinson coefficients permit assessment of the concentration of the income data measuring the inequality of the distribution. On the other side, statistical tools like the share of the decile or ratios top/bottom, reflect different patterns in the distribution of income.

The table below shows some summary statistics that add additional information on the income distribution in the European countries:

Assessment of the income distribution by providing summary statistics (prov. Data)

	Belgium	Denmark	Germany	Greece	Spain	France	Ireland	Italy	Luxembourg	Netherlands	Austria	Portugal	United Kingdom
Cumulative decile shares													
Share of bottom (%)													
10	2.9	4.4	2.7	2.2	2.5	3.3	3.0	2.4	3.1	2.9	2.7	2.2	3.0
20	7.8	10.7	7.7	6.4	6.7	8.4	7.2	7.1	8.1	8.0	7.7	6.1	7.4
30	13.9	17.9	14.0	11.8	12.2	14.6	12.2	13.0	14.2	14.0	13.9	11.3	12.6
40	21.1	26.0	21.5	18.5	18.7	21.9	18.2	20.0	21.4	20.9	21.3	17.7	18.9
50	29.5	34.8	29.9	26.3	26.4	30.2	25.3	28.2	29.3	28.7	29.8	25.3	26.3
Share of top (%)													
60	60.8	55.7	60.6	64.7	64.4	60.4	65.9	62.3	61.5	62.4	60.8	65.9	64.8
70	49.9	45.2	49.9	54.1	53.6	49.8	55.3	51.2	51.2	52.0	50.0	55.7	54.2
80	37.4	33.6	37.6	41.7	40.7	37.5	42.6	38.3	38.8	39.9	37.5	43.5	41.7
90	22.5	20.2	22.7	26.3	24.9	22.8	26.6	22.9	23.6	25.3	22.8	27.7	26.1
95	13.3	12.4	13.6	16.5	14.8	13.8	16.7	13.6	14.1	15.9	13.7	17.2	16.3
S80 / S20	4.8	3.1	4.9	6.6	6.0	4.5	5.9	5.4	4.8	5.0	4.9	7.1	5.6
P90/P10	3.9	2.6	3.9	5.3	4.9	3.7	4.6	4.3	4.0	3.8	4.1	5.6	4.5
Gini coefficient	29.6	22.7	29.6	35.1	34.0	29.0	35.7	31.4	30.4	31.8	29.7	36.8	34.5

Source-Eurostat - ECHP wave 2

Disparity measures of income should be systematically reported to strengthen the quality of the analysis of income distributions, in particular analysis of the bottom of the distribution. Appropriate measures are among others: the share of total income within each decile, Atkinson entropy, Gini coefficients etc.

7. Concluding remarks

7.1 The pragmatic Eurostat approach

The need to have in a rather short time a harmonized concept on household income has speeded up the Eurostat harmonization work on this concept. As part of a larger project on the harmonization of a set of core variables on persons and households an iterative procedure has been developed to generate as much as possible – at the same time – knowledge on the theories to be involved as well as empirical results. In this paper the results of the first iteration for the harmonization of household income are sketched and some provisional outcomes of the second iteration. The planning for the next iterations covers the coming two years, and will result in a meta information system on the practices and sources for calculating household income in the Member States of the EU and referenced to the recommended practice. This recommended practice (after the first iteration) is based on the theory provided by the provisional DICAH report (Franz, Ramprakash and Walton 1998).

The disadvantages and the advantages of the procedure chosen are discussed in this paper. As the results until now are promising and the method in itself is logical, the progress of the Canberra group could profit from this work e.g. by asking the non-EU members of the Canberra group to voluntarily participate at the second iteration. The next (fourth) Canberra group meeting could then discuss the outcomes of the iteration. The result an extended meta information system could help to develop a wider use of a harmonized income concept. Maybe some regional variations in the concept can be developed.

7.2 Quality and availability

The paper describes the concept of disposable income as recommended for Eurostat statistics on household income and it specifies the components after the first iteration, the unit for analysis, the sources for income statistics and several other methodological aspects.

From the confrontation of the result after the first iteration with the available harmonized sources and especially the ECHP at least three components need special attention: imputed rent, income in kind and income from self-employment.

The quality of many subcomponents can be discussed after the second iteration.

The availability of the ECHP at Eurostat as seen as an important advantage for comparable income statistics. However, the ECHP does hardly allow regional specifications. The harmonization work intends to develop a concept that can be used to link (reweigh etc) the ECHP (and v.v.) with (results) of best national sources. The quality of sources will be described along the Robustness Assessment reports and in the Meta information system. These both will be outputs from the second iteration of the program.

The second iteration, presently running, however has already given some impressions, which can be useful to discuss in the Canberra group meeting. These cover the issues of the specialized knowledge of the experts cooperating in the harmonization work and the problem of the enormous impact of language and culture on the incomparability of income concept. One of the challenges of the Canberra group could be the development of a linking scheme of the terms and concepts in use in the different languages and societies. This linking scheme has to be more than just a dictionary, it needs to focus on the functional equivalence between the concepts.

References

Deth, J. W. van (1998) Equivalence in comparative political research, Routledge London.

European Commission (1998a) Social Action Plan 1998-2000, Brussels, April 1998.

European Commission (1998b) Employment Guidelines, Brussels, 1998.

Eurostat, (1998) Recommendations of the Task Force on Social Exclusion and Poverty. Luxembourg.

Eurostat, (1997) Household Budget Surveys in the EU: Methodology and recommendations for harmonization. Luxembourg.

Eurostat (1998) Action Program on the harmonization of a set of core variables on persons and households. Internal paper Luxembourg.

Everaers, P.C.J. (1999) A framework for harmonisation: Key social indicators, core variables and a framework for the joint use of administrative sources, register and survey data. Dir. E. Luxembourg (room document Working group on Household Budget Surveys).

Everaers, P.C.J. and M.A.Baigorri (1999) International comparable income statistics and Eurostat's View on Income Distribution. Paper for the seventh CEIES seminar: Income distribution and different sources of income, Cologne 10-11 May 1999.

Franz, A, J. Walton and D. Ramprakash (1998) Statistics on the Distribution of Income, Consumption and Accumulation of Households. (DICAH Report). Eurostat, Luxembourg, 1998.

Grais, B. (1998) Statistical Harmonization and Quality; Paper presented at Mondorf IV seminar, Luxembourg, March 1998.

Harris, G., (1998) assessing the Robustness of Income Distribution Estimates. In Papers and Final Report of the Second Meeting on Household Income Statistics. Canberra Group 1998.

Hicks, J.R. (1946) Income. Reprint in: Readings in the concept and measurement income, R.H. Parker and G.C. Harcourt (eds), Cambridge, 1969.

Hill, P. (1989) Factor Incomes and Property Incomes. Chapter IX, Revised SNA: Expert group Meeting SNA coordination, New York, 1989.

Laan, P. van der (1998) Reconciliation of Income Statistics with Aggregated Data. In Papers and Final Report of the Second Meeting on Household Income Statistics. Canberra Group 1998.

McEwin, M and M.K. McDonald (1998) Concept and definition of Household Income for International Comparisons. In Papers and Final Report of the Second Meeting on Household Income Statistics. Canberra Group 1998.

Sheridan, M. and I. Macredie (1998) Statistical Units: Concepts and Use. In Papers and Final Report of the Second Meeting on Household Income Statistics. Canberra Group 1998.

Smeeding, T.M. and D. Weinberg (1998) Towards a Uniform Household Income Definition. In Papers and Final Report of the Second Meeting on Household Income Statistics. Canberra Group 1998.

Weinberg, D. (1998/1999) Components of household income; Inventory (unpublished)

Appendix 1. Inventory on the availability of Income and Income components

The measurement of elements of Income for Statistics
on Social Exclusion and Poverty

Third Version, dd 28 May 1998

Terminology from the DICA report is in *italic*

BEFORE STARTING PLEASE READ THE EXPLANATION OF THE INVENTORY

Scheme for source (please here fill in name of the source)

Use the next block for some background information
on this source (year, periodicity, type of survey, sample size)Please tick "v" the relevant issue, the gross and net column and the individual
and household column may be used both for one source, or fill in the
other relevant information. Use the blank boxes

1	2	3	4	5	6	7	8	9
COMPONENT GROUP	COMPONENTS	SUBCOMPONENTS	AVAILABLE YES OR NO	COMBINED WITH OTHER COMPONENT YES OR NO please name component	CHARACTERISTICS		Measured as	
					Measured on		Measured as	
					indivi- house-		Gross Net	
					dual hold			
					level level			
Income from activity	1. Compensation of employees: in general	Wages and salaries						
	<i>please specify subcomponents</i>	overtime payments						
		paid holidays						
		from casual secondary activity						
		13th 14 th month salary						
		profit sharing						
		company shares						
	other elements of wages							
	or salary please specify							
	on separate sheet							
	2. Mixed Income							
	Income from self employment							
	3. Mixed Income							
	Operating Surplus, Imputed rent							
	4. Mixed Income							
	Income from activity not							
	yet covered							
	Employers social contributions : in general							
	<i>please specify subcomponents</i>	health benefits						
		retirement/disability benefits						

Appendix 1. (continued) Inventory on the availability of Income and Income Components

Income from property	5. Income from property : in general	rent and interest							
		property income from insurance funds							
		please specify other components on separate sheet							
Transfer income received	6. Social security benefits and social welfare assistance : in general								
		unemployment benefit							
		old age pension							
		retirement pension							
		family allowances							
		sickness benefit							
		education allowances							
		housing allowance							
		social welfare							
		survivors pension							
		other social benefits please specify on separate sheet							
	7. Other money income : in general								
		private transfers from other households							
		lump sums received							
		employees income in kind							
		please specify other money income							
Compulsary transfers	8. Taxes on Income and wealth :	in general							
	9. Social security contributions : in general	please specify on separate sheet							
	10. Disbursements	property income payable							
		misc. current transfers							
Voluntary Transfer Payments	11. Inter household transfers paid								

BEFORE STARTING PLEASE READ THE EXPLANATION OF THE INVENTORY

Scheme for source

country	year
United States	1990
United States	1991
United States	1992
United States	1993
United States	1994
United States	1995
United States	1996
United States	1997
United States	1998
United States	1999
United States	2000
United States	2001
United States	2002
United States	2003
United States	2004
United States	2005
United States	2006
United States	2007
United States	2008
United States	2009
United States	2010
United States	2011
United States	2012
United States	2013
United States	2014
United States	2015
United States	2016
United States	2017
United States	2018
United States	2019
United States	2020
United States	2021
United States	2022
United States	2023
United States	2024
United States	2025
United States	2026
United States	2027
United States	2028
United States	2029
United States	2030
United States	2031
United States	2032
United States	2033
United States	2034
United States	2035
United States	2036
United States	2037
United States	2038
United States	2039
United States	2040
United States	2041
United States	2042
United States	2043
United States	2044
United States	2045
United States	2046
United States	2047
United States	2048
United States	2049
United States	2050
United States	2051
United States	2052
United States	2053
United States	2054
United States	2055
United States	2056
United States	2057
United States	2058
United States	2059
United States	2060
United States	2061
United States	2062
United States	2063
United States	2064
United States	2065
United States	2066
United States	2067
United States	2068
United States	2069
United States	2070
United States	2071
United States	2072
United States	2073
United States	2074
United States	2075
United States	2076
United States	2077
United States	2078
United States	2079
United States	2080
United States	2081
United States	2082
United States	2083
United States	2084
United States	2085
United States	2086
United States	2087
United States	2088
United States	2089
United States	2090
United States	2091
United States	2092
United States	2093
United States	2094
United States	2095
United States	2096
United States	2097
United States	2098
United States	2099
United States	2100
United States	2101
United States	2102
United States	2103
United States	2104
United States	2105
United States	2106
United States	2107
United States	2108
United States	2109
United States	2110
United States	2111
United States	2112
United States	2113
United States	2114
United States	2115
United States	2116
United States	2117
United States	2118
United States	2119
United States	2120
United States	2121
United States	2122
United States	2123
United States	2124
United States	2125
United States	2126
United States	2127
United States	2128
United States	2129
United States	2130
United States	2131
United States	2132
United States	2133
United States	2134
United States	2135
United States	2136
United States	2137
United States	2138
United States	2139
United States	2140
United States	2141
United States	2142
United States	2143
United States	2144
United States	2145
United States	2146
United States	2147
United States	2148
United States	2149
United States	2150
United States	2151
United States	

- country
- year
- periodicity
- type
- source
- period of reference (population)
- period of reference (income)
- sample size
- population size

Please tick 'v' the relevant issue

Column 6: Completely or Partially

Column 7: observed Separately, Jointly, Not; Imputed; Non-Existent

1	2	3	4	5	6	7	8	9	10	11	12
COMPONENT GROUP	COMPONENTS	SUBCOMPONENTS	+/-	TOTAL AMOUNT 1,994	C or P	S, J N or I or NE	COLLECTED JOINTLY WITH	CHARACTERISTICS	Measured on	Measured as	
								indi- dual	house- hold	Gross	Net
								level	level		

Income from activity

1. Compensation of employees

+	0						
---	---	--	--	--	--	--	--

1.1. Wages and salaries etc. etc. etc.

[illegible]

- Wages and salaries
- overtime payments
- holiday pay
- from casual secondary activity
- 13th 14 th month salary
- bonuses
- profit sharing
- company shares
- company saving schemes
- tips
- sick pay
- union strike pay
- severance pay
- travel to work costs
- compensation for travel to work costs
- work expenses
- reimbursement of work expenses
- other

+								
+								
+								
+								
+								
+								
+								
+								
+								
+								
+								
+								
-								
+								
-								
+								
+								

COMPONENT GROUP	COMPONENTS	SUBCOMPONENTS	+/-	TOTAL AMOUNT 1,994	C or P	S, J N or I	COLLECTED JOINTLY WITH	CHARACTERISTICS			
								Measured on	Measured as		
								indi- dual level	house- hold level	Gross	Net
1.2 Employees social contributions			+	0							
		<i>premiums concerning</i>									
		unemployment benefits	+								
		sick-leave benefits	+								
		disability benefits	+								
		survivor benefits	+								
		preretirement benefits	+								
		general pension benefits	+								
		occupational pension benefits	+								
		health benefits	+								
		other	+								
1.3 Employers social contributions			+	0							
		<i>premiums concerning</i>									
		unemployment benefits	+								
		sick-leave benefits	+								
		disability benefits	+								
		survivor benefits	+								
		preretirement benefits	+								
		general pension benefits	+								
		occupational pension benefits	+								
		health benefits	+								
		other	+								
1.4 Compensation of employees not yet covered			+	0							
		use of company car	+								
		employer-subsidised meals	+								
		other employees income in kind	+								
2. Income from self employment			+	0							
		entrepreneurial income	+								
		other	+								
3. Operating surplus of the owner occupied dwelling			+	0							
		net imputed rent	+								
		<i>or</i>									
		gross imputed rent	+								
		maintenance cost	-								
		depreciation	-								
		property taxes + disbursements <i>and</i>	-								

COMPONENT GROUP	COMPONENTS	SUBCOMPONENTS	+/-	TOTAL AMOUNT 1,994	C or P	S, J N or I	COLLECTED JOINTLY WITH	CHARACTERISTICS			
								Measured on		Measured as	
								indi- dual level	house- hold level	Gross	Net
		mortgage interest	-								
		ground rent	-								
		other	-								
	4. Income from activity not yet covered		+	0							
		home production for home use	+								
		home production for barter	+								
		other	+								
Income from property											
	5. Income from property		+	0							
		interest (savings account, loans, bonds)	+								
		paid interest	-								
		dividends	+								
		royalties	+								
		income from estates and trusts	+								
		rental income	+								
		income from renting rooms	+								
		realised capital gains	+								
		unrealised capital gains	+								
		property income from insurance funds	+								
		other income from property	+								
Transfer income received											
	6. Social security benefits and social welfare assistance (also privately funded)		+	0							
	6.1 Social security and social welfare		+	0							
		unemployment benefits	+								
		sick-leave benefits	+								
		disability benefits	+								
		survivor benefits	+								
		preretirement benefits	+								
		general pension benefits	+								
		occupational pension benefits	+								
		private pensions and annuities	+								
		health benefits	+								
		public education	+								
		social welfare	+								
		education allowances	+								
		family allowances	+								
		housing allowance	+								
		other	+								

COMPONENT GROUP	COMPONENTS	SUBCOMPONENTS	+/-	TOTAL AMOUNT 1,994	C or P	S, J N or I or NE	COLLECTED JOINTLY WITH	CHARACTERISTICS			
								Measured on		Measured as	
								indivi- dual level	house- hold level	Gross	Net
		6.2 Social contributions (paid by receivers of benefits)	+	0							
		<i>premiums concerning</i>									
		unemployment benefits	+								
		sick-leave benefits	+								
		disability benefits	+								
		survivor benefits	+								
		preretirement benefits	+								
		general pension benefits	+								
		occupational pension benefits	+								
		health benefits	+								
		other	+								
		6.3 Social contributions (paid by paying institutions)	+	0							
		<i>premiums concerning</i>									
		unemployment benefits	+								
		sick-leave benefits	+								
		disability benefits	+								
		survivor benefits	+								
		preretirement benefits	+								
		general pension benefits	+								
		occupational pension benefits	+								
		health benefits	+								
		other	+								
		7. Other money income	+	0							
		alimony received from former husband	+								
		childrens alimony received	+								
		transfers from parents	+								
		other private transfers	+								
		lump sums received	+								
		lottery or gambling winnings	+								
		non-life insurance claims	+								
		Compulsory transfer payments									
		8. Taxes on Income and wealth	-	0							
		tax on income	-								
		tax on wealth	-								
		tax refunds	+								
		other	-								

Comments

The measurement of elements of Income for Income Statistics at the individual and household level

BEFORE STARTING PLEASE READ THE EXPLANATION OF THE INVENTORY

Scheme for source

Income Panel Survey

Use the next block for some background information on this source

country	Netherlands
year	19xy
periodicity	yearly
type	panel, each year new influx consisting of a sample of new born and immigrants
source	fiscal administration; administration of rent subsidy; students allowances registration
period of reference (population)	31.12.19xy; so excluding (income of) persons that died during the year
period of reference (income)	1.1.19xy - 31.12.19xy
sample size	about 75.000 households/200.000 persons
population size	6.6 million private households; 15 million persons

Please tick 'v' the relevant issue

Column 6: Completely or Partially

Column 7: observed Separately, Jointly, Not; Imputed; Non-Existent

1	2	3	4	5	6	7	8	9	10	11	12
COMPONENT GROUP	COMPONENTS	SUBCOMPONENTS	+/-	TOTAL AMOUNT 19xy	C or P	S, J N or I	COLLECTED JOINTLY WITH	CHARACTERISTICS			
								Measured on	Measured as		
								indivi- house-			
								dual hold	Gross Net		
								level level			

Income from activity

1. Compensation of employees

1.1. Wages and salaries etc. etc. etc.

Wages and salaries
overtime payments
holiday pay
from casual secondary activity
13th 14 th month salary
bonuses
profit sharing
company shares
company saving schemes
tips
sick pay
union strike pay
severance pay
travel to work costs
compensation for travel to work costs
work expenses
reimbursement of work expenses
other

+	309,866			1.1+1.2+1.3+1.4	v		v	
+	276,010			1.3, 1.4, 6.1	v		v	
+	273,161	C	J	wages	v		v	
+		C	J	wages	v		v	
+		C	J	wages	v		v	
+		C	J	wages	v		v	
+		C	J	wages	v		v	
+		C	J	wages	v		v	
+	2,849	C	I	wages	v			v
+		P	J	wages	v		v	
+		C	J	wages	v		v	
+			N					
+			N					
-			N					
+			N					
-			N					
+		C	J	wages	v		v	
+			N					

[illegible]

COMPONENT GROUP	COMPONENTS	SUBCOMPONENTS	+/-	TOTAL AMOUNT 19xy	C or P	S, J N or I or NE	COLLECTED JOINTLY WITH	CHARACTERISTICS			
								Measured on	Measured as		
								indivi- dual level	house- hold level	Gross	Net
	mortgage interest		-	-24,542	C	S			v	v	
	ground rent		-	-80	C	S			v	v	
	other		-	-10		S					
4. Income from activity not yet covered											
			+	0							
	home production for home use		+			N					
	home production for barter		+			N					
	other		+			N					
Income from property											
5. Income from property											
			+	10,302					v	v	
	interest (savingsaccount, loans, bonds)		+	10,221	P	S			v	v	
	paid interest		-	-3,429	C	S			v	v	
	dividends		+	1,823	P	S			v	v	
	royalties		+		C	J	in 2. other				
	income from estates and trusts		+		C	J	in 5. and 3.		v	v	
	rental income		+	1,672	C	S			v	v	
	income from renting rooms		+	15	P	S			v	v	
	realised capital gains		+			NE					
	unrealised capital gains		+			NE					
	property income from insurance funds		+			NE					
	other income from property		+			N					
Transfer income received											
6. Social security benefits and social welfare assistance (also privately funded)											
			+	120,627			6 1+6 2+6 3				
6.1 Social security and social welfare											
			+	116,363							
	unemployment benefits		+	10,308	C	S		v		v	
	sick-leave benefits		+	1,314	C	S, J	wages	v		v	
	disability benefits		+	15,327	C	S, J	wages o.p.b.	v		v	
	survivor benefits		+		C	J	o.p.b. and g.p.b.	v		v	
	preretirement benefits		+		C	J	wages, o.p.b.	v		v	
	general pension benefits		+	32,788	C	S, J	g.p.b.	v		v	
	occupational pension benefits		+	34,494	C	S, J	o.p.b.	v		v	
	private pensions and annuities		+		C	J	o.p.b.	v		v	
	health benefits		+			N					
	public education		+			N					
	social welfare		+	10,759	C	S, J		v		v	
	education allowances		+	2,929	C	S		v			v
	family allowances		+	5,913	C	S			v		v
	housing allowance		+	2,531	C	S			v		v
	other		+			N					

COMPONENT GROUP	COMPONENTS	SUBCOMPONENTS	+/-	TOTAL AMOUNT 19xy	C or P	S, J N or I	COLLECTED JOINTLY WITH	CHARACTERISTICS			
								Measured on indiv- dual level	house- hold level	Gross	Net
6.2 Social contributions (paid by receivers of benefits)											
	premiums concerning		+	1,911				v		v	
	unemployment benefits		+	627	C	I		v		v	
	sick-leave benefits		+	66	C	I		v		v	
	disability benefits		+	498	C	I		v		v	
	survivor benefits		+			N					
	preretirement benefits		+			N					
	general pension benefits		+			N					
	occupational pension benefits		+			N					
	health benefits		+	720	C	I		v		v	
	other		+			N					
6.3 Social contributions (paid by paying institutions)											
	premiums concerning		+	2,353				v		v	
	unemployment benefits		+	1,140	C	I		v		v	
	sick-leave benefits		+	119	C	I		v		v	
	disability benefits		+			NE					
	survivor benefits		+			NE					
	preretirement benefits		+			NE					
	general pension benefits		+			NE					
	occupational pension benefits		+			N					
	health benefits		+	1,094	C	I		v		v	
	other		+			N					
7. Other money income											
			+	729				v		v	
	alimony received from former husband		+	729	C	S, J	6.1. Social welfare	v		v	
	childrens alimony received		+			N					
	transfers from parents		+			N					
	other private transfers		+			N					
	lump sums received		+			N					
	lottery or gambling winnings		+			N		v		v	
	non-life insurance claims		+			N					
Transfer payments											
8. Taxes on Income and wealth											
			-	-48,210							
	tax on income		-	-46,493	C	S		v			
	tax on wealth		-	-1,717	C	S		v			
	tax refunds		+			N					
	other		-			N					

COMPONENT GROUP	COMPONENTS	SUBCOMPONENTS	+/-	TOTAL AMOUNT 19xy	C or P	S, J N or I	COLLECTED JOINTLY WITH	CHARACTERISTICS			
								Measured on	Measured as		
								individual level	household level	Gross	Net
9. Social security contributions											
			-	-126,860							
		<i>premiums concerning</i>									
		unemployment benefits	-	-12,238	P	I		v			v
		sick-leave benefits	-	-4,667	P	I		v			v
		disability benefits	-	-11,803	P	I		v			v
		survivor benefits	-		P	I, J	premium g.p.b.	v			v
		preretirement benefits	-			N					
		general pension benefits	-	-50,123	C	I, J	premium g.p.b.	v			v
		occupational pension benefits	-			N		v			v
		private pensions and annuities	-	-4,431	C	S		v			v
		health benefits	-	-43,598	C	I		v			v
		other	-			N					
		social security contributions refunds	+			N					
10. Other disbursements											
			-	-907							
		alimony paid by former husband	-	-870	C	S		v		v	
		children's alimony				N					
		other	-	-37	P	S		v		v	
Voluntary Transfer Payments											
11. Interhousehold transfers paid											
			-	0							
		children's alimony	-			N					
		transfers to children (living independently)	-			N					
		other	-			N					
Primary income unknown											
			+	2,816							
Disposable income											
			=	301,554							

Comments

This form is for illustration purposes. Figures for 1995 have been filled in.

Annex 4. Calculation of Imputed rent in the ECHP

4.1 Method of calculating rents

The amount of monthly rent is determined for all tenants. It is calculated either as an overall rent, including all charges, or as an actual rent after deduction of housing benefits (net).

Once rents have been calculated, the next step is to estimate other rents. These mainly concern owner-occupiers and other households whose dwelling are rent-free, but also tenants for whom the information for the survey waves are not known. The approach adopted initially consists in calculating the averages per class of variable.

4.2 Choice of classification variables

The classification variables, in order of importance, are as follows:

- A - type of housing
- B - number of rooms
- C - presence or otherwise of a place to sit outside.

The number of classes in A is limited to two: the household's accommodation is either a "one-family dwelling" (detached or semi-detached) or it is not.

B (number of rooms) comprises four classes: 1 or 2; 3; 4; 5 or more.

C obviously comprises two classes (presence or not of a place to sit outside).

Assuming that each field contains at least 30 observations (if it does not, some observations are grouped together), the rent to be imputed, will be the average of each class. In fact this rent will be associated to owner-occupied dwellings having the same (A,B,C) characteristics.

4.3 Adjustment of provisional imputations

In order to take into account the level of incomes and have a wider range of imputed rents, we determine , the ratio of rent to income for each decile of income using only the known rents.

The definitive imputed rent is the minimum between the provisional imputation and that corresponding to the decile.

ANNEX 4

QUESTIONNAIRE ON INCOME STATISTICS IN THE EU MEMBER STATES

Questionnaire on income statistics in the EU Member States¹

The aim of this questionnaire is to make an inventory of the components of income used in income surveys/sources in the EU Member States. The purpose is to study how income components, distinguished at a national level, fit in the 11 component classification based on the DICAH report and developed by the Eurostat Task Force on Poverty and Social Exclusion Statistics.

The exercise should further the harmonisation of the income variable on a medium to long term basis by giving information on the correspondence between international recommendations and concepts used at national level. The aim is to reach comparability at component level by classifying the content of similar subcomponents in an agreed way across countries.

A secondary aim of this survey is to collect input for a meta data information system on income statistics, that will be developed by Eurostat.

Instructions

General

You are kindly requested to make up this report for your '*best national source*' (survey, register,...) that is used for compiling income statistics. If more sources are considered 'best', more copies of this form should be filled in. (And consequently, for each inventory of income components, there should be a robustness assessment report.) If a source is only used to complete your 'best source' it is sufficient to make a proper reference to that secondary source on the form.

You are invited to send us any documentation available about the conceptualisation of income in your Member State, and the decomposition of it.

For income definitions: see the DICAH report (available on request from lene.mejer@eurostat.cec.be) and Timothy M. Smeeding and Daniel H. Weinberg, "Towards a Uniform Household Income Definition", Paper prepared for the Canberra Group on Income Measurement, revised October 1998, available from the authors or on <http://lissy.ceps.lu/canberra.htm>.

The form should first be filled in at the level of the subcomponents. You are recommended not to fill in the form line by line, but one column after the other.

Please fill in the questionnaire in English. If you feel that your English is insufficient for some explanations you are welcome to add comments in your mother tongue.

¹ This questionnaire is based on the Recommendations from the Task Force on Social exclusion and Poverty Statistics. A grateful use has been made of the questionnaire developed by Dr Daniel Weinberg for the Canberra Group.

Column 1 and 2

The Component groups and Components are those defined by the Task Force on Social Exclusion and Poverty in conformity with the terminology in the DICAH report. The components add up to **Disposable income** in the following way:

- | | | |
|---|------------------------------|--|
| + | Income from activity | |
| | | 1. Compensation of employees |
| | | 2. Income from self employment |
| | | 3. Operating surplus of the owner occupied dwelling (= imputed rent) |
| | | 4. Income from activity not yet covered |
| + | Income from property | |
| | | 5. Income from property |
| + | Transfer income received | |
| | | 6. Social security benefit and social welfare assistance |
| | | 7. Other money income |
| - | Compulsory transfer payments | |
| | | 8. Taxes on income and wealth |
| | | 9. Social security contributions |
| | | 10. Other disbursements |
| - | Voluntary transfer payments | |
| | | 11. Inter household transfers paid |
| = | Disposable income | |

Column 3: Subcomponents

It is the intention, that it should be possible, to classify the multitude of national (sub)subcomponents into the subcomponents of income distinguished in column 3. However, please insert a new line whenever you are uncertain about where to classify a national concept in the list or if an item is not included in the list or is too important for being classified as 'other'. The list of subcomponents should be exhaustive and add up **in principle** to the corresponding component.

Note: The list contains subcomponents on which there is no international agreement, that they are part of disposable income. However, they are put on the list to get a picture as complete as possible at this moment. If a subcomponent is *not* considered part of disposable income according to your national definition, you should write that down in column 13.

Please provide on a **separate** sheet of paper:

- 1) The different concepts of income, that are published by your Office, at the individual or household level, according to your national definitions.
- 2) The decomposition of these concepts into the 11 elements mentioned in the box above.
- 3) The amounts for these components published (or available at your Office) for your country for the year 1994² (as is to be done in column 4 of the inventory sheet).

If 2. and 3. cannot be readily done because of differences between national income concepts and the definitions used here, please provide:

² This year has been chosen for comparison reasons. See footnote 3.

- 4) A comparable breakdown of your national income concept from gross to disposable, with the amounts for 1994, and explain the differences at the level of the subcomponents. To that end, you should list your 'national' subcomponents in column 3 of the inventory sheet (see above) in sufficient detail.

Note: differences between the totals reported here and the National Accounts totals will be explained in the Robustness assessment report.

Column 4

Column 4 shows if the amount is added to (+) or subtracted from (-) the total disposable income.

Column 5: Total amount 1994

In this column the amounts published (or that are readily available at your Office) should be inserted. The year 1994 has been chosen to enable comparison with ECHP³.

This column should add up to *Disposable income*⁴ as published by your country. That means that this column should be left empty for subcomponents that are not reckoned being disposable income in your country. You can still indicate the availability of such a subcomponent by filling in columns 6 - 13 (the amount can be mentioned in column 13).

Column 6: Complete or partial

In this column you should indicate, whether the 'true value at population level' of a subcomponent is included completely⁵ (C) or only partially (P) in *Disposable income*, because of certain elements of that subcomponent not being observed (be it S, J or I: see column 7). Examples could be: interest received and rent of rooms are often only measured partially (in tax registers), because they are only subject to taxation above a certain threshold. Children's alimony may be not, or only partially observed. Income in kind might only partially be covered using a specific threshold for registration of items.

Make a comment in column 13 when you mark P.

³ ECHP95 has as reference period 1-1-1994/31-12-1994.

⁴ Or your national equivalent, e.g. *net income*.

⁵ To a reasonable degree.

Canberra Group

When an item is marked C, the amount in column 5 does not necessarily represent that 'true value'. That amount could be completely or partially included in the value for another subcomponent. What is the case will appear from column 7 and 8.

Column 7: S, J, N or I; or NE

Please mark one of the following entries in this column for *each* subcomponent:

- mark **S** for **collected separately** for each item collected specifically in the subject household survey (or register);
 - mark **J** for **collected jointly**. See also the explanation for column 8;
 - mark **N** for **not collected** if an item is not collected or collected only in a catch-all 'other income' question;
 - mark **I** for **imputed** if an item is not collected but imputed or estimated. This could for example be done with the aid of other sources (e.g. by statistical match or regression). Or, in the case of wages net of taxes or social contributions: these are often estimated by applying known calculation rules to the net amounts.
 - Combinations may occur, e.g. **S,J** or **S,I**. This may happen when a subcomponent covers different national programmes, for example: health benefits in the private sector, that are observed plus health benefits in the governments sector that are reported as wages or that are estimated.
- Please mark **NE** for **non-existent** if an item does not exist in your country.

Column 8: Collected jointly

If subcomponents are collected *Jointly*, the name of the catchall variable that includes that subcomponent should be entered in this column:

- **in bold**, if that subcomponent's value is included completely in that variable; e.g. **wages**;
- *in italics*, if that subcomponent's value is included for less than 100% in that variable; e.g. *wages*. The remainder would be observed separately, or be included in one or more other variables.

Some examples

2	3	4	5	6	7	8
COMPONENTS	SUBCOMPONENTS	+/-	TOTAL AMOUNT 1994	C or P	S, J N or I or NE	COLLECTED JOINTLY WITH
1.1 Compensation of employees		+				
	holiday pay	+		C	I, J	wages
1.3 Employers social contributions		+				
	premiums concerning unemployment benefits	+		P	I	
	health benefits	+		C	S, J	wages
9. Social security contributions		-				
	premiums concerning preretirement benefits	-			N	
	private pensions and annuities	-		P	S	

Holiday pay is completely covered. It has been calculated from net wages. It is not reported separately but included in wages.

Premiums for unemployment benefits are only partially observed. The government share is not known. The amount has been calculated from net wages.

Premiums for health benefits are completely covered. Premiums paid in the private sector are observed separately. A compensation paid to government officials is included in wages. (Thus the amount reported in column 5 does not represent the total amount for that item).

Premiums for preretirement are not observed.

Premiums for private pensions and annuities are observed, but only partially.

Column 9 and 10: Individual or household level

In these columns it should be indicated at what levels the items are *observed*. Thus if the amount for the household is calculated by adding up the amounts available for the household members, the column 'household' should **not** be ticked.

It may happen that (for taxation purposes) items are attributed to e.g. the head of the household or the main breadwinner, although properly they are related to the whole household: e.g. property taxes and housing allowances. In such cases only the column *Household* should be ticked.

Please write your national definition of household on a separate sheet of paper.

Column 11 and 12: Gross and net

Gross is before deduction of taxes and social security contributions; *Net* is after. This definition should be strictly applied on this form, with only the following exception;

If (wage) components are observed before tax but net of social security contributions the *Gross* column should be ticked, and a note should be made in column 13 that the item is net of social security contributions.

Note: In this case component groups 1.2, 1.3, 6.2 and 6.3 serve to report on the social security contributions (to be considered part of *gross income*) paid by employers, employees, paying institutions and beneficiaries.

If (social security) benefits are not liable to tax then report them as *net*. If an item covers different national social security benefits that are/are not taxable, this combined item should be reported as *gross*.

However, there are instances where amounts can be considered net from a different point of view. For instance net imputed rent (after deduction of maintenance cost and property taxes), life insurance payments before or after deduction of premiums, self employment income with or without sales or value added tax, or before or after deduction of operational costs. In these instances the items should be reported *Gross* if taxes and social security contributions are still to be deducted. In column 11 it should be explained what these items are 'netted' for.

Column 13

In case of any doubt, please enter your comments in column 13 or on a separate sheet.

Some clarifications of the subcomponents of disposable income

1. Compensation of employees

Note: if wage and its components are gross before taxes and social security contributions, 1. Compensation of employees is equal to 1.1. Wages and salaries etc. and component groups 1.2 and 1.3 can be ignored.

- *holiday pay*: usual supplement to wages for 'holidays'.
- *bonuses*: remuneration for specific achievements of the employee, paid by the employer voluntarily or contract based.
- *profit sharing*: idem, but this time the bonus is (in principle) dependent on the profit of the company. Profit sharing as a partner in business should be reported as 2. Income from self employment.
- *sick pay*: continuation (often voluntarily) of the payment of wages by the employer, or supplementation to 100%, often restricted to a certain period. Sick pay often cannot be distinguished from wages.
- *severance pay* (or redundancy pay): compensation by the employer (often lump sum) for the termination of a labour contract. In many instances such a payment is not considered income, or not observed or only in part.

Social security benefits and social welfare (Component groups 1.2, 1.3, 6.1, 6.2, 6.3, 9.)

These items should cover state and privately funded programmes, of a compulsory or voluntary nature. Both *cash* and *in kind* benefits should be reported. Component group 9. covers the total of premiums paid by employers, employees, institutions responsible for the payment of benefits and the beneficiaries.

Voluntary insurance against loss of income due to sickness, disability,...., private pensions and annuities is considered to be *compulsory* transfer income, as it is most often contract based. Also from a practical point of view, that of equal treatment of comparable components, they should be classified here.

- *sick leave benefits*: compensation for wage loss in the case of illness
- *disability*: would also cover: occupational injury (as for example in Sweden)
- *survivor benefits*: benefit paid to widow or widower and orphans of a deceased breadwinner
- *preretirement*: retirement, on a voluntary basis or compulsory for specific professions, before the age at which one is normally entitled to the general old age pension (see below) or at which one would normally retire from a specific company. general pension: the general, state funded old age pension
- *occupational pension*: obligatory pensions dependent on employer, profession, branch of industry...
- *private pensions and annuities*: of a voluntary nature, based e.g. on a policy closed with an insurance company.
- *health benefits*: also comprising often benefits in kind
- *public education*: most often this will be a benefit in kind
- *family allowances*: including child allowances, parental allowances, alimony maintenance paid by the public sector.

2. Income from self employment

This item would normally be composed as follows:

	Gross revenue or turnover	
-	Operating cost	
=	Gross operating profit	
-	Depreciation	
-	Indirect taxes (less subsidies)	
=	Net operating profit	= Gross income from self employment
-	Income taxes	
-	Social security contributions	
=	Net income	= Net income from self employment

If Gross or Net income from self employment reported on the inventory form are not in conformity with this definition, you are asked to give a clarification in column 13.

Freelance income should also be considered self employment income.

You are also requested to give a comment if business and private elements cannot be completely separated. E.g. when imputed rent cannot be divided into a business and private part.

3. Operating surplus of the owner occupied dwelling

Please explain on a separate sheet of paper how imputed rent is calculated in your country for the source concerned.

- *property taxes + disbursements* comprise: property taxes owner's part, local taxes, insurance premiums.
- *ground rent*: in some countries (and cities) the land on which one's dwelling is built can only be (long term) leased. The lease should be subtracted here.
- *mortgage interest*: some experts are in favour of not netting mortgage interest with gross imputed rent, but taking it apart (together with other interest received and paid). The reason for this is that it is not always certain, that a mortgage is used for financing (only) one's own dwelling. If in your country that point of view is shared, you are free to treat mortgage interest accordingly on the form.

5. Income from property

- *estates*: inheritances not yet finally assigned to the heirs.
- *trust*: a corporate body, known i.e. in Great Britain (comparable to a foundation). One can entrust a trust with one's possessions and determine that one's children (heirs) are only entitled to certain proceeds.

6. Social security benefits and social welfare assistance

Note: if social security benefits and social welfare assistance are gross before taxes and social security contributions, 6. Social security benefits and social welfare assistance is equal to 6.1. Social security and social welfare and component groups 6.2 and 6.3 can be ignored.

- *education allowances*: if the allowance is paid yearly without further conditions it can be considered as regular income. However, systems exist in which education allowances are for instance paid as a loan, that is acquitted periodically, dependent on the progress of the study. It may even happen, that allowances have to be paid back.

In the latter cases you are asked to explain how education allowances are treated in your country.

7. Other money income; 11. Interhousehold transfers paid

transfers from parents/to children. Most often it will concern transfers to students by the parents as a supplement to an education allowance.

Please return this survey (on paper **and** in electronic form) by March 29, 1999 to:

Statistics Netherlands
Attn. W.J. de Wreede
P.O. Box 4000
2270 JM Voorburg
The Netherlands
Tel.: +31 70 337 4740
Fax: +31 70 337 5983
E-mail: wwde@cbs.nl

Compiled by:

Institution:

Name:

Address:

Country:

Tel:

Fax:

E-mail:

Survey:

Date:

Annex 5. Income components in the ECHP (wave 2, 1995)

Components of income

	Belgium	Denmark	Germany	Greece	Spain	France (*)	Ireland	Italy	Luxembourg	Netherlands	Austria	Portugal	United Kingdom
mean/equ	13.553	14.119	13.851	8.803	10.375	13.500	11.043	10.017	22.124	12.361	13.810	7.773	13.139
TOTAL	100,0	100,0	100,0	100,0	100,0	:	100,0	100,0	100,0	100,0	100,0	100,0	100,0
Income from work	60,2	72,8	71,9	70,2	79,2	:	72,4	73,1	70,8	66	66,2	78,3	70,1
Employment	54,6	65,9	66,4	45,4	67,3	:	57,1	59,8	63,6	62	59,6	67,8	62,3
self-emp	5,5	6,9	5,4	24,8	11,9	:	15,3	13,3	7,2	4	6,5	10,5	7,8
Non-work private income	6,3	4,0	4,6	9,5	3,7	:	1,8	3,4	4,5	5	3,4	2,7	4,2
Social transfers	33,5	23,2	23,3	19,6	17,5	:	26,1	23,8	24,4	29	30,5	19,0	25,7
Pensions	17,5	9,0	16,5	17,9	11,4	:	12,9	20,8	16,1	15	21,9	13,9	10,0
other transfers	16,0	14,2	6,9	1,7	6,1	:	13,1	3,0	8,3	14	8,6	5,1	15,7

Source: Eurostat – ECHP Wave 2

(*) Information on net components not available

Annex 6. Income components included in Household Budget Surveys

	B	DK	D	GR	E ma in	E con t		IR L	I	L	NL	A	P	FI N	S	UK	Eurostat recommen dat.
INCOME BREAKDOWN																	
Wages and salaries	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
Benefits in kind	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X
Income of self-employed	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X
Own production	X	X	X	X	X	X	X	X				X	X	X		X	X
Property income	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X
Imputed rents	X	X	X	X	X	X	X	X			X	X	X	X	X		X
Actual rentals received by proprietors	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X
Old-age pensions, retirement pensions	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X
Unemployment benefits	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
Widows' and orphans' pensions	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X
Family-related income (family allowances, maternity benefits, single parent benefits etc.)	X	X	X	X		X	X	X			X	X	X	X	X	X	X
Sickness or invalidity benefits	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X
Housing allowances	X	X	X	X			X	X			X	X	X	X	X	X	X
Other benefits (e.g. study awards, minimum income)	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
Transfers under uses	X	X	X	X	X	X	X			X	X		X				X
LEVEL OF RECORDING																	
at household level only									X	X							
at household and individual level	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X
USE OF ADMINISTRATIVE REGISTERS FOR ESTIMATION OF INCOME COMPONENTS		X												X	X		

Annex 7 : Some components of Disposable Household Income (provisional table, ECHP, 1995)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	UK
1. Mean amount received per household from each income component (PPS)													
Total income	23236	20961	21954	15175	17883	M	22530	18633	39315	20410	24130	14793	22187
... Income from work	13364	13943	14421	10476	11993	M	15580	12535	26672	13566	15734	11012	15430
..... Wages and salaries	12115	12556	13313	6343	10021	M	11949	10098	23790	12610	14121	9388	13660
..... Self-employment income	1249	1386	1108	4133	1972	M	3631	2437	2882	957	1613	1624	1770
... Private income	1691	858	1184	1294	855	M	483	660	2181	649	966	452	1047
... Social transfers	8185	6160	6349	3404	5035	M	6467	5439	10463	6195	7430	3329	5710
..... Old-age / survivors pension	5207	2775	4876	3162	3563	M	3983	4842	7439	3613	5324	2572	3128
..... Other social transfers	2978	3385	1474	242	1472	M	2484	596	3024	2582	2106	757	2582
..... Unemployment related	852	1116	533	28	629	M	1206	119	149	639	339	220	117
..... Family related	1285	739	356	76	29	M	621	73	1680	498	1243	224	662
..... Sickness / Invalidity related	745	676	330	98	728	M	432	353	742	936	338	274	717
..... Education related	23	224	42	6	0	M	101	17	44	156	63	15	74
..... Social assistance	53	243	125	11	9	M	55	13	32	160	55	2	0
..... Housing allowance	4	294	62	12	7	M	27	8	191	193	56	1	517
..... Other benefits	15	93	25	12	68	M	41	13	187	0	13	21	495
2. Distribution of income by components (%)													
Total income	100	100	100	100	100	M	100	100	100	100	100	100	100
... Income from work	58	67	66	69	67	M	69	67	68	66	65	74	70
..... Wages and salaries	52	60	61	42	56	M	53	54	61	62	59	63	62
..... Self-employment income	5	7	5	27	11	M	16	13	7	5	7	11	8
... Private income	7	4	5	9	5	M	2	4	6	3	4	3	5
... Social transfers	35	29	29	22	28	M	29	29	27	30	31	23	26
..... Old-age / survivors pension	22	13	22	21	20	M	18	26	19	18	22	17	14
..... Other social transfers	13	16	7	2	8	M	11	3	8	13	9	5	12
..... Unemployment related	4	5	2	0	4	M	5	1	0	3	1	1	1
..... Family related	6	4	2	0	0	M	3	0	4	2	5	2	3
..... Sickness / Invalidity related	3	3	2	1	4	M	2	2	2	5	1	2	3
..... Education related	0	1	0	0	0	M	0	0	0	1	0	0	0
..... Social assistance	0	1	1	0	0	M	0	0	0	1	0	0	0
..... Housing allowance	0	1	0	0	0	M	0	0	0	1	0	0	2
..... Other benefits	0	0	0	0	0	M	0	0	0	0	0	0	2

Annex 7 (continued) Some components of Disposable Household Income (provisional table, ECHP, 1995)

	B	DK	D	EL	E	F	IRL	I	L	NL	A
1. Mean amount received per household from each income component (PPS)											
Total income	3892	3215	4609	5144	6374		3516	6923	939	4940	3344
... Income from work	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Wages and salaries	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Self-employment income	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... Private income	3892	3215	4609	5144	6374		3516	6923	939	4940	3344
... Social transfers	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Old-age / survivors pension	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Other social transfers	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Unemployment related	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Family related	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Sicknes / Invalidity related	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Education related	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Social assistance	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Housing allowance	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Other benefits	3891	3215	4609	5144	6374		3516	6923	939	4940	3344

components (%)

Total income	3892	3215	4609	5144	6374		3516	6923	939	4940	3344
... Income from work	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Wages and salaries	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Self-employment income	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... Private income	3892	3215	4609	5144	6374		3516	6923	939	4940	3344
... Social transfers	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Old-age / survivors pension	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Other social transfers	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Unemployment related	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Family related	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Sicknes / Invalidity related	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Education related	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Social assistance	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Housing allowance	3891	3215	4609	5144	6374		3516	6923	939	4940	3344
... .. Other benefits	3891	3215	4609	5144	6374		3516	6923	939	4940	3344



Purchasing Power Parities and Options for Canberra Group Work



Canberra Group

**SESSION 5: PURCHASING POWER PARITIES AND OPTIONS FOR
CANBERRA GROUP WORK**

Chair: Maryanne Webber, Statistics Canada

Focus paper: Tim Smeeding, Luxembourg Income Study

Discussant: Ian Castles, Academy of Social Sciences in Australia

Rapporteur: Statistics Canada

Tim Smeeding mentioned in his opening statement that researchers and policy makers are increasingly concerned with “real” levels of well-being and how poverty and inequality are shaped across nations in real terms. In order to make such comparisons, researchers need to transform relative income into real income; for some time, macroeconomists have made these transformations using purchasing power parities (PPPs). Tim Smeeding presented and then discussed at length an alternative approach which converts survey income from national currencies to U.S. dollars using the OECD purchasing power parities. Because both methods still present difficulties, participants were encouraged by Mr. Smeeding to put forward ideas as to how to improve what was presented.

Discussant:

The Chair invited Ian Castles to discuss the paper presented to the session. Ian Castles noted that the purpose of studying purchasing power parities (PPPs) is to provide us with information to help us conceive income, expenditures or wealth in real terms.

PPPs are one of several measures which can be used to make comparisons between countries or people and he gave a few examples - a) GDP per hour worked b) wealth of rich individuals expressed in days of their home country's GDP or c) mortality rates for various sub-populations.

One shouldn't speak of a single PPP for comparing one country to another – it is not like an exchange rate where there is one value for a country. One needs a series of PPPs in order to choose one appropriate to what is being compared. For example, in comparing the U.S. and Australia (based on 1993 PPPs), for some items you can buy more in Australia and for others you can buy less – one PPP would not show these underlying differences. Basically, Ian Castles noted that while not disagreeing with the basic thrust of the paper, he just noted the need to be careful that the profile of the income distribution on which conclusions depend is not misleading in some way or another.

Discussion:

The Chair then opened the floor for general discussion. Anne Harrison noted that the paper demonstrates what can be done with PPPs. She also cautioned that using person equivalencies may not always be the best approach – since there are not always economies of scale in some types of spending (for example in health spending) and in such cases, per capital expenditures would be better.

Michael Ward commented that he found the paper to be exciting and of practical use. He noted that anyone interested in the PPPs prepared by the World Bank should use those produced for 1985 (stronger methodology than earlier versions).

From 'Relative' to 'Real' Income: Purchase Power Parities and Household Income Microdata, Problems and Prospects

Lee Rainwater
Harvard University and
Luxembourg Income Study

and

Timothy M. Smeeding
Center for Policy Research
Syracuse University
and
Luxembourg Income Study

Prepared for the Third Meeting of
The Canberra Group
June 7-9, 1999
Ottawa, Canada
[revised August 9, 1999]

The authors want to thank Esther Gray and Kati Foley for their help in preparing this paper. Conversations with Peter Gottschalk, Bruce Bradbury, Markus Jäntti, Michael Forster, Richard Freeman, and comments by Anne Harrison and Ian Castles, have helped shape the ideas in this paper. However, the authors retain full responsibility for all errors of omission and commission. Please send comments via email to tmsmeeding@maxell.syr.edu and to lr@wjh.harvard.edu

1. Introduction

Most comparisons of income distribution across countries are presented in relative terms. That is, high and low incomes are compared to median or mean incomes *within* countries. And relative positions within nations are then compared across countries. Hence, one measures “poverty” by the fraction of persons with incomes less than some fraction of the median within say, Canada compared to the fraction with incomes below the median in Australia, Russia, and Spain. Similarly, the distance between the income at the 10th and 90th percentile, or the decile ratio is constructed using relative income within one nation and then extended to the same relative income comparisons in other nations.

However, researchers and policymakers are also concerned with absolute or “real” levels of well-being and how poverty and inequality are shaped across nations in real terms. In other words, how well off are populations in one country measured in terms of their “real” standard of living compared to people in another country? In order to make such comparisons, researchers need to transform relative incomes into real incomes. For some time, macroeconomists have made these transformations using purchasing power parities (PPP) to generate “real GDP per capita,” for instance (e.g., Brungger 1996; Summers and Heston 1991). However, PPP’s are macroeconomic concepts based on aggregate data generated primarily from National Income Accounts (NIA) coupled with surveys of “average” market baskets of goods and services in dozens (OECD) or hundreds (Penn World Tables) of nations. The next section of this paper describes PPP’s and how they are used with aggregate data.

But we are interested in household income microdata, e.g., net disposable (after tax and transfer) income per equivalent adult, derived from household income surveys. And there lies the problem addressed in this paper, how to go from one to the other? To begin, sources of data differ; household income microdata provides a less complete measure of real income than do macroeconomic concepts and measures of “total income.” Further household income micro comparisons are relative to the median, not the mean, and noncash income is often excluded from microdata, while it is counted as “government consumption” in the PPP’s.

The primary issue we confront here is, therefore, how one uses PPP’s and microdata. We concentrate particularly on the process of moving from a PPP adjusted mean GDP per capita (or other aggregate income measure, e.g., total consumption) income concept, to median disposable household income per equivalent adult, the common microeconomic concept used in household distribution of comparisons (e.g., Atkinson, Rainwater, and Smeeding 1995; Gottschalk and Smeeding 1997). We are also interested in “real” poverty lines and economic distance between ends of the income distribution. Therefore, we use this micro survey data to compare the percentiles of persons (children here) with real incomes at given percentiles of the real United States income distribution (Section III) and also “absolute” poverty (Section IV). We illustrate both of these notions—real income and absolute poverty—by looking at the distribution of income and poverty status of children in 14 rich countries in Sections III and IV. A brief concluding note accompanies the first draft (Section V). The next version of this paper will include two improvements: first, aggregate consumption-based PPP’s (not GDP-based PPP’s) will be used; second, a consistent time series of PPP’s for OECD countries.¹

2. Concepts and Measures of Real Income

Most people carry around in their heads concepts of how well off people in different nations are. We think of people in developing countries as having low standards of living, those in Eastern Europe as having much lower incomes than in the West, people in West Europe as being somewhat less well off than are Americans, and so on.

The task of measuring in detail the real cost of various goods and services is given to Purchasing Power Parities, the end product of extremely elaborate projects to assess the cost of a common list of hundreds of goods and services in each of several, indeed over 100 countries. The total cost of a given basket in local currencies can then be phrased in dollars, and the conversion of one to another gives a real purchasing power measure of the local currency, a measure which can deviate quite a bit from the exchange rate since the latter is affected not only by the domestic cost of living but also by the relative demand for a country's products, capital market and currency trading, and international trade.

In our recent work on child poverty, we made use of the statistical series on real Gross Domestic Product developed by Summers and Heston in their Penn World Tables (PWT mark 5.6). These tables give us the real GDP from 1950 to 1992 of most of the countries in the world. The tables provide a measure of the real GDP per capita of each of our countries as a percentage of the real GDP of the United States in the same year. Our paper on real child poverty used this data and the method below, as did a recent *Journal of Economic Literature* article (Rainwater and Smeeding 1995; Gottschalk and Smeeding 1997). In contrast, in another recent paper with Peter Gottschalk, we simply take the OECD PPP's and apply them to microdata using the typology suggested by Heston and Summers (1991). This paper (Gottschalk and Smeeding 1999) therefore produces different real income comparisons than does the JEL paper. This paper prefers the former approach and explains why it seems better for our purposes.

For comparisons of the distribution of economic well-being at the time of the LIS surveys we now make use of OECD purchasing power parities because the OECD PPP's are coming to be more widely used, and continue where the PWT leaves off (past 1992). The OECD PPP's are based on the Summers and Heston methodology but produce somewhat different numbers. However, for our countries the discrepancies are not large except in the case of Australia and Sweden where the OECD parities suggest buying power about 10 percent less than those of the Penn World Tables. We would like to know why such discrepancies arise.

These experiences suggest that one must be cautious of which set of PPP's one uses and their vintage. The Summers and Heston series, PWT Mark 5.6, differ from those produced by the OECD (e.g., Brungger 1996) or the World Bank (e.g., Ward 1997). The differences are due to the number of countries included (PWT vs. OECD) and/or the concept of aggregate income employed (e.g., GDP for PWT, OECD; GNP for the World Bank). And OECD PPP's differ substantially according to the year when computed. For instance, the 1980 vintage OECD PPP's are very different from the 1985 or the 1990 vintage, with differences sometime on the order of 30 to 35 percent. Thus an article such as the one we wrote in *Science* (Smeeding and Torrey 1988) based on 1980 OECD PPP's is very different if one then repeats the exercise 5 to 10 years later using 1985 or 1990 OECD PPP's.

Ideally one would like a series of PPP's for only the countries and years of interest to the researcher, but this is not always possible. For our purposes the OECD series is therefore preferred to those of the World Bank because the OECD base their PPP's on OECD nations and Central and Eastern European nations only. For a wider range of countries one should also consider the World Bank series. One additional note concerns absolute price differences across years. Implicit in the PPP's are a set of inflation/deflation indices that adjust prices for years between market basket measurements. These are based, we believe, on changes in the base country's PPP's, e.g., the United States CPI. But we feel they could also be based on changes in national prices as well. Such a problem is particularly at issue when measuring "real" income in a nation which is experiencing hyperinflation, e.g., Russia in the 1990's, or when market baskets change greatly over time. The forthcoming work of the OECD in developing a consistent time series of PPP's will be much appreciated as a solution to this problem (see note 1).

From Adult Mean Per Capita Domestic Product to Adult Median Equivalent Domestic Product

In this section we serially move from the macro-based measure of mean GDP per-capita to the micro-based measure of median real disposable income per equivalent adult. This takes place in a series of adjustments each of which affects the relative rankings of nations in real income terms. Further steps to bring these measures to the level of real consumption (private and government) not GDP is underway.

From Per Capita to Per Equivalent Adult.

The measures of aggregate economic well-being express the level of real income in terms of an average amounts per person. Thus, the United States per capita real GDP in 1990 was around \$18,000. That is, for each man, woman, and child in the country there was about \$18,000 worth of real domestic product. But microeconomists argue that in thinking about economic well-being we need to adjust income for family size, and for most micro related purposes, the per capita adjustment, which ignores economies of scale in household consumption, is not the appropriate equivalence scale. Microeconomists would like to compare real income per equivalent person in different countries where they can take into account any differences across countries in economies of scale that arise from differences in family composition or age distribution. If we rely exclusively on a per capita measure means we will underestimate real opportunities for socially meaningful consumption in a country that has a higher average number of children per family or a high proportion of married as compared to single person households or a lower proportion of elders or single persons compared to another country where this is not the case.

For this reason we have made a first adjustment to the OECD's estimates of real GDPs per capita by calculating instead the GDP per equivalent person. We make this adjustment by estimating from the LIS data the ratio of mean income per equivalent person to mean income per capita. If compared to the United States a given country has larger families or fewer elders than its GDP per equivalent person will be higher relative to the United States than on a per capita basis. If, on the other hand, a country has smaller families and/or more elders it will have a lower GDP per equivalent person relative to the United States than on a per capita basis.

For example, our 1994 United States dataset per capita gross income is \$16,085 and per equivalent person gross income is \$34,626—a ratio of 2.15. If another country has a higher ratio that means that its per capita GDP underestimates opportunities for social consumption. So we adjust each country's OECD real GDP per capita percentage by multiplying it by the ratio of the country's per equivalent person to per capita ratio to the United States ratio of 2.15. This adjustment for our 13 comparison countries is:

Sweden	0.88	Denmark	0.92	Germany	0.96
Norway	0.98	Finland	0.98	The Netherlands	0.99
United Kingdom	1.00	Australia	1.02	Canada	1.02
France	1.04	Belgium	1.08	Italy	1.12
Spain	1.24				

It is apparent that for most countries this adjustment to bring the aggregate income measures in line with our equivalence measures does not change the relation of the country to the United States by much. In eight countries the adjustment shifts the percentage of United States real GDP by less than 5 percent. But in a few countries the shifts are much greater. In Spain the fact that families are larger and there are fewer elders living alone increases the ratio of real GDP to United States real GDP by 24 percent. Were one to extend the comparisons to Eastern nations such as Taiwan where household size is very large and over 80 percent of the elderly live in extended family households, these differences would become even bigger. A similar shift is observed for Italy (12 percent) and Belgium (8 percent). Because Sweden and Denmark have many small households the adjustment moves those countries in the opposite direction—the ratio to the United States declines by 12 and 8 percent respectively.

From Mean to Median.

We also need to take into account the impact of inequality on measures which rely on a mean compared to a median income measure (either per capita or per equivalent person). The more unequal the income distribution in a country, the less accurate is the mean as a guide to the situation of the average person. The mean is, after all, an average of money—money per person. Since we are interested in the economic situation of persons at different points in the distribution we need to start with an understanding of the real (equivalent) income of the person who is in the middle or at the median (50th percentile) of the distribution. To take inequality differences into account we estimated the ratio of the median to the mean equivalent income using the LIS data. With the result we adjust the measure of a country's real income relative to the United States to estimate the situation of the median equivalent person in the country compared to the median equivalent person in the United States.

As is well known, the income distribution of all of the OECD countries is less unequal than the United States (e.g., Gottschalk and Smeeding 1997). This means that the equivalent income of the average (median) person in those societies is higher relative to the United States than we would believe based on the per capita or even the per equivalent person measures. In our United States data we find that the median equivalent gross income is \$27,659 compared to the mean of \$34,626, a ratio of 0.799. A country with a higher ratio as a result of having a more equal distribution will have higher median GDP equivalent person relative to that of the United States. The ratio for a country to the United States ratio indicates how much higher its median is relative to the United States. We find the following ratios for our 13 comparison countries.

United Kingdom	1.05	Italy	1.05	Spain	1.07
France	1.09	Germany	1.10	Australia	1.11
Canada	1.11	The Netherlands	1.12	Belgium	1.15
Norway	1.17	Finland	1.17	Sweden	1.19
Denmark	1.21				

Focusing on the average person increases our measure of real economic well-being relative to the United States in all the countries—by 15 to around 20 percent in Denmark, Sweden, Finland, Norway and Belgium. The increases are close to 10 percent in Australia, Canada, The Netherlands, Germany and France, 7 percent in Spain and only 5 percent in the United Kingdom and Italy. With these two adjustments we are able to examine questions of real income in the context of microdata-based measures of relative income.

First, what was the relative economic well-being of the “average” person in each of our comparison countries compared to the average person in the United States that same year? Table 1 shows the two adjustments that transform mean GDP per capita to median per (equivalent) person GDP, both as a percent of the relevant measure for the United States. Our estimate of median equivalent GDP (expressed as a percent of estimated United States median equivalent GDP) is the product of per capita GDP, the adjustment that takes into account differences in household and age composition, and the adjustment for differences in the ratio of median to mean. Appendix Figure A-1 presents column 6 in order of nations closest to the United States.

Figure 1 charts the per capita GDP and the median equivalent GDP as a percent of the United States median (Columns 1 and 6, respectively, in Table 1). One sees that the adjustments do not have much effect on the rank order of these countries but they do increase real income relative to that of the United States in all 13 countries. The greatest increases are in Spain, Italy, and Belgium. Spain’s equivalent GDP is much higher than its per capita GDP because it has larger households and the elders are more likely to live with others; thus economies of scale in Spain are obscured by the per capita measure. The same factor has a weaker but significant effect in Italy and Belgium. In Belgium also the very equal distribution increases the well-being of the average person relative to the United States. At the opposite extreme we find that the positive effect of greater equality in Sweden is offset by the larger numbers (relative to the United States) of single persons and small families. The two almost cancel each other out. For the most part it is the adjustment for mean/median differences in inequality that dominates the differences for equivalence versus per capita.

We note that in four countries the average person has a real equivalent income equal to around 90 percent or more of the United States average person’s income—Norway, Belgium, Canada, and France. The average Swede has an income equal to 76 percent of the average American’s. In six other countries the average person’s income is in the range of more than 80 percent of the average American’s. The two least well off countries are the United Kingdom at 70 percent and Spain at 72 percent.

From Cash Income to Personal Consumption.

It should be noted that the macro-based measures of real income in a country include not only individual or family market-based personal consumption expenditures and savings, but collective consumption as well. Personal consumption is financed from disposable income, while collective consumption is financed by tax revenues. Our microdata-based measures of

disposable income therefore exclude tax financed collective consumption. It would require a major research project to impute in a detailed way the collective portion of national income to each household in our surveys. (e.g., see Smeeding et al. 1993 for an attempt to do so for some of the items excluded from cash income). On the other hand, to ignore this collective portion is to ignore differences across countries in how large a role these resources may play. In comparing nations we need to include collective consumption because each nation “chooses” some balance between collective and personal consumption.

There are two angles to this story. First in nations like the United States where collective consumption is low, real income should reflect that Americans need to use more of their disposable income to buy collective goods like healthcare or education. On the other hand, in nations where there is a high degree of tax financed consumption, e.g., including healthcare, education, childcare, etc., as in Sweden or The Netherlands, the economic well-being of the population includes that collective as well as personal consumption, even if it is not counted in disposable income.

As a very rough approximation of these resources we can make an assumption about how they are distributed as a proportion of money income. When we make comparisons of real income at different positions in the income distribution we are assuming that the distribution of collective consumption per equivalent person is the same as that of equivalent disposable income. This is a conservative assumption for our comparison of the situation of less well off people in the United States and other countries—a more common assumption is that the distribution of collective consumption is biased toward lower income groups. In that sense we may be understating the economic well-being of lower income people in countries that have relatively high levels of collective consumption.

However, other arguments might push the conclusion in another direction. What matters to well-being is not only consumption but the value persons put on that consumption. Economists measure this value as the “cash equivalent value” (Hicksian equivalent variation) of the in-kind good or the amount of flexible cash income that would yield the same level of economic well-being as would the bundle of cash and in-kind income which the household obtains. Because collective consumption comes in one size only, households do not have a choice regarding how much collective consumption they can have. If a person would choose a different total bundle of goods (collective and personal) then a lesser amount of flexible cash income would make a low income person better off than the larger amount of inflexible collective consumption. Because we do not consider this tradeoff, we may overestimate the value of collective consumption to low income households.² Thus the proportional assumption leaves us somewhere between these two biases. Whether and how they cancel each other out is anyone’s guess.

Our scaling up of money income per equivalent person to GDP per equivalent person also compensates for any differences across countries in the extent to which the aggregate money income in the surveys falls short of actual totals because of under-reporting. But it does that by assuming that unmeasured income is distributed in the same way as measured income, that is, proportionately to the distribution of equivalent disposable income.³ Other assumptions might be made but we believe that is a reasonably conservative one and one used by others.

Types of Consumption : Some Puzzles.

To put some flesh on the bones of real GDP comparisons above we took some examples of relative consumption of particular goods using the OECD tables. We can choose from such categories as food, housing, household expenditures, clothing, transportation, recreation,

medical care, etc. (We have to assume the percentage distribution across categories is not different in important ways for the median, as compared to the mean, real GDP.) Then we can estimate expenditures for the average person and consider areas where consumption in a given country exceeds that of the United States. What we find is, in some ways, rather surprising. In some consumption categories the consumption of the average American is greater than in our comparison countries, but interestingly none of these categories suggest great deprivation. For example, the United States consumes far more in the way of clothing than any of the other countries yet one would be hard put to say that in any of these countries the clothing of the average person represents great deprivation compared to how Americans dress. Similarly, the United States consumes far more in the way of transportation goods and services but much of this difference would have to be laid to the greater efficiency and use of public transportation in other countries. In the category "other goods and services" we find American consumption the greatest in such categories as hairdressers and beauty parlors, toiletries, jewelry, travel goods, restaurant, cafes, hotels and financial services. Again these seem far from areas in which subsistence is a major concern.

In the case of food in Australia, Italy, Spain, Norway, The Netherlands, France, Denmark and Belgium the average person consumes as much or more food in total value than is the case for the average American. For housing and household expenditures the consumption of the average person is greater in Canada, Denmark, Italy, Belgium, Norway and Sweden than in the United States. For medical goods and services the average person in Belgium, France, Germany, Canada, Italy, The Netherlands, and Norway has higher real consumption.

We can conclude from this quick examination of levels of real consumption that it does not follow that because the United States has a higher real per capita GDP than other countries and because this difference has persisted for a long time the consumption of an American in an average family is dramatically higher than that of comparable persons in these other societies. We have found that the average person in all but 2 of the 13 countries consumes at the level of at least 85 percent of American consumption. And the detail of what is consumed shows that the average person in quite a few countries consumes as much or more of "necessary" kinds of commodities than his American counterpart.

3. An Application: Real Income for Children

Having made a number of suggestions for changes in how we calculate real household incomes, we illustrate by showing differences in real incomes for children in each of our 13 nations.

Inequality in Children's Real Incomes

Using the ratios to median United States equivalent income calculated as described above, we can analyze the real incomes of average, advantaged and disadvantaged children in each country compared to the situation of similarly situated children in the United States. We compare children in each country in the top quintile, the middle quintile and the lowest quintile of the equivalent income distribution of children compared to American children at the same position in the distribution. (The average child in each group is at the 10th, 50th, or 90th percentile point.)

We have converted the equivalent income at each of these percentile points (expressed in percents of the nation median) to real income amounts using the ratios to the United States median in Column 6 of Table 1 above. Now the percents are percents of the United States median. For example, suppose we find that for the person at the median real income in Country X is 80 percent of median real income in the United States. If the child at the 90th percentile point of the Country X distribution of children's income had an income 2.5 times greater than the overall national median then the average Country X advantaged child would have a real income equal to 80 percent of 2.5 or 200 percent of the United States median real equivalent income. If the United States child at the 90th percentile had an income three times the United States median then her real income would amount to 300 percent of the United States median. The Country X high income child would have a real income equal to 67 percent (200 divided by 300) of the real income of the United States high income child.

Starting with children in rich families (at the 90th percentile), we find that American children are much better off compared to advantaged children in other countries (Figure 2). In six countries the average advantaged child has an income equal to only 70 to 80 percent of that of an advantaged American child. The other seven countries range is in the 60s. This, then, is a picture very much in line with many Americans' conceptions of how United States children fare compared to those in other countries. Rich American children have much more than rich children in all our comparison countries.

But, the picture changes dramatically when we focus not on high income children but on the average child. Figure 3 shows the relation of the real income of the average American child to that of the average child in other countries. Here we find three countries in which the average child has slightly more than in the United States and another two countries in which real incomes are about 95 percent of the United States level. Thus, there is no warrant for saying that the average child in Norway, Belgium, Denmark, France and Canada is not about as well off as the average American child. In three additional countries the average child's real income reaches almost 90 percent of the American's—Finland, Sweden and Germany. There are only two countries (Spain and the United Kingdom) in which the average child has less than three-quarters as much income as the average American child. The notion that American children are much better off than children in all other advanced industrial countries, in so far as that statement is based on some notion of the average child's situation, is clearly false.

Others have noted that a little over 20 percent of American children are poor (e.g., Rainwater and Smeeding 1995). Therefore, comparing the real incomes of the lowest quintile of children in the United States with those in that quintile in other countries allows us to compare directly the level of economic well-being of American poor children with a group of the same size and income relative to the national median in the other countries. As noted, much American commentary on child (and others') poverty in the United States asserts that even though poor by American standards our poor are better off in real terms than in other industrial countries. We see in Figure 4 that the facts are just the opposite. In only 2 of our 13 comparison countries (the United Kingdom and Italy) is the average child in the bottom quintile (at the 10th percentile point) as badly off as the comparable poor American child and the shortfall is less than 10 percent. Indeed in seven countries the average disadvantaged child has more than 50 percent more real income than the average poor American child. In Norway and Belgium the relatively disadvantaged child has almost twice the real income of the poor American child and in Denmark, Finland, Sweden, The Netherlands, and France this child has around 60 percent more. Even in Spain the disadvantaged child has a little more real income than his American counterpart.

If we compare one of the most equal countries, Sweden, with the United States across the whole distribution we get a more precise picture of what lies behind the figures in these three graphs (see Figure 5). Here we compare children at the same percentile points in their distributions of real income. We see that at the 5th percentile point children in Sweden have real income roughly 45 percent of median United States real income whereas in the United States such children live in families with incomes about a quarter of median real income. We note that in Sweden at each point up to the 40th percentile point the Swedish child's real income is greater than that of the comparable American child. Above that point the increasingly well off American children have more income than their Swedish peers so that by the 95th percentile point the Swedish child has a real income a quarter higher than the United States median while the very rich American child has an income slightly less than two-and-a-half times the median.

Generalizing this approach we can summarize curves like the ones in Figure 5 by estimating the percentile point at which each nation's children no longer have higher incomes than in the comparable American. We see in Figure 6 that up the 63rd percentile Belgian children's real incomes exceed those of their American peers. In Norway this is true up to the 61st percentile. For Denmark and Finland the crossover point is just above and below the median. Even in such countries as Canada, France, and Sweden children up to the 40th percentile have higher real incomes than their American peers. In The Netherlands and Germany the lowest income third of children have higher real income than in the United States. Only in the United Kingdom and Italy are all children worse off in real terms than American children of the same rank. Thus we can say that (with the exception of Spain, Italy and the United Kingdom) *all* American poor children (bottom 20 percent) are worse off economically than the children of other nations who stand at the same point in their income distribution. That is to say, American poor children are worse off in real terms than the lowest income 23 percent of children in 10 of our 13 comparison countries.

4. Moving from Relative to Real Surveyed Income Using Purchase Power Parities: Real Poverty Measures

An alternative approach to comparing poverty based on real incomes is much simpler. Instead of reaching for a measure of "full" income by imputing the collective portion of GDP to the households in our sample, we could simply convert the survey income from national currencies to United States dollars using the OECD purchasing power parities. Table 2 (and Figure A-1) show the conversion of national median equivalent disposable incomes to real median incomes. The first column shows the median in national currencies, the second column the OECD purchasing power parties, and the third the product of the two—the median in United States dollars. We see in the fourth column that one country, Canada, has a slightly higher real median equivalent income. Norway approaches the United States at 93 percent. We find a large group of countries with medians in the 70 percent range. Italy, France, The Netherlands, and Spain range downward from about two-thirds to around 50 percent.

For comparison, in the last column of the table we repeat from Table 1 our estimated median real GDP per equivalent person as a percent of the comparable United States amount. Differences between the median equivalent income ratios and GDP per capita ratio will be a product of differences across countries in all four of the factors we have discussed above: (a) equivalence versus per capita, (b) median versus mean, (c) under-reporting, and (d) in kind and collectively provided services. Differences between the median equivalent income and the median equivalent GDP percents (last two columns of Table 2) will be largely the product of factors (c) and (d) above.⁴

We note that the median real equivalent income and median GDP measures of real economic well-being relative to the United States differ by around 10 percent or less in 7 of the 13 countries. For these countries whichever lens we use for viewing real economic well-being will give us a roughly comparable picture. We also note that the four countries with the lowest real equivalent incomes have much larger discrepancies between equivalent disposable income and equivalent GDP than the others. In France and The Netherlands equivalent GDP is 25 plus percent higher relative to the United States measures, and in Italy and Spain it is over 20 percent higher. We find the same pattern in Belgium with a relatively low real dollar median and a 26 percent difference between it and median GDP. In these five countries LIS measured income converted by PPP's to dollars leads us to think them much less affluent than the national accounts based equivalent GDP measure does. The culprit is probably under-reporting of income in the LIS surveys for those countries—that is the under-report of survey income is a greater problem in those countries than in the United States. And there is limited evidence that this is the case (e.g., see Atkinson, Rainwater, and Smeeding 1991, chapter 3).

We find the opposite situation in Canada in that median equivalent income is higher relative to the United States than is equivalent GDP. We do not have a ready explanation for this although the combination of lesser inequality in Canada compared to the United States and a high level of real income may be the principal factors. In the other countries the two measures of real income are rather close with the average discrepancy being less than 4 percent. We are rather perplexed by such differences. The reporting of income, which may have much less of an effect on relative income comparisons across nations, has very large effects on real income comparisons across nations. Of course, these differences assume the relative quality of the macro-based SNA measure of aggregate income are equally good across nations, another comparison with which one could quibble (see Atkinson, Rainwater, and Smeeding 1995, Chapter 2 on this topic).

Poverty Rates Based on Real Income

We have considered three measures of income, (a) relative equivalent money (and near-cash) income in national currencies, and two alternative definitions of real income: (b) real equivalent GDP per household and (c) the money income of (a) above converted by OECD purchasing power parities to real United States dollars. Using these three measures we can define three poverty lines that allow us to make comparisons across countries:

- (a) one-half the median equivalent income in national currencies. These produce the relative poverty lines used in most poverty analysis.
- (b) one-half the United States median equivalent GDP (money and in-kind real income) per household. This is the poverty line used in the discussions of real income above and from Table 1, last column.¹
- (c) one-half the United States median real equivalent income with the currency of each country converted to dollars using OECD PPP's, from Table 2, second to last column.

Poverty rates according to these three definitions are given in Table 3. By definition the United States poverty rate is the same for all three. As expected, the rates are at least somewhat higher for the other countries when based on median equivalent GDP (second column) reflecting the fact that by this measure the real income in other countries is lower than in the United States. Poverty rates are also higher when based on real dollars except in the case of Canada which we have seen in Table 2 has a slightly higher median real equivalent income than the United States.

Let us begin by comparing the rates by these three measures for the six countries with very low relative poverty (below 5 percent). In Belgium and Norway rates based on real equivalent GDP are not at all different from the national relative poverty rates. In the other four we find rather large proportionate increases but the rates are still well below 10 percent (Table 3 and Figure A-2).

Comparing the rates based on the United States real median (final column), on the other hand, we find very large increases from both of the other measures for Belgium and The Netherlands—in Belgium from 4 percent to 12 percent and in The Netherlands from 4 percent based on relative money income to 8 percent based on GDP to fully 24 percent based on real dollars. It seems highly likely that this sharp increase is an artifact of a higher rate of unmeasured income in the surveys of these countries since Belgium and The Netherlands are not outliers in the size of in-kind income compared to other countries. In the other four countries the poverty rates are not very different whichever conversion to real dollars is used.

We see strong hints of the effect of unmeasured income in several countries with medium and high national relative poverty rates. Note that sharp increases from the median equivalent GDP to United States real dollars measures in France, Spain, and Italy. In France there is a modest increase in the poverty rate as we moved from the national poverty line to median United States equivalent GDP, but a very large (10 percent to 23 percent) increase using the real United States dollar standard. In Spain there is a large increase from the national to United States equivalent GDP standard, and a further large increase—from 30 to 55 percent—using the United States real money income standard. In Italy we find the same pattern as in Spain although the increase from the first to the second standard is not very large (7 percent) while that for the second to the third involves a near doubling of the poverty rate—from 26 percent to 51 percent.

5. Conclusion

We conclude that shifting from a comparison of countries based on relative national income to one based on real incomes is difficult. We have illustrated these changes looking at the distribution of real incomes for children, and real poverty. We find that real poverty measurement with the United States providing the poverty line is not as straightforward a matter as it first appears (e.g., see Blackburn 1994 for a simple pass at this which ignores most of the issues presented here and uses a methodology similar to that used in Table 2). The poverty measures suggest that results will be quite sensitive to differences in the amount of unmeasured income—the larger the unmeasured income in a country relative to that in the United States the lower the well-being of that country will appear to be. If there were no unmeasured income in the surveys of these countries and the size and distribution of in-kind income was the same these 2 percentages would be about the same. We note that the differences between the two for the five countries we suspect of having larger amounts of unmeasured income—Belgium, France, Italy, The Netherlands, and Spain—are all over 20 percent while the average difference for the other eight countries is less than 5 percent.

For this reason we believe that our conversion of national currency incomes to real dollars of equivalent GDP by the method in Table 1 is less biased than the seemingly more straightforward direct conversion of national currencies to dollars using PPP's in Table 2. If we knew how large a problem under-reporting of income was in each country we would be able to correct for that and expect to have useful results from using the second method as well.

The next draft of the paper will include efforts to add new analyses based on PPP's for aggregate consumption, not aggregate GDP. However, at this time, the preliminary results are little different from those presented above.

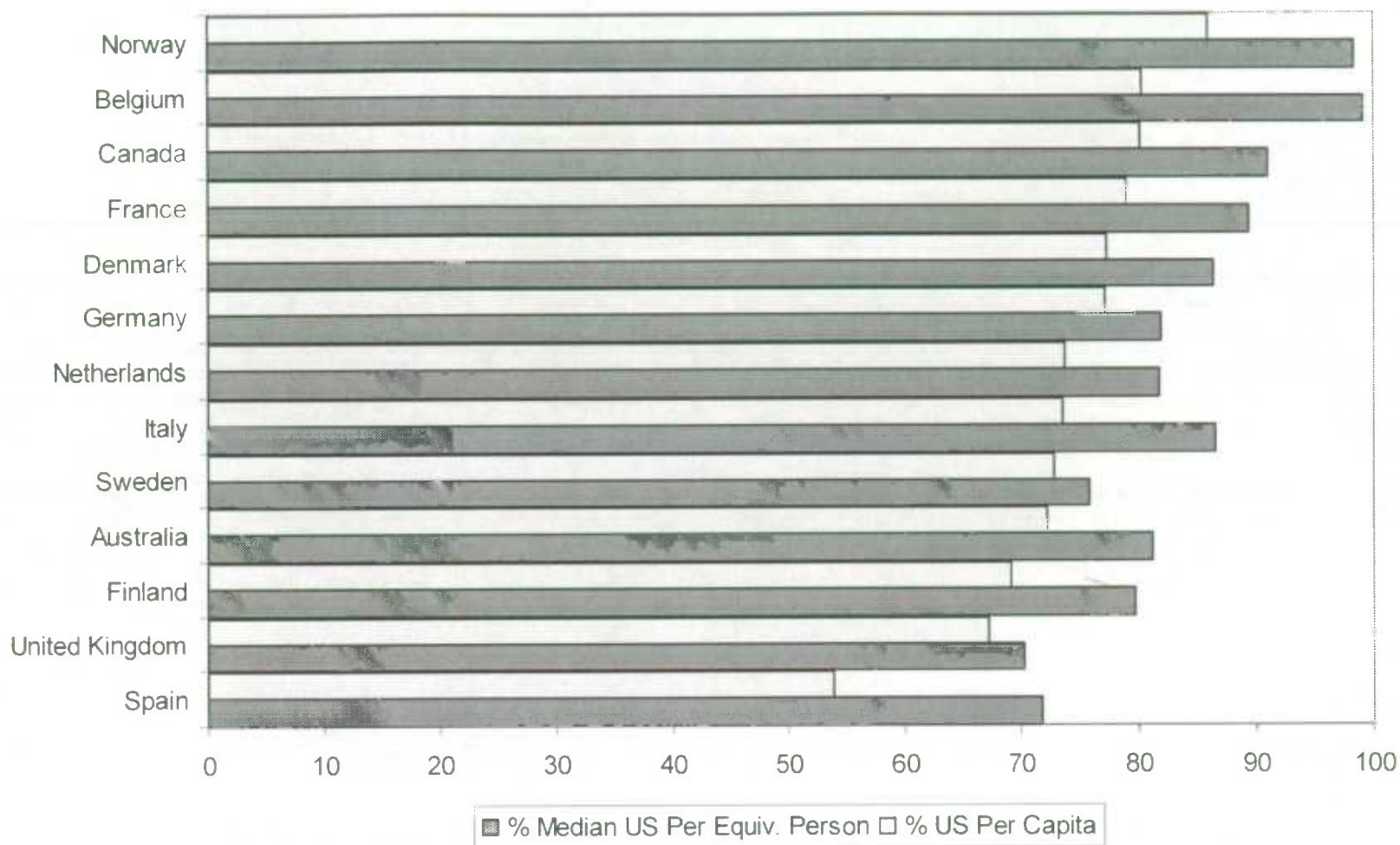
Endnotes

1. Anne Harrison of OECD reports that a consistent time series of PPP's back for 20 years will be available from OECD. These PPP's will substitute for the price adjusted PPP's used here and in other similar work, e.g., Gottschalk and Smeeding (1997, 1999), and Smeeding and Torrey (1988).
2. For instance, in the article by Smeeding et al. (1993), the cash plus in-kind income of a single parent with two children was more than twice their cash income alone due to the market value (government cost) of health insurance and public education subsidies for elementary and secondary school in every country. Since most single parents are severely cash constrained, we doubt that they would choose to purchase the same levels of health care and education as were provided by their nations should they be given an amount of flexible cash income equal to the dollar value of the health care and education—services provided by their nations.
3. We agree that it would be better to use OECD measures of aggregate consumption, not GDP, for making these comparisons. However, we have not yet had time to make these comparisons. We shall do so in the coming months. Our preliminary estimates are that differences between final private plus government consumption and GDP range from 15.5 percent of GDP in the United Kingdom and 16.0 percent in the United States to 29.7 percent in Norway and 26.1 percent in The Netherlands.
4. Other differences could also come into play, e.g., the ratio of aggregate consumption to GDP. We will investigate these differences once we bring aggregate consumption into this paper.
5. Here we would be better off with real aggregate consumption not real GDP.

References

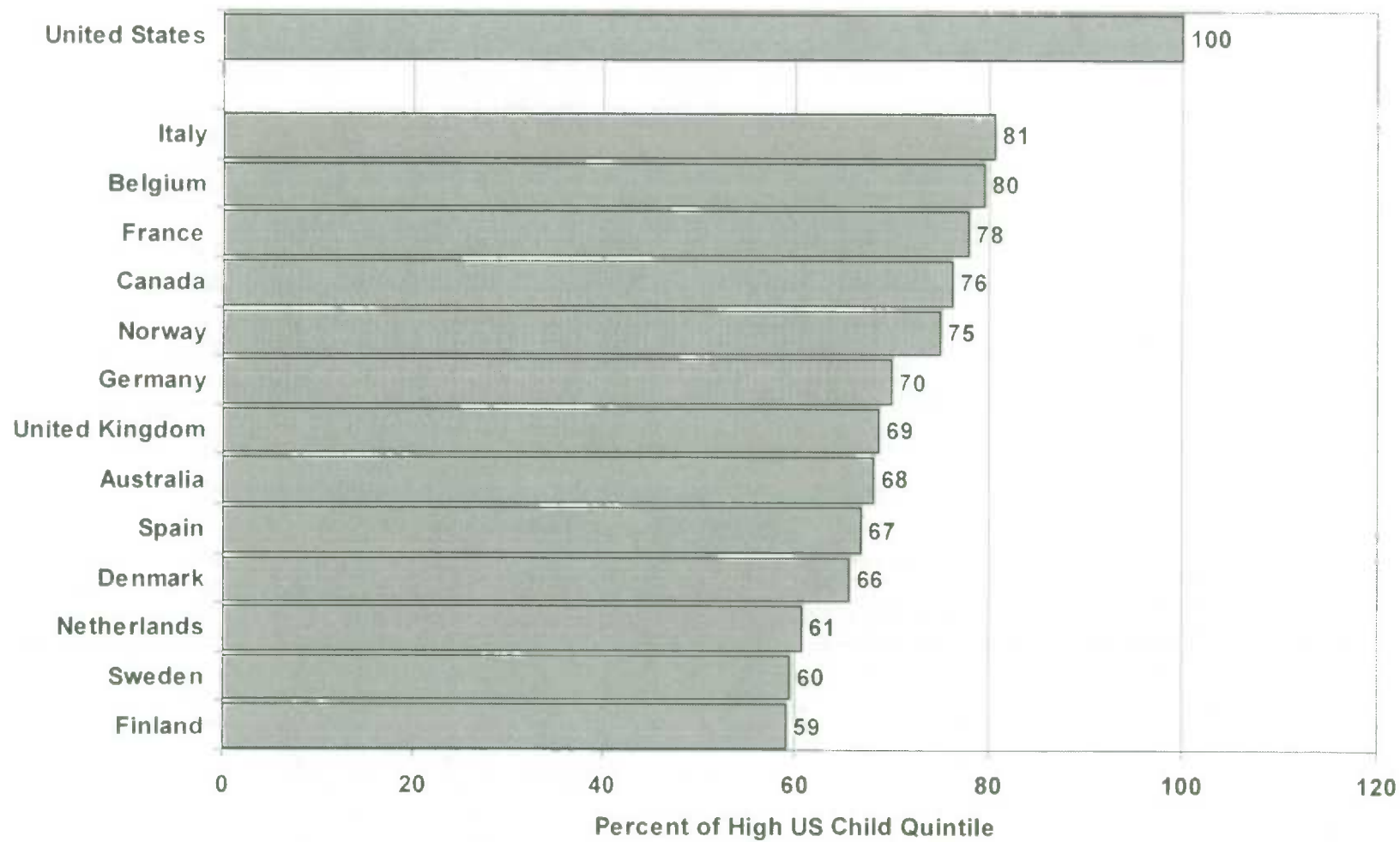
- Atkinson, Anthony B., Lee Rainwater, and Timothy M. Smeeding. 1995. *Income Distribution in OECD Countries: Evidence from the Luxembourg Income Study (LIS)*. Paris: OECD.
- Blackburn, MacKinley L. 1994. "International Comparisons of Income Poverty and Extreme Income Poverty," *American Economic Review*, 84(2) (May): 371-74.
- Brungger, Heinrich. 1996. "PPP's and Income Distribution." Paper presented to the Canberra Group, Canberra Australia, December.
- Gottschalk, P. and T.M. Smeeding. 1997. "Cross-National Comparisons of Earnings and Income Inequality," *Journal of Economic Literature*, XXXV (June): 633-687.
- Gottschalk, P. and T.M. Smeeding. 1999. "Empirical Measures of Income Distribution." In A.B. Atkinson and F. Bourgignon (eds.), *Handbook of Income Distribution*. City: North Holland Press. [Also available as LIS Working Paper #153, June 1999, revised, Luxembourg Income Study, Luxembourg.]
- Rainwater, L. and T.M. Smeeding. 1995. "Doing Poorly: The Real Income of American Children in a Comparative Perspective," LIS Working Paper #127. Luxembourg: Luxembourg Income Study.
- Smeeding, T.M. and Barbara B. Torrey. 1988. "Poor Children in Rich Countries," *Science*, 242 (November): 873-877.
- Hagenaars, A., R. Hauser, S. Jenkins, P. Saunders, and T.M. Smeeding. 1993. "Poverty, Inequality and Family Living Standards Impacts Across Seven Nations: The Effect of Noncash Subsidies for Health, Education and Housing," *Review of Income and Wealth*, 39(3) (September): 229-256. [Winner of John Kendrick Prize, best article 1992-1993, 2nd place.]
- Summers, Robert and Alan Heston. 1991. "The Pen World Table (Mark 5): An Expanded Set of International Comparisons, 1950-1989," *Quarterly Journal of Economics*, 105(2): 327-68.
- Ward, M. 1997. "Communique on World Bank Purchasing Power Parities," mimeo. Washington, DC: The World Bank, October.

Figure 1. Percent of US Real GDP Per Capita and Per Median Equivalent Person¹



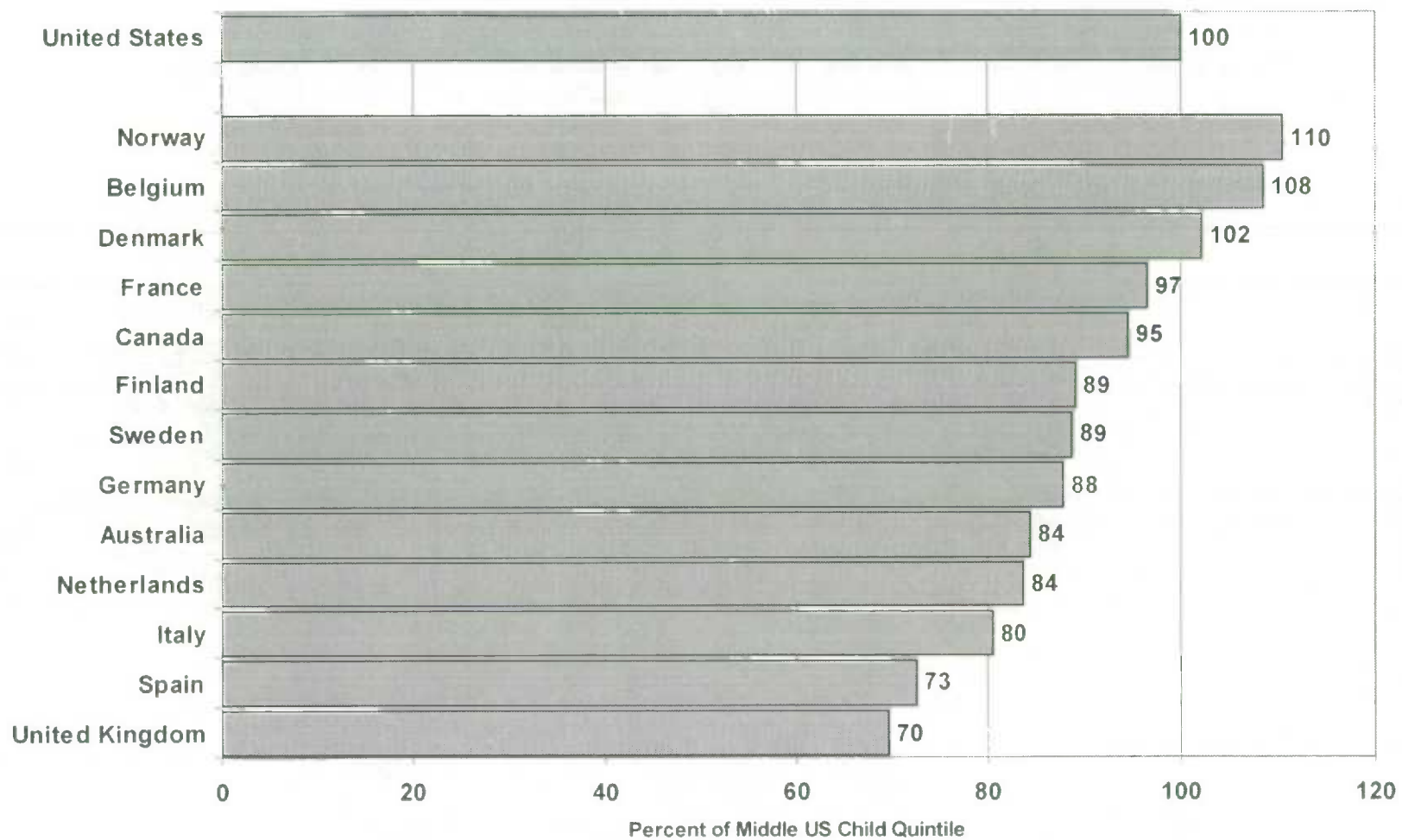
Note: ¹ Column 1 (% US Per Capita); and Column 6 (% Median US Per Equivalent Person) from Table 1.

Figure 2. Real Income Comparisons: The Advantaged Child



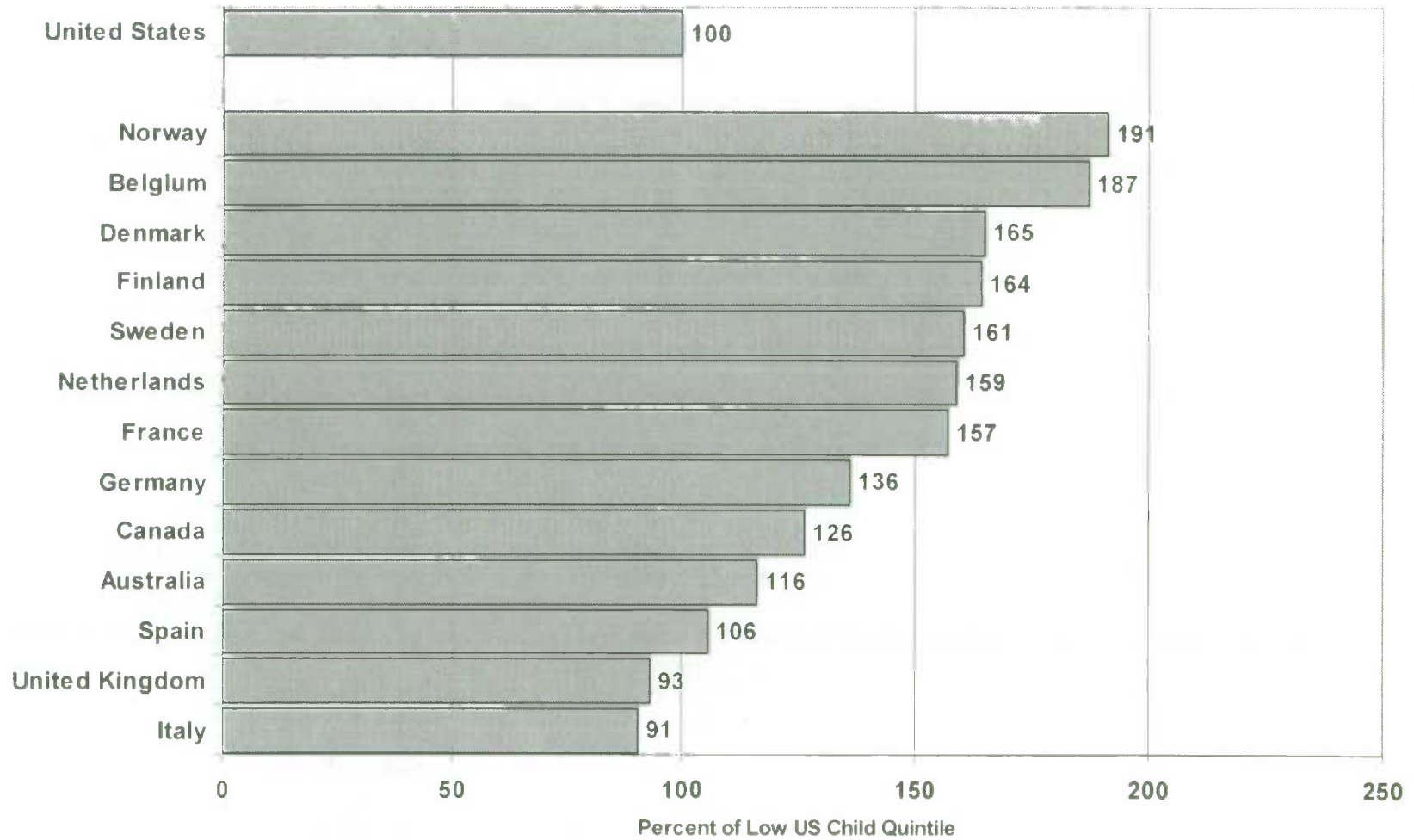
Note: See text for explanation of method.

Figure 3. Real Income Comparisons: The Average Child



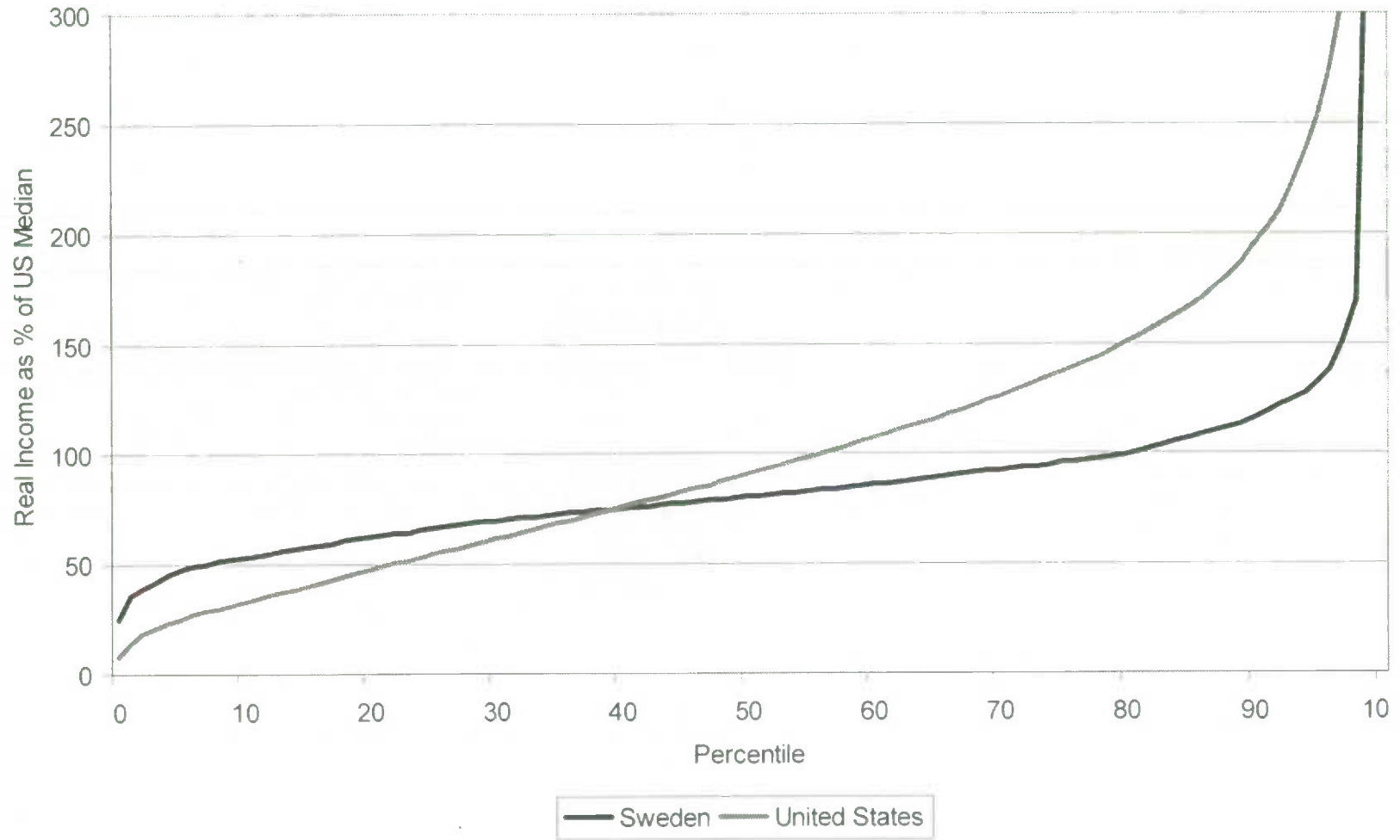
Note: See text for explanation of method.

Figure 4. Real Income Comparisons: The Disadvantaged Child



Note: See text for explanation of method.

Figure 5. Percentile Points of Children's Real Income: Sweden and the United States Compared



Note: See text for explanation of method.

Figure 6. Percentile Point at Which Nation's Children No Longer Have Higher Income than Comparable US Children

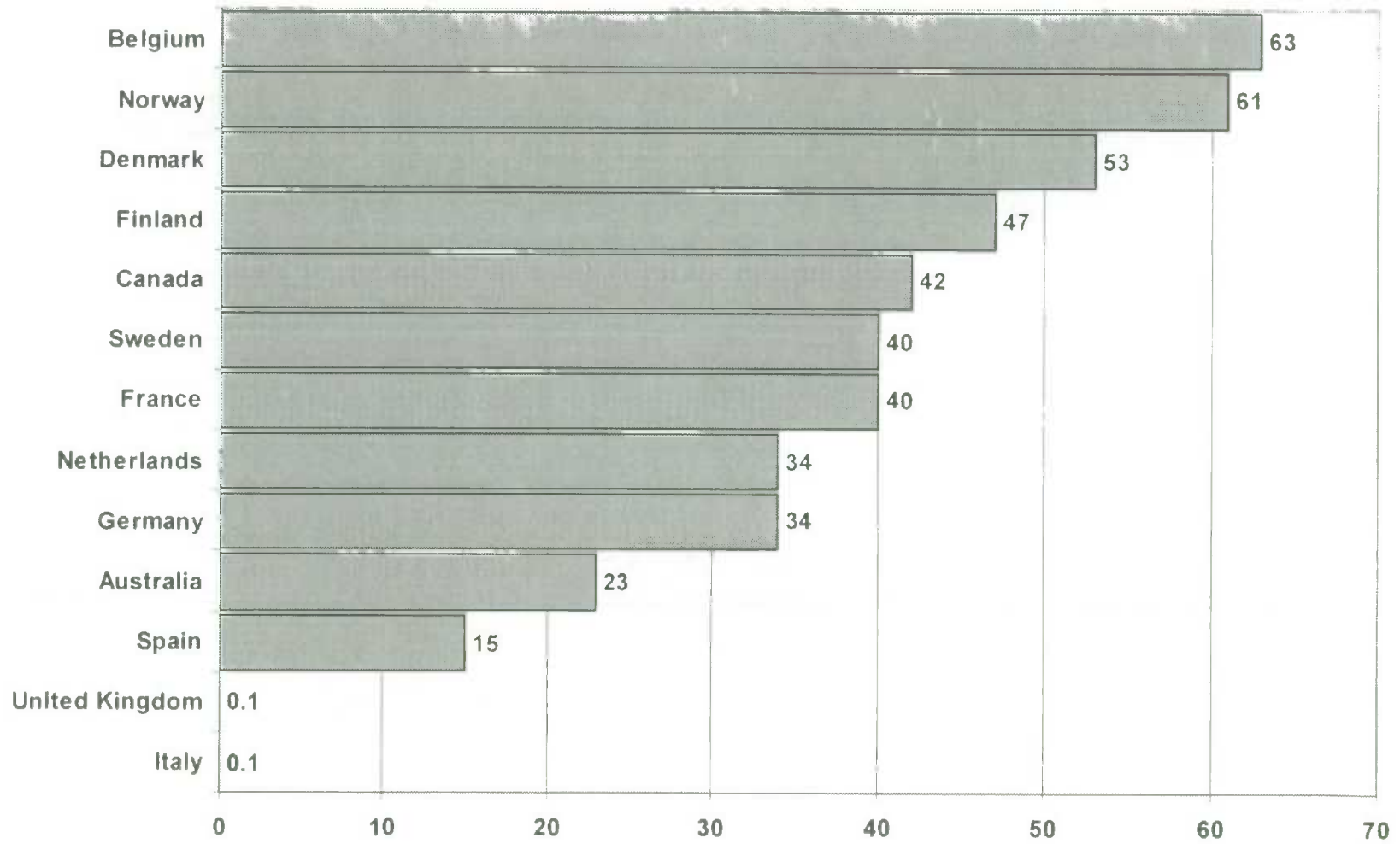


Figure A-1. Real Income Comparisons: The Average Person

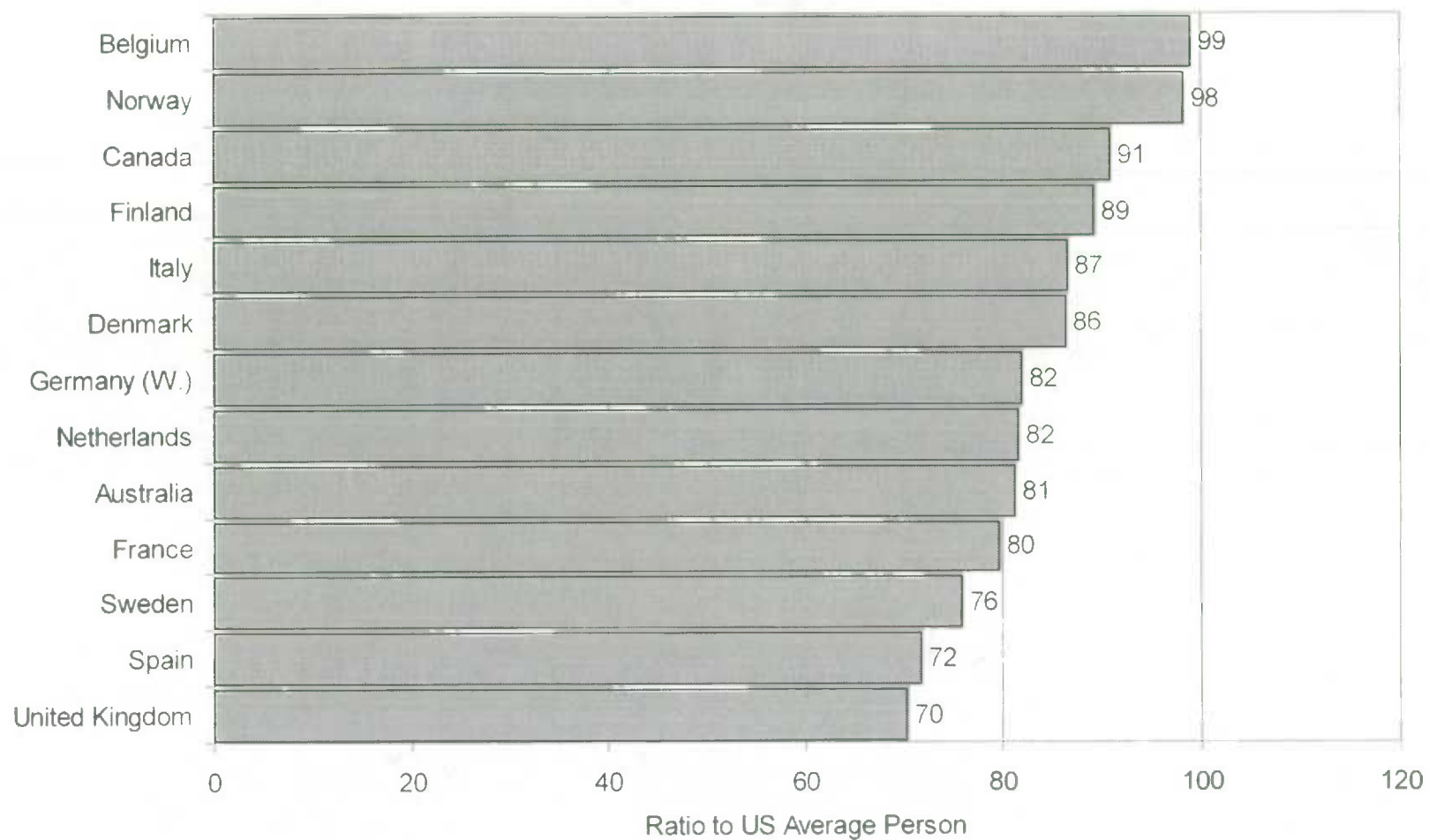


Figure A-2. Child Poverty Rates According to National and US Standards

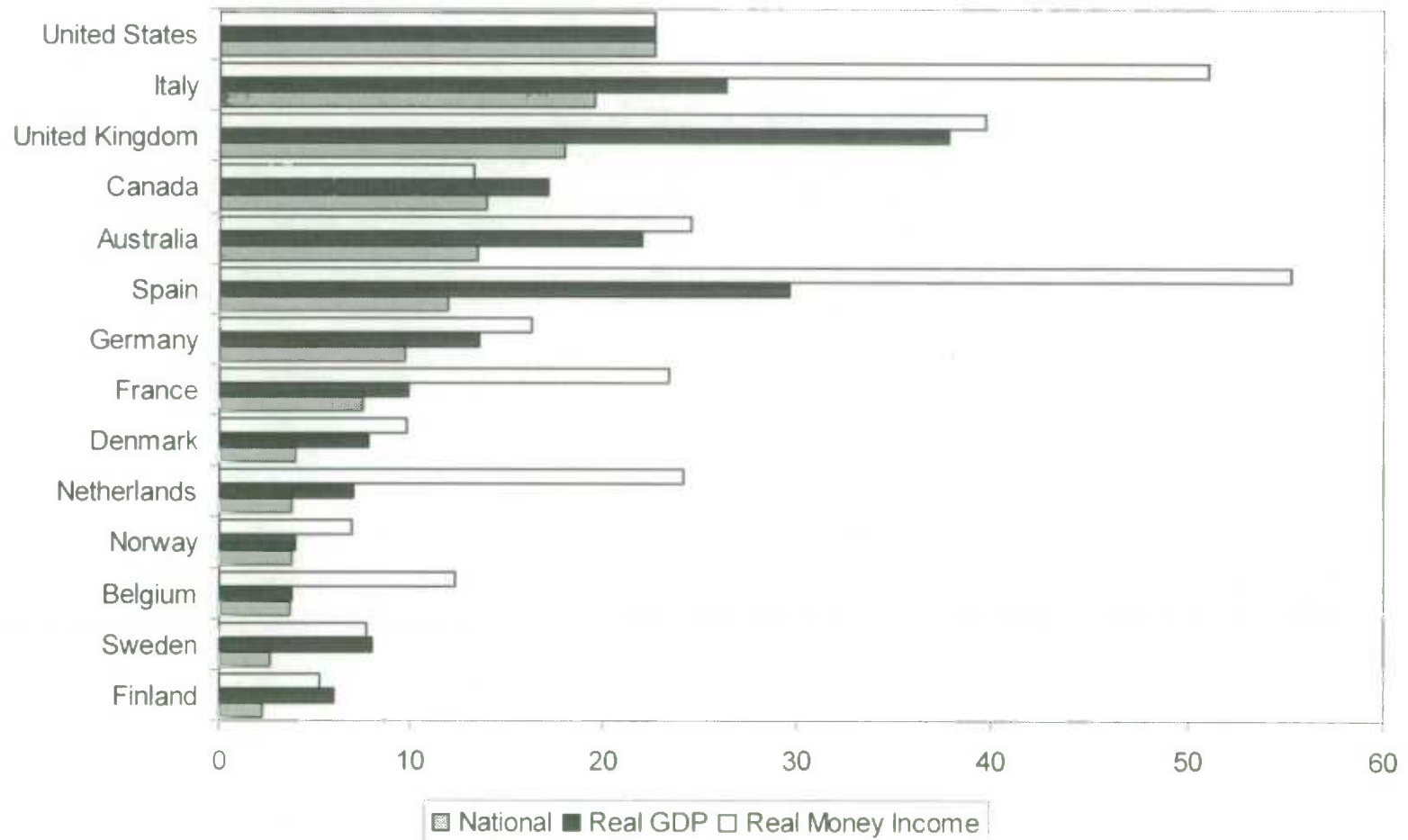


Table 1. Measures of Real Income and Adjustments to Estimate Median Real Income

Nation (1)	Percent of Real United States GDP Per Capita ^a (2)	Ratio of Per Capita to Per Equivalent Person Gross Income ^b (3)	Ratio of Median to Mean Equivalent Gross Income ^b (4)	Total Adjustment for Equivalence and Mean/Median Difference ^c (5)	Percent of Real United States GDP Per Median Equivalent Person ^d (6)
Australia	72.2	1.02	1.11	1.12	81.2
Belgium	80.4	1.08	1.15	1.23	99.1
Canada	80.2	1.02	1.11	1.13	91.0
Denmark	77.4	0.92	1.21	1.12	86.4
Finland	69.1	0.98	1.17	1.15	79.7
France	78.9	1.04	1.09	1.13	89.4
Germany	77.1	0.96	1.10	1.06	81.9
Italy	73.6	1.12	1.05	1.18	86.6
The Netherlands	73.7	0.99	1.12	1.11	81.7
Norway	86.0	0.98	1.17	1.14	98.3
Spain	53.9	1.24	1.07	1.33	71.7
Sweden	72.9	0.88	1.19	1.04	75.8
United Kingdom	67.2	1.00	1.05	1.05	70.3

^aAs a percent of United States GDP per capita based on OECD PPP's (Brungger 1996).

^bRatio to United States ratio.

^cProduct of previous two columns

^dColumn (6) is the product of Column (5) and Column (1).

Source: Authors' calculations based on LIS database and Brungger (1996).

Table 2. Estimating Real Median Income Using PPP's Alone

Nation (1)	Median Equivalent Income in National Currency (2)	OECD Purchasing Power Parity (3)	Median Equivalent Income in United States Dollars ^a (4)	Median Equivalent Income as a Percent of United States ^b (5)	Percent of Real United States GDP Per Median Equivalent Person ^c (6)
Australia	24,450	1,342	18,219	77.5	81.2
Belgium	652,754	37,832	17,254	73.4	99.1
Canada	29,740	1,245	23,888	101.6	91.0
Denmark	166,949	9,157	18,232	77.5	86.4
Finland	116,138	6,299	18,437	78.4	79.7
France	99,323	6,686	14,855	63.2	89.4
Germany	37,779	2,070	18,251	77.6	81.9
Italy	24,505,500	1,589,000	15,422	65.6	86.6
The Netherlands	28,268	2,183	12,949	55.1	81.7
Norway	203,980	9,370	21,769	92.6	98.3
Spain	1,234,723	109,500	11,276	48.0	71.7
Sweden	165,853	9,809	16,908	71.9	75.8
United Kingdom	11,676	0,670	17,427	74.1	70.3
United States	23,512	1,000	23,512	100.0	100.0

^aProduct of Columns (2) and (3).^bColumn (4) as a percent of United States figure (23,512).^cTaken from Column (6) in Table 1.

Source: Authors' calculations based on LIS database and OECD PPP's (Brungger 1996).

Table 3. Child Poverty Rates According to Three Income Definitions

Nation	Relative Income National Median Equivalent Income ^a	Real Income	
		Estimated Median United States Money + In-Kind Real Income ^b	Median Equivalent Income in Real Dollars ^c
Finland	2.3	6.0	5.3
Sweden	2.7	8.0	7.7
Belgium	3.7	3.8	12.4
Norway	3.7	4.0	6.9
The Netherlands	3.7	7.1	24.2
Denmark	4.0	7.8	9.8
France	7.5	9.9	23.4
Germany	9.7	13.6	16.2
Spain	11.9	29.6	55.3
Australia	13.5	22.0	24.5
Canada	13.9	17.1	13.2
United Kingdom	17.9	37.8	39.7
Italy	19.5	26.3	51.0
United States	22.7	22.7	22.7

^aPurely relative income as produced by LIS.

^bBased on LIS income adjusted for each household according to Column (6) in either Table 1 or Table 2.

^cBased on OECD PPP's applied directly to LIS income as shown in Column (5) of Table 2.

Source: Authors' calculations based on LIS database.

Latin American Situation and Update on Income Measures



Canberra Group



SESSION 6: LATIN AMERICAN SITUATION AND UPDATE ON INCOME MEASURES

Chair: Maryanne Webber, Statistics Canada

Focus paper: Pedro Sainz, ECLAC

Discussant: Haeduck Lee, World Bank

Rapporteur: Statistics Canada

The Chair opened the session by inviting Pedro Sainz to introduce the papers presented at the conference by ECLAC. Mr. Sainz commented on the role that could be played in Latin America by ECLAC, on the coverage of income measurement in the region, uses of different sources of information and potential conflicts among sources, and on the quality of information collected.

Discussant:

The Chair thanked Mr. Sainz for his comments and introduced the discussant for the session, Haeduck Lee of the World Bank. Mr. Lee remarked that he intended to put the work of ECLAC in the context of Latin American efforts to improve household survey systems, including income statistics.

As Latin America is a region with a shared historical and cultural heritage and common language, one would expect that household surveys and associated income statistics would be fairly homogeneous. While this is so to a certain degree, there still exists wide intra-regional variations in data quality. The three ECLAC reports do an excellent job of profiling the current status of regional income statistics, marking the first step in the process of improving them.

Due to high cost of implementation, family budget surveys are not undertaken very often in Latin America. They are typically carried out once every ten years to update the CPI weights, with intermediate updates. In order to promote improvement in the availability and quality of income statistics from these types of surveys, the World Bank is jointly sponsoring, with the Inter-American Development Bank and ECLAC, a program of technical assistance to improve household surveys in LAC countries. The program has two components: to strengthen the institutional capacity of statistical agencies, money is available to certain countries for improving various stages of the survey process, including questionnaire design and field procedures; and a regional component entails assembling representatives from all the countries in a forum, to share experiences and hear opinions and advice from experts in the survey field. In brief, the objective is to strengthen the institutional capacity of the statistical agencies to better conduct household surveys. Significant resources are being used to reduce non-sampling errors through enhanced quality control.

With these comments as a general context, now specific comments on papers presented by ECLAC.

Robust Assessment Report

ECLAC's contribution is a valuable one, linking all the good recommendations and best practices being generated in the Canberra Group. It is a welcome first step for improving income statistics in the LAC countries. Its significance lies in the fact that, apart from substantive contributions, the report sets in motion the process of continuous and iterative process of consultation, where the countries become aware of international best practices. As a result, they can focus their energies and resources on their perceived weaknesses in the survey planning, design and implementation. For example, suppose that a statistical agency routinely accepted unusually high proxy responses and high non-response rates. If the agency becomes conscious of their potential impacts on the quality of income statistics by participating in elaborating RAR on an on-going basis, they are less likely to continue their past practices, given that they have been sensitized to the problems.

Imputation for non-response and correction for underreporting

In general, the surveys of LAC use the income definitions of the SNA as the general frame of reference, but the number of income components and their correspondence to those in the SNA vary substantially across different survey types. A number of surveys are constructed block by block and use the bottom-up, microdata approach. On the one hand, family budget surveys and Chile's CASEN more closely approximate the SNA's income components. At the other extreme, the questionnaire design and content of the permanent household surveys are driven more by a need to collect relevant information on employment dynamics than income statistics by the number of components desired by the Canberra Group. The LSMS surveys fall between these two extreme categories.

The ECLAC report on income measurement in CASEN illustrates how the macrodata from the SNA can be utilized to detect potential bias in income measurement in the microdata. After carefully imputing incomes for the non-respondents, the report makes a component-by-component comparison of income aggregates from the CASEN with those from the SNA. While the CASEN wages and salaries are similar to those in the SNA, other components require substantial adjustments in order to bring the estimates in alignment with the SNA measure. Since CASEN's income data are likely to be smaller than the SNA's for income components correlated with higher income, adjustments for underreporting would change the overall income distribution rather than the shape of the lower scale of income distribution, namely, poverty. Even though overall means would be shifted, the poverty rate would little affected (using the absolute poverty line concept), since the majority of wages and salaries would be unaffected by adjustments. However, using statistical information from the macrodata to make adjustments to the microdata is not a substitute for improving the questionnaire to enable the survey to better measure income statistics, namely, the building block approach. At the end of the day, macrodata and microdata are complementary rather than conflictive. Improved surveys can be utilized to improve and refine the SNA household account as well.

The ECLAC report on detecting and imputing the non-response observations shows the magnitude of challenges faced by LAC countries. Non-response rates are consistently high for the self-employed and there is no clear tendency for the overall non-response rates to decrease over time, except for a few countries such as Argentina. The problem is that the characteristics of household that do not respond to income questions are usually not randomly distributed. That is, there exists lost statistical information that can be recovered by applying standard methodologies in order to avoid potential bias in estimating poverty and income distributions.

Equally important, countries need to be aware of, and learn about, the causes of such wide variations in non-response among different countries. In this regard, the RAR is a useful tool for keeping countries aware of the best practices in income measurement.

In summary, statistical agencies in Latin America will benefit greatly from the work of the Canberra Group, if the findings and recommendations of their report were widely disseminated, and more Latin American countries were invited to complete the Robust Assessment Report.

Discussion:

Mike Sheridan prefaced his comments by thanking Pedro Sainz for having the countries complete the RAR. He then asked a question specifically related to the redesign of the Argentinian Labour Force Survey, which he characterized as a massive, well-coordinated and well structured project. The survey is being redesigned to produce better measures of labour market utilization demand, is moving to computer-assisted interviewing, and it generally incorporates features of ongoing labour market surveys that characterize them as typical good measures of labour market conditions. The survey will also provide a supplementary capacity to collect income statistics. In other words, summarized Mike Sheridan, it will be a good area frame survey. He asked whether this particular effort is characteristic of the activities that will be emerging in other Latin American countries over the next while, as he was truly impressed with the major focus on this redesign, mirrored in many respects with the activities underway in the Current Population Survey and the monthly Labour Force Survey in Canada.

Mr. Sainz responded that the Argentinian case was very interesting. ECLAC had pressured Argentina with the fact that data users had a right to complain about data quality, since non-response had been quite high due to well-known reasons. To identify the possible technical origins of the errors, experts from around the world were consulted and a report was prepared, identifying the potential theoretical and operational sources of error. This exercise was successful, since measurement errors were acknowledged, leading to the commencement of efforts to address the problems. A proposal was produced, intended for discussion by technicians from around the world. Discussions took place at a session in Buenos Aires concerning proposed improvements. It is interesting to see that a country opened its proposal to international comments. The new survey has made much progress in coverage and a good start has been made in reducing non-response. Pedro Sainz concluded that this is a good example of how widespread use of the statistics, even those of limited use and subject to errors, can lead to debate on their shortcomings, leading to progress towards introducing improvements. He noted that the Argentinian experience has resulted in ECLAC suggesting to other Latin American countries that they prepare a proposal, so that international technical experts may contribute with feedback, similar to that given to Argentina, before similar work aimed at improving income statistics commences in their respective countries.



ECLAC
Economic Commission for Latin America and the Caribbean

MEASUREMENT OF INCOME IN THE CHILEAN SOCIO-ECONOMIC SURVEY (CASEN 1996)

^{2/} This document was prepared by Juan Carlos Feres, Chief, Social and Poverty Statistics Unit, Division of Statistics and Economic Projections, ECLAC

1. Introduction¹

From 18 November to 20 December 1996 the Ministry of Planning and Economic Policy (MIDEPLAN), assisted by the Department of Economics of the University of Chile, conducted the sixth round of the National Socio-economic Survey (CASEN VI). As on previous occasions, one of the survey topics was designed to study the various income flows received by persons and families, either resulting from their participation in the production process and ownership of assets, or as beneficiaries of monetary transfers from the State.

As usual, these data underwent validity analysis in order to detect any possible measurement biases, which have traditionally led to underestimation. Assessing and correcting such biases is essential for ensuring appropriate reliability of data. If this were not done, studies such as those on poverty, which are based on a standard cross-section of income distribution, would automatically reflect the biases, particularly regarding the extent of estimated poverty.

At this stage of the processing of income data collected by the survey, particular emphasis was placed on assessing response errors. These include omissions and understatements in the values reported by the informants for the various types of income received.

This document analyses the results of this assessment for the CASEN 1996 survey. It also includes a recalculation of the adjustments made for the 1994 survey, in accordance with new information prepared by the Central Bank of Chile relating to the household income and expenditure account for that year, which led to certain changes in relation to the previous estimate.²

The method used in this exercise basically follows the same criteria and procedures used in previous surveys, ensuring consistency and comparability of the results obtained throughout this entire series of surveys. Regarding this methodological framework, only a few changes were introduced on this occasion in the processing of the information of the System of National Accounts relating to social security contributions and benefits.³

2. Frame of reference of national accounts

As a first step in this assessment a quantitative standard of reference, independent of the survey itself, was needed to provide estimates of the recipients' different types of income so that data could be contrasted on a comparable basis.

For this purpose, detailed estimates were prepared for the household income and expenditure account of the System of National Accounts (SNA) for the two years analysed (1994 and 1996).⁴ They were prepared specially for this study on the basis of information from the Central Bank of Chile, since the latter does not make regular estimates of this account.⁵

At the same time, some related items were included for information purposes, to facilitate conceptual consistency between SNA and the survey. All values correspond to the national level, since the statistical base is not sufficiently large for estimates to be disaggregated by urban or rural area, region, or branch of economic activity. The figures for 1994 and 1996, in both current and constant prices, are contained in table 1.⁶

¹ The information used in this document was processed by Carlos Daroch and Carlos Howes, of the Statistics and Economic Projections Division of ECLAC.

² For the analysis of income measured in the CASEN survey for the 1987-1994 period, see ECLAC (1995), *La medición de los ingresos en la perspectiva de los estudios de pobreza: el caso de la encuesta CASEN de Chile: años 1987 a 1994* (LC/R.1604), December 1995.

In the specific case of social security contributions, a separate estimate was made of the contributions paid by employees and by own-account workers (see table 2). For this purpose, data were used on the number of contributors and taxable income by labour category, provided by the social security authorities. This breakdown —taking into account contributions under the former system and contributions to pension fund companies or private health insurance plans⁷— was made in order to obtain a closer approximation to the cash compensation of employees and the cash earnings of employers and own-account workers, since under the current social security system in the country, both types of income recipients (employees and self-employed workers) are social security contributors.

As for social security benefits, a detailed description of the different types of benefits was established —also based on information from the social security authorities— to identify more clearly those items which can properly be described as pensions, subsidies presumably received by occupied persons,⁸ and employment subsidies (family allowances and unemployment benefit) and welfare payments (consolidated household subsidy and welfare pensions). In this way, as will be seen below, income recorded in the survey under the heading of pensions and annuities, *montepíos* (pension funds for widows and orphans) and invalidity or orphan's benefits, mainly declared by unoccupied persons, were contrasted with the equivalent items —appropriately refined— implicit in the household account; and the same was done in the case of social subsidies.

The SNA household income and expenditure account, which was finally used in this study as a frame of reference to assess the reliability of income measurements in each survey, is contained in table 3, together with figures expressed at current prices for each year and also at constant 1996 prices.

The presentation of results has been modified for table 3 in relation to table 1, in order to establish the conceptual equivalency with income in the survey. This equivalency was determined in accordance with the criteria and considerations described below.

3. Adapting the frame of reference to the concepts of the survey

3.1 Compensation of employees

In accordance with the chart of accounts, the survey measures income from work, and in particular the compensation of employees, in cash terms, that is in terms of the payment actually received by the worker after legal deductions have been made. Also the household account records gross remuneration, so that conceptual equivalency with survey measurements requires that social security contributions should first be deducted in order to arrive at net remuneration.

⁷ See section II, below.

⁸ Apart from any doubts that might exist regarding the accuracy of the national accounts themselves, it is undeniable that they are the only statistical system enabling detailed assessment and reconciliation of data from multiple sources, in the context of a coherent, systematically applied conceptual framework. The methods used for estimating the household account in the two years basically falls within the guidelines of SNA Rev.3.

⁹ Furthermore, this situation is similar to that observed in most of the countries of Latin America, very few of which currently produce this account regularly or do so with the desired degree of breakdown.

⁶ Estimates of national accounts are being revised periodically, so it should be noted that there may be some variation in the figures following the preparation of this study.

This was made possible thanks to information on the value of contributions to the former social security system, which are separated out from household expenditure, and the value of contributions to the new system (pension fund companies and private health insurance plans), specially estimated as memorandum items in the account⁹ (see table 2).

Subsequently, direct taxes paid by salaried workers also had to be deducted from the net amounts of compensation of employees, in order to make them consistent with the concept of cash compensation presumably contained in the data gathered by the survey. The same had to be done for the earnings of self-employed persons, since the accounting heading also includes such taxes.

This required disaggregating direct taxes paid by households and recorded in the account, so that they could be associated with each of the aforementioned sources of income. For this purpose, the information available on the various types of tax was systematized, in order to estimate the respective values paid by wages and salaries (included in memorandum items) and to deduce by comparison the amount corresponding to the earnings of self-employed persons. Amounts paid by households for the road tax (*permiso de circulación*) were excluded from this calculation, and the value of fees, fines and penalties was not included in direct taxes.

As for the survey, the way in which wages and salaries are researched meant that different flows had to be grouped together for the measurement of total cash remunerations. These include wages and salaries in cash from primary and secondary occupations, allowances, ad hoc bonuses and remunerations in kind. As with other types of income (earnings of self-employed persons, social security benefits, etc.), the grouping used for each of these is shown in tables 4.1 and 4.2.

3.2 Operating surplus

The net operating surplus received by households, excluding that corresponding to the housing property sector, and after deduction of social security contributions and direct taxes, comes under the heading of primary income of self-employed persons (non-salaried), which the survey attempts to measure. Unfortunately, the information available from national accounts does not provide a sufficient basis for distributing this surplus, which would have been desirable, between the two occupational categories which make up the universe of self-employed persons (employers and own-account workers).

The exclusion in this case of the surplus of the housing property sector (actual or imputed rentals) is due to the conceptual reason referred to above; at the same time, as will be seen below, this enables its components to be treated separately in terms of the evaluation of the survey data.

For these purposes the heading of income from self-employment includes earnings in cash, the value of products taken out of the business for one's own use (self-supply) and the value

⁷ "Administradoras de Fondos de Pensiones" (AFPs) and "Instituciones de Salud Previsional" (ISAPRES), respectively.

⁸ Among other things, this category includes subsidies for sickness or for ordinary accidents paid by the health services; and subsidies for maternity leave before and after childbirth and for illness of a child aged less than one year, paid by family compensation funds.

⁹ Certain conceptual and practical difficulties in connection with the accounting treatment of the new social security system are discussed below.

of agricultural products produced by the household and used for consumption by its members (self-consumption).

3.3 Social security benefits

The value of benefits from the former social security system recorded in the household account is entered together with that received from the new system (pension fund companies), which is included in the memorandum items. As in the previous cases, this is due to the need for equivalency between the heading in the frame of reference and that actually reported in the survey (retirement pensions and pension funds for widows and orphans).

It should be noted that benefits from pension fund companies do not come under income in the account, because from an accounting viewpoint the contributions to the new system are considered as a financial transaction (saving), so that the benefits are assimilated to a withdrawal from the recipient's own funds or a dissaving. However, in the context of assessment of the household's available resources, and given the way in which such withdrawals generally take place, it seems more logical to treat them as current income.

In any case, it should be pointed out that this is one of the types of income entered in net terms for the purpose of the adjustment, insofar as contributions to the pension fund companies are simultaneously deducted from the compensation of employees.

A rather different treatment is given to private health insurance plans, since these are assimilated to insurance companies. From an accounting viewpoint, benefits paid by these plans are entered in household income under the heading of risk insurance claims, while employees' contributions to private health insurance plans are included as net risk insurance premiums, apart from a small proportion entered as final consumption expenditure because it is considered as payment for a service (administrative costs and earnings of the private health insurance companies).

For the purpose of comparison with the income measured in the survey, contributions to private health insurance plans were deducted from the compensation of employees, whereas claims were not taken into account because it was considered that they were not recorded directly in the survey.

Lastly, the values corresponding to family allowances and welfare pensions were deducted from social security benefits. This was due to the possibility that the two might be compared separately, but above all because biases due to underestimation at the aggregate level are caused more by problems of non-response by informants than by declaration of amounts less than the real amounts.¹⁰

3.4 Property income

Property income (received) accounts for the income of households from interest, dividends and other income from capital.

Two observations may be made in this respect. Firstly, for purposes of comparison with the survey, income from rental of real estate was added to these flows; and secondly, the criterion adopted for covering differences in the overall sums from the two sources followed a different pattern from that of other types of income, as explained below.

¹⁰ Therefore, like income from the consolidated household subsidy, they should receive special treatment, focused more on correction of non-response.

3.5 Surplus of the housing property sector

The operating surplus of the housing property sector was also included among the memorandum items, identifying expressly the item corresponding to imputed rentals for the use of own housing. Also, an estimate of the value of imputed rentals included in production (gross production value) was included.

In addition to providing a figure for the value of imputed rentals, these data also made it possible to calculate the value of actual rentals and to make the aforementioned adjustments to the net operating surplus to make it comparable with the heading of earnings of self-employed persons as contained in the survey.

(a) Imputed rentals

As shown above, these memorandum items included both gross production of imputed rentals and the corresponding value added (operating surplus). The difference between the two is due to production costs, which in this case basically consist of repair costs, real estate taxes, fixed capital consumption and common expenditures.¹¹

However, although in terms of household income a strict comparison should be made with imputed rentals in the survey at the value added level, it is assumed that in practice the households interviewed respond according to what they believe the rental value of their housing might be if it were rented on the market. Thus, the amount they report is closer to the concept of production value rather than value added, since households presumably do not discount any of the cost items mentioned above. Moreover, it would not be feasible to calculate those costs on the basis of any other information recorded in the survey.

Consequently, for this non-monetary income flow, the comparison between the amounts in the frame of reference and those in the survey was established—for the two years involved—on the basis of the total value of imputed rentals.

(b) Actual rentals

Using the information available in the memorandum items, the actual rentals are calculated as the difference between the operating surplus of the housing property sector and that for imputed rentals.

Since this income flow was researched separately during the rounds of the CASEN survey, it is possible to contrast the way in which it is measured by the two sources of information, or to compare them, as was done in this case, by taking it together with other items of capital inflows in cash (interest, dividends, etc.).

¹¹ According to information from the Central Bank, these costs represent a significant and increasing proportion of the production value of imputed rentals, close to 46% in 1986 (input-output matrix) and 52% and 49% in 1994 and 1996 respectively. For the purposes of this project that coefficient was re-estimated, and the end result was about 40%.

3.6 Current transfers and grants

The current transfers heading in the SNA includes transfers received by households both from residents (public administration and other residents) and from the rest of the world. The first category includes unemployment benefits and grants (from the President of the Republic, universities, private non-profit institutions (PNPI), enterprises or others). Transfers between households are not expressly included.¹² The second includes remittances from the rest of the world received by households (except those received by PNPI).

Grants from the Social Fund (Ministry of the Interior) and the National Household Subsidy Fund (Act 18.611) are specifically recorded under the heading of social assistance grants.

In the survey, it is possible to identify the headings of grants, alimony or allowances, consolidated household subsidy (SUF), welfare pensions (PASIS), unemployment benefit and other subsidies.

For the reasons discussed above in relation to the nature of underestimates observed in monetary subsidies, and also owing to the difficulty of establishing satisfactory conceptual equivalency between national accounts and the survey, it was decided that no comparison should be made at the level of the category of headings comprising current transfers and social assistance grants. Ultimately, the values of those items originally recorded in the survey were retained in each of the years.

3.7 Disposable income of households

A point that should be clarified at this stage is whether household incomes measured in the survey should be globally reconciled with the heading of disposable income in national accounts, or whether these items should be considered strictly in terms of "gross" income; in other words, regarding certain income flows recorded in the account, whether or not the corresponding expenditure incurred by households under the same headings should be discounted against them.

In concrete terms, this would affect flows such as capital income in cash (property income received minus interest and other rents paid), risk insurance (claims received minus net premiums paid) and current transfers (received minus paid).

In this work, it was decided to use these variables without deducting expenditure given that surveys aim to determine, at best, the corresponding gross income, and it can certainly not be expected that informants report that income in net terms.

Three other factors should also be borne in mind. The first is of a purely practical nature: the total of these income flows represents a very small proportion of the households' total income and therefore has very little impact on the end result, regardless of the criteria adopted. The second is more of a conceptual nature, relating to the fact that in poverty studies, for example, it is desirable to evaluate the magnitude of the resources available to the household regardless of their final use; the latter, from a normative viewpoint —especially in the case of poor households— is one of the issues specific to the assessment of the value of the poverty line (that is, of the expenditure required for meeting basic needs). Lastly, in accordance with the technique applied in correcting under-declaration, particularly of capital income measured

¹² In accordance with Central Bank records, a charge corresponding to the profitability (interest) of the life insurance reserve is also included.

in the of capital income measured in the survey where (as will be seen below) it is only applied to the highest-income quintile, the alternative criterion would at most be reflected in a slight fall in income concentration but would barely affect the measurement of poverty.

Nonetheless, all household income and expenditure flows are shown in table 3, in such a way as to permit the total disposable income of households to be taken into account.

4. Adjustment of the survey data

The elaboration of the CASEN survey data included, as a first step, the assessment of the size of the problem of non-response to certain questions on income and, at a later stage, imputing certain values to all those persons who should have reported a particular income flow but failed to do so.¹³

Three categories were used for this purpose:

- (a) Persons declaring themselves as occupied in a category other than that of unpaid family worker, and who failed to report the income from their principal employment.
- (b) Persons declaring themselves as pensioners but failing to report income from retirement pensions, other pensions or montepíos.
- (c) Households occupying a housing unit in their capacity as owners of the unit but failing to report a value under the heading of imputed rental.

Assessments were also made, as special cases, regarding the coverage of family allowances, the consolidated household subsidy and welfare pensions.¹⁴

Tables 5.1 and 5.2 present the overall amount of each type of income, the number of recipients and the corresponding mean incomes, after corrections for non-response to the three income flows referred to. These amounts, including those for which no imputed values were applied, formed the basis for comparison with the corresponding aggregates in national accounts.

The adjustment method involved imputing to each type or source of income researched in the survey the percentage discrepancies observed between the overall amount recorded in the survey and its equivalent in the national accounts.¹⁵ This was done on the basis of the following assumptions:

- That under-declaration of income in the survey is more closely related to the type of income than to its magnitude;
- That the undeclared amount of each type of income is equal to the discrepancy between the amount shown in the survey and the corresponding estimate contained in the national accounts; and
- That under-declaration of income generally follows a pattern of unit elasticity, the only exception being property income in cash.¹⁶

¹³ For a description of the methodology used for such imputations, see Feres, "Falta de respuesta a las preguntas sobre el ingreso. Su magnitud y efectos en las encuestas de hogares de América Latina", mimeo, 1998.

¹⁴ See ECLAC (1995), *La medición de los ingresos en la perspectiva de los estudios de pobreza. El caso de la encuesta CASEN de Chile: años 1987 a 1994* (LC/R.1604), op. cit., annex 2.

The particular nature of the criterion adopted for adjustment of property income is due to the assumption that receipt of such income is heavily concentrated in high income groups (this is confirmed by data from the surveys themselves).

It was therefore decided that the full amount of the discrepancy between the two sources should be exclusively imputed to the 20% highest income group, distributing it in proportion to the autonomous income of each member of the group.¹⁷ The autonomous income considered for this purpose was that previously adjusted in all the flows which it comprised (total income minus monetary subsidies and imputed rentals), with the sole exception of capital income, which is calculated without adjustment.

Two additional elements were taken into account in comparing data from national accounts and from the survey. Firstly, income in the survey is monthly, corresponding to November in each year,¹⁸ while the figures in national accounts are annual and are expressed as yearly average values. The amounts in the survey were therefore multiplied by 12 and divided by the CPI variation according to the values of the November index and of the corresponding yearly average.¹⁹ Secondly, as has been pointed out, the overall figures from both sources were entered as per capita values, bearing in mind any differences in population coverage between them. For this purpose the whole population covered by the survey was used on the one hand, and INE-CELADE estimates on the other. Data relating to the volume of the country's population and to variations in the CPI are presented in tables 6 and 7 respectively.

Lastly, discrepancies between the survey estimates and their counterparts in the national accounts were calculated in accordance with the procedure described above. As has been mentioned, the magnitude of these discrepancies was finally adopted as the measure of the margins of under- or overestimation affecting the input data of the survey. They were used for determining the corresponding adjustment factors or coefficients to be applied to each type of income researched in the survey.

The value of these coefficients for the different years and income flows evaluated are shown in table 8, and the results of the adjustments for the various income distribution deciles are shown in table 9. The details of income after adjustment, when necessary, are provided in tables 10.1 and 10.2, and its regional distribution (total and per capita) is shown in table 11.

¹⁵ The comparison was made at the level of average income per person, expressed in relation to the total population of the country, because national accounts do not show the (implicit) number of recipients of each income flow.

¹⁶ See ECLAC (1990), *Una estimación de la magnitud de la pobreza en Chile, 1987* (LC/L.599), October 1990, p. 45.

¹⁷ Of course, what is imputed to the members of this quintile is only the difference in the overall amount recorded in national accounts and in the survey; at the same time, the value of capital income declared by the recipients was maintained in all cases.

¹⁸ Strictly speaking, the reference period is October for part of the income declared in the survey (persons interviewed in November) and November for the remainder (persons interviewed in December). However, in none of the years was the interview date for each household included in the survey database, which would have enabled a more precise consideration of this factor. The adoption of November as the reference month for income took account of the fact that in most years the greater proportion of surveys have been conducted in December. Specifically, in 1994 the surveys were conducted from 14 November to 20 December, and in 1996 from 15 November to 15 December.

¹⁹ In these cases the annualization of the November figures by simply multiplying by 12 produced results similar to those which would be obtained by a more complex method which takes into account developments in economic activity, wages and prices over the course of the year.

5. Conclusions

The above analysis relating to the reliability of income measurements in the CASEN surveys demonstrates the existence of biases of under- or overestimation, and their probable magnitude. As expected, the results shown in table 8 show that these biases are not constant over time and, above all, that they vary considerably between different types of income.

Compensation of employees is certainly the income flow which is measured best in the survey, where the magnitude of wages and salaries recorded in 1996 was about 1% above the corresponding estimate in the national accounts.²⁰ This is a notable event, reflecting a most unusual situation in the experience of the household surveys conducted periodically in Latin America.²¹

The income of self-employed persons (employers and own-account workers), on the other hand, shows fairly high margins of underestimation and a clear tendency to increase in the latest round of the survey. In 1996, the latter only detected about 49% of the earnings of self-employed persons accounted for in national accounts. It is well known that this type of survey encounters conceptual and empirical difficulties in measuring this type of income with greater precision, mostly owing to the variability of the income itself and the informal nature of most self-employed occupations; this problem is even more acute in rural areas. It must therefore be recognized that this is an area in which considerable efforts must be made in future to overcome the deficiencies which have been detected.

A case which has evolved rather differently is that of income from social security benefits. Measurements in the surveys during the two-year period from 1994 to 1996 have been characterized by falling margins of underestimation, amounting to 72% of the figures in national accounts in 1996, which is much higher than in the case of the earnings of self-employed persons.

Property income in cash (interest, dividends, rentals, etc.) are another flow which is usually seriously under-declared in surveys; the CASEN survey is known to detect a relatively constant proportion of that income. The unrecorded amount under this heading in 1996 was about 6.4% of the total independent income of individual recipients in the highest-income quintile, compared to 6.0% in 1994.

Imputed rentals for the use of own housing declared by informants are a special case compared to other sources of income. Despite the corrections made to the original survey data in order to improve their consistency²² and the fact that the comparison is made against the gross production value from the national accounts, they show a significant level of overestimation. Consequently, the final adjustments to the survey data were negative and have been steadily increasing in magnitude. This is therefore a variable requiring attention in terms of improving the research method used, in order to bring it closer to the conceptual basis of the national accounts.

²⁰ However, this did not bring about a negative adjustment in the survey figures, since it was considered that the difference is more likely to be a concept problem since to some extent the reported figure includes, for example, family allowances.

²¹ The only comparable case may be that of the (urban) Continuous Household Survey in Uruguay.

²² See Feres, "Falta de respuesta a las preguntas sobre el ingreso", *op. cit.*

It is also very important, in the light of the main objectives of the CASEN survey, to aim for more exhaustive detection of recipients of monetary subsidies and other types of transfers and grants. The information analyzed show that under-recording is still significant in this sphere, for instance, in relation to certain subsidies; however, as can be seen from the results of the simulations carried out, this does not actually cause a bias in estimates of the magnitude of poverty or of income distribution.

To sum up, it might be concluded that the degree of accuracy in income measurement in the CASEN surveys varies according to the origin of the income. In the case of compensation of employees this measurement achieves high levels of reliability, which is particularly important since wages and salaries make up almost half of total personal income. Other income flows, however, still show significant margins of underestimation or insufficient coverage, and the improvement of research in this area should be a major goal for the planning and execution of future rounds of the survey.

At the same time, progress is also needed in relation to the SNA household account and to statistics in other areas not covered by the survey, in the interest of better data availability, quality, degree of breakdown and conceptual precision. Improvement is clearly needed in the estimation of certain items such as the operating surplus, so that the proportion corresponding to the income of informal salaried workers or the micro-enterprise sector can better be identified, and the income of employers distinguished from that of own-account workers. The same could also be said regarding measurement of household savings.

As is well known, given that the use of household survey data in studies of absolute or relative poverty needs to be complemented by data from other research and administrative records, simultaneous progress is required in all areas. It is for surveys such as CASEN to continue striving towards their main objectives: to serve as an instrument for analyzing the socio-economic situation of households, planning social policy, assessing its redistributive impact and monitoring particular social programs.

Table 1

*CHILE: ACCOUNT OF INCOME AND EXPENDITURE OF HOUSEHOLDS,
INCLUDING NON-FINANCIAL AND UNINCORPORATED ENTERPRISES, 1994 AND 1996
(Annual figures)*

A. INCOME	1994	1996	Variation (%)	1994	1996	Variation (%)
	Millions of pesos for each year		(96/94)	Millions of pesos for each year		(96/94)
1. Compensation of employees	7,787,601	10,130,968	30.1	9,049,192	10,130,968	12.0
2. Operating surplus	5,413,211	7,411,431	36.9	6,290,151	7,411,431	17.8
3. Withdrawals from the income of quasi-corporations	a/	a/	a/	a/	a/	a/
4. Property incomes:	580,304	867,314	49.5	674,313	867,314	28.6
4.1 Interest	386,213	579,509	50.0	448,780	579,509	29.1
4.2 Dividends	190,743	282,822	48.3	221,643	282,822	27.6
4.3 Other property incomes	3,348	4,983	48.8	3,890	4,983	28.1
5. Risk insurance claims	316,785	423,492	33.7	368,104	423,492	15.0
6. Social security benefits	1,187,744	1,486,997	25.2	1,380,159	1,486,997	7.7
7. Social assistance grants	20,092	21,968	9.3	23,347	21,968	-5.9
8. Current transfers n.e.s. from:	160,736	247,175	53.8	186,775	247,175	32.3
8.1 Residents	160,736	247,175	53.8	186,775	247,175	32.3
8.1.1 Public administration	38,666	79,592	105.8	44,930	79,592	77.1
8.1.2 Other residents	122,070	167,583	37.3	141,845	167,583	18.1
8.2 Rest of world	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
TOTAL INCOME	15,466,473	20,589,345	33.1	17,972,042	20,589,345	14.6

a/ Included in operating surplus.

n.a. = not available.

Table 1 (cont.)

B. PAYMENTS	1994	1996	Variation (%)	1994	1996	Variation (%)
	Millions of pesos for each year		(96/94)	Millions of pesos for each year		(96/94)
1. Final consumption expenditure	13,692,827	18,681,115	36.4	15,911,065	18,681,115	17.4
2. Property income	571,050	988,257	73.1	663,560	988,257	48.9
2.1 Interest	571,050	988,257	73.1	663,560	988,257	48.9
2.2 Other income	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3. Net risk insurance premiums	305,026	406,973	33.4	354,440	406,973	14.8
4. Direct taxes	431,541	549,880	27.4	501,451	549,880	9.7
5. Fees, fines and penalties	46,919	63,555	35.5	54,520	63,555	16.6
6. Social security contributions	416,355	539,436	29.6	483,805	539,436	11.5
7. Current transfers n.e.s. to:	86,262	118,424	37.3	100,236	118,424	18.1
7.1 Residents	85,688	117,636	37.3	99,569	117,636	18.1
7.1.1 Public administration	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
7.1.2 Other residents	85,688	117,636	37.3	99,569	117,636	18.1
7.2 Rest of world	574	788	37.3	574	788	37.3
8. Savings	(83,507)	(758,295)	808.1	(97,035)	(758,295)	681.5
TOTAL EXPENDTURE	15,466,473	20,589,345	33.1	17,972,042	20,589,345	14.6

n.a. = not available.

Table 1 (concl.)

C. MEMORANDUM ENTRIES	1994	1996	Variation (%)	1994	1996	Variation (%)
	Millions of pesos for each year		(96/94)	Millions of pesos for each year		(96/94)
Operating surplus of the housing ownership sector	610.100	767.583	25.8	708.936	767.583	8.3
-Operating surplus relating to imputed rental values	500.892	630.031	25.8	582.037	630.031	8.2
ISAPRES allowances	284.940	378.757	32.9	331.100	378.757	14.4
Allowances new social security system (AFP - Pension fund administrators)	189.307	331.511	75.1	219.975	331.511	50.7
Imputed rental incorporated as production	834.616	1,050,052	25.8	969.824	1,050,052	8.3
Employees' contributions to ISAPRES	361.439	485.307	34.3	419.992	485.307	15.6
<i>Pension fund contributions</i>	738.023	1,021,223	38.4	857.583	1,021,223	19.1
Direct taxes payable by wage-earners	224.865	293.709	30.6	261.293	293.709	12.4
Vehicle licences (households)	38.531	51.956	34.8	44.773	51.956	16.0
Family allowances	63.089	79.824	26.5	73.309	79.824	8.9

Source: On the basis of information from the Central Bank of Chile.

Table 2

CHILE: SOCIAL SECURITY CONTRIBUTIONS, 1994 AND 1996

(Annual figures in millions of pesos for each year)

	1994		1996	
	Value	(%)	Value	(%)
Social security contributions	416355	100	539436	100
Employees	387210	93	501675	93
Own-account workers	29145	7	37761	7
Contributions to AFP (Pension fund administrators)	738023	100	1021223	100
Employees	627320	85	868040	85
Own-account workers	110703	15	153183	15
Contributions to ISAPRES (private health insurance plans)	361439	100	485307	100
Employees	289151	80	388246	80
Own-account workers	72288	20	97061	20
TOTAL SOCIAL SECURITY CONTRIBUTIONS	1515817	100	2045966	100
Employees	1303681	86	1757961	86
Own-account workers	212136	14	288005	14

Source: Estimates based on information from the Social Security Supervisory Authority.

Table 3

CHILE : INCOME AND EXPENDITURE OF HOUSEHOLDS OBTAINED FROM NATIONAL ACCOUNTS AND ENTERED UNDER THE HEADINGS USED IN THE NATIONAL SOCIO-ECONOMIC (CASEN) SURVEYS, 1994 AND 1996 (Annual figures)

	1994	1996	Variation (%) (96/94)	1994	1996	Variation (%) (96/94)
	Millions of pesos for each year			Millions of pesos for each year		
1. Employees' compensation	7,787,601	10,130,968	30.1	7,049,192	10,130,968	43.9
Less: Social security contributions	387,210	501,675	29.6	449,938	501,675	11.5
AFP contributions	627,320	868,040	38.4	728,946	868,040	19.1
ISAPRES contributions	289,151	388,246	34.3	335,903	388,246	15.6
Employees' taxable income	6,483,920	8,373,007	29.1	7,534,315	8,373,007	11.1
Less: Direct taxes paid by wage-earners	224,865	293,709	30.6	261,293	293,709	12.4
Employees' net income	6,259,055	8,079,298	29.1	7,273,022	8,079,298	11.1
2. Operating surplus	5,413,211	7,411,431	36.9	6,290,151	7,411,431	17.8
Less: Operating surplus ownership of dwelling	610,100	767,583	25.8	708,936	767,583	8.3
Net surplus	4,803,111	6,643,848	38.3	5,581,215	6,643,848	19.0
Less: Social security contributions	29,145	37,761	29.6	33,866	37,761	11.5
AFP contributions	110,703	153,183	38.4	128,637	153,183	19.1
ISAPRES contributions	72,288	97,061	34.3	83,999	97,061	15.6
Taxable profits	4,590,975	6,355,843	38.4	5,334,713	6,355,843	19.1
Less: Direct taxes a/	168,145	204,215	21.5	195,384	204,215	4.5
Net profits	4,422,830	6,151,628	39.1	5,139,328	6,151,628	19.7
3. Social security benefits (old system)	1,187,744	1,486,997	25.2	1,380,159	1,486,997	7.7
Plus: Social security benefits - new system- AFP	189,307	331,511	75.1	219,975	331,511	50.7
Less b/ Family allowances	57,722	71,477	23.8	67,073	71,477	6.6
Welfare pensions (PASIS)	61,363	82,480	34.4	71,304	82,480	15.7
Consolidated household subsidy (SUF)	18,918	21,970	16.1	21,983	21,970	-0.1
Termination grant	2,330	2,978	27.8	2,707	2,978	10.0
Other allowances	59,884	80,844	35.0	69,585	80,844	16.2
Social security benefits	1,176,834	1,558,759	32.5	1,367,481	1,558,759	14.0
4. Family allowances	57,722	71,477	23.8	67,073	71,477	6.6
5. Property incomes (received)	580,304	867,314	49.5	674,313	867,314	28.6
6. Operating surplus of the residential property sector	610,100	767,583	25.8	708,936	767,583	8.3
Less: Imputed rentals	500,892	630,031	25.8	582,037	630,031	8.2
Actual rentals	109,208	137,552	26.0	126,900	137,552	8.4
7. Property income, in cash (5+6)	689,512	1,004,866	46.7	801,213	1,004,866	25.4
8. Current transfers	160,736	247,175	53.5	186,775	247,175	32.3
Plus: Social assistance grants	20,092	21,968	9.3	23,347	21,968	-5.9
Transfers and grants	180,828	269,143	48.8	210,122	269,143	28.1
9. Welfare pensions (PASIS)	61,363	82,480	34.4	71,304	82,480	15.7
10. Consolidated household subsidy (SUF)	18,918	21,970	16.1	21,983	21,970	-0.1
11. Termination grant	2,330	2,978	27.8	2,707	2,978	10.0
12. Imputed rentals incorporated in production c/	834,616	1,050,052	25.8	969,824	1,050,052	8.3
TOTAL INCOME	13,704,008	18,292,651	33.5	15,924,057	18,292,651	14.9
Less: AFP Benefits	189,307	331,511	75.1	219,975	331,511	50.7
Property income (paid)	571,050	988,257	73.1	663,560	988,257	48.9
Net risk insurance premiums	305,026	406,973	33.4	354,440	406,973	14.8
Rates, fines and penalties	46,919	63,555	35.5	54,530	63,555	16.6
Current transfers (effected)	86,262	118,424	37.3	100,236	118,424	18.1
Vehicle licences (households)	38,531	51,956	34.3	44,732	51,956	16.0
Imputed rentals (cost of production)	333,724	420,021	25.9	387,787	420,021	8.3
Plus: Risk insurance claims	316,785	423,492	33.7	368,104	423,492	15.0
Other social security benefits	59,884	80,844	35.0			
AVAILABLE INCOME	12,509,858	16,416,290	31.2	14,536,455	16,416,290	12.9
FINAL CONSUMPTION EXPENDITURE	13,692,827	18,681,115	36.4	15,911,065	18,681,115	17.4
Plus: SAVINGS	(83,507)	(758,295)	808.1	(97,035)	(758,295)	681.5
Less: AFP and ISAPRES contributions	1,099,462	1,506,530	37.0	1,277,575	1,506,530	17.9
AVAILABLE INCOME	12,509,858	16,416,290	31.2	14,536,455	16,416,290	12.9

Source: Tables 1 and 2.

a/ Direct taxes less vehicle licences (households) and direct taxes paid by wage-earners.

b/ Information provided by the Social Security Supervisory Authority.

c/ Imputed rentals incorporated in production less the corresponding value-added.

Table 4.1

CHILE, 1996: TOTAL INCOME, RECIPIENTS AND AVERAGE INCOME**BY SOURCE OF INCOME**

(Original data)

Source of income	Total income (pesos per month)	Recipients	Average income (pesos per month)
TOTAL INCOME a/	1,013,840,465,792	7,031,341	144,189
Wages and salaries	644,370,057,246	3,813,070	168,990
Wages in cash	634,288,268,675	3,683,187	172,212
Income from main occupation	594,951,098,365	3,665,976	162,290
Allowances, ad hoc bonuses	13,890,103,468	1,086,231	12,787
Income from other work	25,447,066,842	158,806	160,240
Compensation in kind	2,990,057,374	87,463	34,187
Other income – wage-earners	1,907,824,297	28,658	66,572
Compensation for casual labour	5,183,906,900	114,747	45,177
Income of self-employed	228,686,837,672	1,495,828	152,883
Cash earnings	215,389,111,557	1,117,098	192,811
Income from main occupation	207,738,286,947	1,101,431	188,608
Allowances, ad hoc bonuses	2,842,214	954	2,979
Income from other work	7,647,982,396	62,827	121,731
Other income – non-wage-earners	2,697,653,756	65,822	40,984
Own consumption	2,966,466,456	68,428	43,352
Consumption of agricultural goods	3,559,038,722	361,267	9,852
Sale of agricultural goods	4,074,567,181	111,115	36,670
Social security benefits	84,217,239,857	1,023,601	82,275
Pensions and annuities	65,167,525,037	698,208	93,335
Pensions	62,598,042,376	672,297	93,111
Annuities	2,569,482,661	27,521	93,364
Disability pensions	3,654,007,561	61,194	59,712
Widow's pension or widower's benefit	14,422,629,371	255,875	56,366
Orphan's pension	973,077,888	22,759	42,756
Family allowance	5,861,361,360	1,333,430	4,396
Property incomes	31,247,447,888	495,447	63,069
Rentals	28,207,815,450	223,291	126,328
Interest on deposits	2,224,338,618	273,053	8,146
Stock dividends	815,293,820	23,982	33,996
Current transfers	19,457,521,769	1,258,745	15,458
Grants	2,034,204,248	107,117	18,990
Maintenance allowance	7,041,464,377	101,084	69,660
Cash remittances from absent members	2,614,489,850	35,880	72,868
Welfare pensions (PASIS)	5,499,979,400	261,894	21,001
Old-age pension	2,916,840,905	138,570	21,050
Disability pension	1,972,763,597	93,818	21,028
Mental disability pension	610,374,898	29,506	20,686
Consolidated household subsidy (SUF)	1,512,988,996	580,365	2,607
Subsidy paid to the mother	107,168,200	34,491	3,107
Child subsidy	1,369,645,296	540,759	2,533
Maternal subsidy	14,189,500	1,738	8,164
Mental disability subsidy	19,561,000	3,064	6,384
Disability subsidy	2,425,000	485	5,000
Termination grant	65,778,239	4,752	13,842
Termination grant 0-90 days	39,509,042	2,350	16,812
Termination grant 91-180 days	18,695,601	1,513	12,357
Termination grant 181-360 days	7,573,596	889	8,519
Drinking water subsidy	477,486,507	196,320	2,432
Other State subsidies	211,130,152	8,086	26,111
Imputed rental	219,580,013,746	2,923,198	75,116

Source: Special tabulations of data from the 1996 National Socio-economic Survey (CASEN).

a/ Excludes imputed rental.

Table 4.2

CHILE, 1994: TOTAL INCOME, RECIPIENTS AND AVERAGE INCOME BY SOURCE OF INCOME

(Original data)

Source of income	Total income (pesos per month)	Recipients	Average income (pesos per month.)
TOTAL INCOME a/	811,066,996,779	6,541,946	123,979
Wages and salaries	473,301,928,043	3,586,453	131,969
Wages in cash	468,252,467,123	3,569,709	131,174
Income from main occupation	450,188,404,506	3,564,422	126,301
Allowances, ad hoc bonuses	8,582,984,840	349,284	24,573
Income from other work	9,481,077,777	93,968	100,897
Compensation in kind	3,687,093,790	122,164	30,182
Other income – wage-earners	1,362,367,130	24,359	55,929
Income of self-employed	230,434,077,717	1,529,771	150,633
Cash earnings	216,188,647,756	1,229,439	175,843
Income from main occupation	209,989,167,746	1,177,680	178,307
Allowances, ad hoc bonuses	218,012,078	5,512	39,552
Income from other work	5,981,467,932	99,250	60,267
Other income – non-wage-earners	4,127,730,332	52,688	78,343
Own consumption	3,658,544,142	134,811	27,138
Consumption of agricultural goods	6,459,155,487	315,311	20,485
Social security benefits	65,671,331,269	1,065,764	61,619
Pensions	48,486,754,482	677,608	71,556
Disability pensions	5,502,681,977	152,100	36,178
Widow's pension or widower's benefit	11,681,894,810	246,003	47,487
Family allowance	3,586,954,318	1,066,139	3,364
Property income	21,840,717,502	221,303	98,691
Rental	19,545,931,576	201,200	97,147
Interest or income from bonds	2,294,785,926	21,436	107,053
Current transfers	16,231,987,930	869,965	18,658
Grants	2,207,962,550	59,966	36,820
Alimony or monthly allowance	10,016,203,163	159,201	62,915
Welfare pensions (PASIS)	2,697,127,899	189,946	14,199
Consolidated household subsidy (SUF)	973,533,650	446,317	2,181
Termination grant	145,045,143	17,429	8,322
Other subsidies	192,115,525	9,465	20,297
Imputed rental	164,141,039,694	2,720,985	60,324

Source: Special tabulations of data from the 1994 National Socio-economic Survey (CASEN).

a/ Excludes imputed rental.

Table 5.1

**CHILE, 1996: TOTAL INCOME, RECIPIENTS AND AVERAGE INCOME
BY SOURCE OF INCOME**
(Adjusted data)

Source of income	Total income (pesos per month)	Recipients	Average income (pesos per month)
TOTAL INCOME a/	1,090,543,228,256	7,334,839	148,680
Wages and salaries	686,686,757,065	4,045,531	169,740
Wages in cash	676,604,968,494	3,919,158	172,640
Income from main occupation	637,267,798,184	3,915,846	162,741
Allowances, ad hoc bonuses	13,890,103,468	1,086,231	12,787
Income from other work	25,447,066,842	158,806	160,240
Compensation in kind	2,990,057,374	87,463	34,187
Other income - wage-earners	1,907,824,297	28,658	66,572
Compensation for casual labour	5,183,906,900	114,747	45,177
Income of self-employed	253,425,579,575	1,578,136	160,585
Cash earnings	240,127,853,460	1,232,382	194,849
Income from main occupation	232,477,028,850	1,223,223	190,053
Allowances, ad hoc bonuses	2,842,214	954	2,979
Income from other work	7,647,982,396	62,827	121,731
Other income - non-wage-earners	2,697,653,756	65,822	40,984
Own consumption	2,966,466,456	68,428	43,352
Consumption of agricultural goods	3,559,038,722	361,267	9,852
Sale of agricultural goods	4,074,567,181	111,115	36,670
Social security benefits	93,864,560,599	1,148,163	81,752
Pensions and annuities	74,814,845,779	823,950	90,800
Pensions	72,245,363,118	798,039	90,529
Annuities	2,569,482,661	27,521	93,364
Disability pensions	3,654,007,561	61,194	59,712
Widow's pension or widower's benefit	14,422,629,371	255,875	56,366
Orphan's pension	973,077,888	22,759	42,756
Family allowance	5,861,361,360	1,333,430	4,396
Property income	31,247,447,888	495,447	63,069
Rental	28,207,815,450	223,291	126,328
Interest on deposits	2,224,338,618	273,053	8,146
Stock dividends	815,293,820	23,982	33,996
Current transfers	19,457,521,769	1,258,745	15,458
Grants	2,034,204,248	107,117	18,990
Maintenance allowance	7,041,464,377	101,084	69,660
Remittances from absent members	2,614,489,850	35,880	72,868
Welfare pensions (PASIS)	5,499,979,400	261,894	21,001
Old-age pension	2,916,840,905	138,570	21,050
Disability pension	1,972,763,597	93,818	21,028
Mental disability pension	610,374,898	29,506	20,686
Consolidated household subsidy (SUF)	1,512,988,996	580,365	2,607
Subsidy paid to the mother	107,168,200	34,491	3,107
Child subsidy	1,369,645,296	540,759	2,533
Maternity subsidy	14,189,500	1,738	8,164
Mental disability subsidy	19,561,000	3,064	6,384
Disability subsidy	2,425,000	485	5,000
Termination grant	65,778,239	4,752	13,842
Termination grant - 0-90 days	39,509,042	2,350	16,812
Termination grant - 91-180 days	18,695,601	1,513	12,357
Termination grant - 181-360 days	7,573,596	889	8,519
Drinking water subsidy	477,486,507	196,320	2,432
Other State subsidies	211,130,152	8,086	26,111
Imputed rental	194,839,101,146	2,363,410	82,440

Source: Special tabulations of data from the 1996 National Socio-economic Survey (CASEN).

a/ Excludes imputed rental.

Table 5.2

CHILE, 1994: TOTAL INCOME, RECIPIENTS AND AVERAGE INCOME
BY SOURCE OF INCOME
(Adjusted data)

Source of income	Total income (pesos per month)	Recipients	Average income (pesos per month)
TOTAL INCOME a/	855,246,684,098	6,743,757	126,821
Wages and salaries	495,949,814,687	3,719,228	133,348
Wages in cash	490,900,353,767	3,704,314	132,521
Income from main occupation	472,836,291,150	3,703,440	127,675
Allowances, ad hoc bonuses	8,582,984,840	349,284	24,573
Income from other work	9,481,077,777	93,968	100,897
Compensation in kind	3,687,093,790	122,164	30,182
Other income - wage-earners	1,362,367,130	24,359	55,929
Income of self-employed	248,025,484,947	1,588,319	156,156
Cash earnings	233,780,054,986	1,295,437	180,464
Income from main occupation	227,580,574,976	1,246,021	182,646
Allowances, ad hoc bonuses	218,012,078	5,512	39,552
Income from other work	5,981,467,932	99,250	60,267
Other income - non-wage-earners	4,127,730,332	52,688	78,343
Own consumption	3,658,544,142	134,811	27,138
Consumption of agricultural goods	6,459,155,487	315,311	20,485
Social security benefits	69,611,724,714	1,128,821	61,668
Pensions	52,427,147,927	740,665	70,784
Disability pensions	5,502,681,977	152,100	36,178
Widow's pension or widower's benefit	11,681,894,810	246,003	47,487
Family allowance	3,586,954,318	1,066,139	3,364
Property income	21,840,717,502	221,303	98,691
Rental	19,545,931,576	201,200	97,147
Interest or income from bonds	2,294,785,926	21,436	107,053
Current transfers	16,231,987,930	869,965	18,658
Grants	2,207,962,550	59,966	36,820
Alimony or monthly allowance	10,016,203,163	159,201	62,915
Welfare pensions (PASIS)	2,697,127,899	189,946	14,199
Consolidated household subsidy (SUF)	973,533,650	446,317	2,181
Termination grant	145,045,143	17,429	8,322
Other subsidies	192,115,525	9,465	20,297
Imputed rental	149,182,819,743	2,234,641	66,759

Source: Special tabulations of data from the 1994 National Socio-economic Survey (CASEN).

a/ Excludes imputed rental.

Table 6

CHILE: TOTAL POPULATION BY ESTIMATE
 NATIONAL INSTITUTE OF STATISTICS (INE) – LATIN AMERICAN AND
 CARIBBEAN DEMOGRAPHIC CENTRE (CELADE) POPULATION DIVISION OF ECLAC,
 1994 AND 1996

	INE-CELADE		CASEN	
	Total population	Average annual variation (%)	Population in private households	Average annual variation (%)
1994	13,994,355	1.65	13,809,195	1.57
1996	14,418,864	1.51	14,224,302	1.49

Source: On the basis of official figures and special tabulations of data from 1994 and 1996 CASEN survey

Table 7

CHILE: CONSUMER PRICE INDEX (CPI), 1994 AND 1996
 (Base April 1989 = 100)

	1994	1996	Variation (96/94) (%)
GENERAL CPI			
Average index for year (1)	234.22	272.16	16.20
Index November (2)	241.80	278.75	15.28
Ratio (2)/(1)	1.032	1.024	
FOOD PRICE INDEX			
Average index for year (1)	244.05	280.36	14.88
Index November (2)	254.18	287.26	13.01
Ratio (2)/(1)	1.042	1.025	

Source: National Institute of Statistics (INE), Consumer Price Index.

Table 8

*CHILE: ADJUSTMENT FACTOR APPLIED TO INCOME MEASURED IN
THE CASEN SURVEY 1994 AND 1996*

	Total for year		Average per person persona		Adjustment factor
	National Accounts	CASEN	National Accounts	CASEN	
	(millions of pesos)		(pesos)		
1996					
Wages and salaries	8,079,298	8,047,110	560,328	565,730	0.990
Income of self-employed persons	6,151,628	2,969,831	426,637	208,786	2.043
Social security benefits	1,558,759	1,099,975	108,106	77,331	1.398
Property income a/	1,004,866	366,181	69,691	25,743	1.064
Imputed rental	1,050,052	2,283,271	72,825	160,519	0.454
Own-account workers' income b/					1.331
Total income					1.194
1994					
Wages and salaries	6,258,055	5,766,858	447,256	417,610	1.071
Income of self-employed persons	4,422,830	2,884,017	316,044	208,848	1.513
Social security benefits	1,176,834	809,439	84,093	58,616	1.435
Property income a/	689,512	253,962	49,271	18,391	1.060
Imputed rental	834,616	1,734,684	59,639	125,618	0.475
Own-account workers' income b/					1.272
Total income					1.151

Source: Tables 3, 5 and 7.

a/ The adjustment factor for property income is expressed as a percentage of own-account income for the highest-income 20% of individual recipients.

b/ Total income, excluding monetary subsidies and imputed rental.

Table 9

**CHILE: ADJUSTED FACTORS OF HOUSEHOLD INCOME BY DECILE
OF PER CAPITA INCOME DISTRIBUTION**

(Adjusted) a/

Decile	Own-account income b/	
	1994	1996
Total	1.273	1.333
1	1.181	1.124
2	1.170	1.130
3	1.176	1.146
4	1.180	1.140
5	1.189	1.178
6	1.197	1.207
7	1.216	1.237
8	1.235	1.283
9	1.267	1.320
10	1.359	1.504
Decile	Total income	
	1994	1996
Total	1.152	1.195
1	1.010	0.971
2	1.042	0.997
3	1.047	1.022
4	1.050	1.011
5	1.059	1.047
6	1.069	1.064
7	1.084	1.095
8	1.107	1.150
9	1.139	1.190
10	1.262	1.378

Source: Special tabulations of data from CASEN surveys for 1994 and 1996.

a/ Excludes live-in domestic workers.

b/ Total income, excluding monetary subsidies and imputed rental.

Table 10.1

*CHILE, 1996: TOTAL INCOME, RECIPIENTS AND AVERAGE INCOME
BY SOURCE OF INCOME
(Adjusted data)*

Source of income	Total income (pesos per month)	Recipients	Average income (pesos per month)
TOTAL INCOME a/	1,446,533,587,484	7,334,839	197,214
Wages and salaries	686,686,757,065	4,045,531	169,740
Wages in cash			
Income from main occupation	637,267,798,184	3,915,846	162,741
Allowances, ad hoc bonuses	13,890,103,468	1,086,231	12,787
Income from other work	25,447,066,842	158,806	160,240
Compensation in kind	2,990,057,374	87,463	34,187
Other income - wage-earners	1,907,824,297	28,658	66,572
Compensation for casual labour	5,183,906,900	114,747	45,177
Income of self-employed	517,748,505,017	1,578,136	328,076
Cash earnings	490,581,205,542	1,232,382	398,076
Income from main occupation	474,950,570,398	1,223,223	388,278
Allowances, ad hoc bonuses	5,806,877	954	6,087
Income from other work	15,624,828,267	62,827	248,696
Other income - non-wage-earners	5,511,312,222	65,822	83,731
Own consumption	6,060,492,300	68,428	88,567
Consumption of agricultural goods	7,271,146,613	361,267	20,127
Sale of agricultural goods	8,324,348,340	111,115	74,917
Social security benefits	131,222,650,544	1,148,163	114,289
Pensions and annuities	104,591,151,059	823,950	126,939
Pensions	100,999,013,763	798,039	126,559
Annuities	3,592,137,296	27,521	130,524
Disability pensions	5,108,302,327	61,194	83,477
Widow's pension or widower's benefit	20,162,834,305	255,875	78,800
Orphan's pension	1,360,362,853	22,759	59,773
Family allowance	5,861,361,360	1,333,430	4,396
Property income	85,556,791,729	1,638,117	52,229
Rental	28,207,815,450	223,291	126,328
Interest on deposits	2,224,338,618	273,053	8,146
Stock dividends	815,293,820	23,982	33,996
Investment income in cash	54,309,343,841	1,337,440	40,607
Current transfers	19,457,521,769	1,258,745	15,458
Grants	2,034,204,248	107,117	18,990
Maintenance allowance	7,041,464,377	101,084	69,660
Remittances from absent members	2,614,489,850	35,880	72,868
WELFARE PENSIONS (PASIS)	5,499,979,400	261,894	21,001
Old-age pension	2,916,840,905	138,570	21,050
Disability pension	1,972,763,597	93,818	21,028
Mental disability pension	610,374,898	29,506	20,686
CONSOLIDATED HOUSEHOLD SUBSIDY (SUF)	1,512,988,996	580,365	2,607
Subsidy paid to the mother	107,168,200	34,491	3,107
Child subsidy	1,369,645,296	540,759	2,533
Maternity subsidy	14,189,500	1,738	8,164
Mental disability subsidy	19,561,000	3,064	6,384
Disability subsidy	2,425,000	485	5,000
Termination grant	65,778,239	4,752	13,842
Termination grant - 0-90 days	39,509,042	2,350	16,812
Termination grant - 91-180 days	18,695,601	1,513	12,357
Termination grant - 181-360 days	7,573,596	889	8,519
Drinking water subsidy	477,486,507	196,320	2,432
Other State subsidies	211,130,152	8,086	26,111
Imputed rental	88,456,951,665	2,363,410	37,428

Source: Special tabulations of data from the 1996 National Socio-economic Survey (CASEN).

a/ Excludes imputed rental.

Table 10.2

CHILE, 1994: TOTAL INCOME, RECIPIENTS AND AVERAGE INCOME BY SOURCE OF INCOME*(Adjusted data)*

Source of income	Total income (pesos per month)	Recipients	Average income (pesos per month)
TOTAL INCOME <i>a/</i>	1,085,714,293,838	6,743,757	160,995
Wages and salaries	531,162,288,683	3,719,228	142,815
Wages in cash	525,754,313,720	3,704,314	141,930
Income from main occupation	506,407,694,085	3,703,440	136,740
Allowances, ad hoc bonuses	9,192,384,250	349,284	26,318
Income from other work	10,154,235,385	93,968	108,061
Compensation in kind	3,948,879,523	122,164	32,324
Other income - wage-earners	1,459,095,440	24,359	59,900
Income of self-employed	375,262,571,554	1,588,319	236,264
Cash earnings	353,709,226,637	1,295,437	273,042
Income from main occupation	344,329,413,052	1,246,021	276,343
Allowances, ad hoc bonuses	329,852,133	5,512	59,843
Income from other work	9,049,961,452	99,250	91,183
Other income - non-wage-earners	6,245,255,856	52,688	118,533
Own consumption	5,535,379,993	134,811	41,060
Consumption of agricultural goods	9,772,709,068	315,311	30,994
Social security benefits	99,892,840,839	1,128,821	88,493
Pensions	75,232,963,629	740,665	101,575
Disability pensions	7,896,352,120	152,100	51,916
Widow's pension or widower's benefit	16,763,525,090	246,003	68,144
Family allowance	3,586,954,318	1,066,139	3,364
Property income	59,577,650,514	1,346,774	44,237
Rental	19,545,931,576	201,200	97,147
Interest or income from bonds	2,294,785,926	21,436	107,053
Investment income in cash	37,736,933,012	1,230,916	30,658
Current transfers	16,231,987,930	869,965	18,658
Grants	2,207,962,550	59,966	36,820
Alimony or monthly allowance	10,016,203,163	159,201	62,915
Welfare pensions (PASIS)	2,697,127,899	189,946	14,199
Consolidated household subsidy (SUF)	973,533,650	446,317	2,181
Termination grant	145,045,143	17,429	8,322
Other subsidies	192,115,525	9,465	20,297
Imputed rental	70,861,840,577	2,234,641	31,711

Source: Special tabulations of data from the 1994 National Socio-economic Survey (CASEN).*a/* Excludes imputed rental.

Table 11

CHILE: TOTAL INCOME AND PER CAPITA INCOME BY REGION 1994 AND 1996

Region	Total income (adjusted)			
	1994		1996	
	pesos per month	%	pesos per month	%
Country Total	1,156,576,134,415	100.0	1,534,990,539,149	100.0
I	30,102,542,518	2.6	36,512,340,567	2.4
II	33,245,005,812	2.9	51,924,311,445	3.4
III	14,629,661,279	1.3	27,455,521,921	1.8
IV	30,764,907,923	2.7	40,084,953,770	2.6
V	106,974,829,971	9.2	137,958,809,338	9.0
VI	44,049,561,176	3.8	56,312,106,830	3.7
VII	46,240,115,925	4.0	60,437,202,991	3.9
VIII	107,923,184,888	9.3	153,959,098,002	10.0
IX	50,953,285,819	4.4	55,060,609,495	3.6
X	63,363,480,043	5.5	73,907,935,255	4.8
XI	5,168,639,476	0.4	7,828,635,922	0.5
XII	13,047,930,163	1.1	17,683,510,617	1.2
Metropolitan area	610,112,989,422	52.8	815,865,502,996	53.2

Region	Per capita income (adjusted)			
	1994		1996	
	pesos per month	Index (Metro area = 100)	pesos per month	Index (Metro area = 100)
Country Total	83,754	75.6	107,853	75.4
I	86,224	77.8	100,674	70.4
II	79,651	71.9	120,441	84.2
III	62,120	56.1	111,064	77.7
IV	59,447	53.7	75,018	52.5
V	74,846	67.6	93,825	65.6
VI	61,652	55.7	76,370	53.4
VII	54,256	49.0	69,679	48.7
VIII	60,015	54.2	83,718	58.5
IX	64,364	58.1	67,604	47.3
X	64,959	58.6	74,049	51.8
XI	64,789	58.5	94,767	66.3
XII	92,800	83.8	123,441	86.3
Metropolitan area	110,770	100.0	143,025	100.0

Source: Special tabulations of data from CASEN surveys for 1994 and 1996.



ECLAC
Economic Commission for Latin America and the Caribbean

NON-RESPONSE TO QUESTIONS ABOUT INCOME **Its extent and effects on Household Surveys** **in Latin America ^{2/}**

^{2/} This document was prepared by Juan Carlos Feres, Chief, Social and Poverty Statistics Unit, Division of Statistics and Economic Projections, ECLAC

1. Introduction¹

Information on personal incomes, captured through household surveys, tends mainly to be affected by two types of problem as regards informant response: namely, *omission* of certain income flows and *under-recording* of amounts actually received.² Although it is not always possible to distinguish the two,³ both affect survey results —sometimes significantly— with repercussions, for example, on estimates of average income of recipients, total household income, the structure of the income distribution, or —when measuring living conditions— poverty indices (especially those measuring extreme poverty or indigence).

This note makes a brief analysis of the first of these problems, namely *omission or non-response by informants*. As is well known, this may be due to a wide variety of causes which are difficult to classify, such as plain refusal to inform, ignorance of having received certain incomes or of their value (for example, indirect informant, sporadic nature of income, incomes accrued but not claimed), unsuitable questionnaire design or badly written questions, or else shortcomings in field work manuals and/or in interviewer training.

Some of the entities that carry out surveys in Latin America specifically address this issue in data consistency procedures, which sometimes include imputing the values that are missing due to non-response. However, it cannot be said that this is a generalized practice in the countries of the region. Moreover, there is a well-known controversy over whether it is appropriate for the office producing a survey to intervene in the original data by making this type of correction, and if so, what is the most appropriate method for doing it. However, against that, from the users' standpoint it is always useful to deal with the problem and often essential to make the corresponding corrections, as otherwise there is a risk of seriously distorting the conclusions of the analysis.

This paper provides information on the extent of non-response to questions about income in permanent household survey programs carried out in Latin American countries during the 1990s. Of course, this information is limited to income categories where problems of non-response can be detected or inferred. The extent and effects of this situation need to be assessed in each concrete case, both as regards partial non-response (relating to a given type of income) and in cases of overt refusal to provide information on the subject. Some methodological alternatives are then suggested to correct for non-response, the results from a concrete application are given and, based on the conclusions of the analysis, it is suggested that, depending on the incidence of the problem, the possibility of making relevant adjustments to impute the missing data should be considered.

¹ The preparation of the information and processing of the data used in this paper was carried out by María de la Luz Avendaño and Carlos Daroch of the Statistics and Economic Projections Division of ECLAC.

² Omission, or non-response, occurs when a person surveyed does not report the amount of income received from a given income source, for which she/he was consulted and ought to respond. Under-recording relates to the difference between the income reported and the amount actually received. In addition, for certain purposes *refusal to be interviewed* should be added to these response problems; however, this eventuality is usually treated differently from the other two.

³ Due to a variety of circumstances that can affect the quality and precision of the data collected, some of which are mentioned in section II.2.

2. Extent of the problem in Latin America

2.1 Household surveys analysed

The preparation of this note involved analyzing a set of multi-purpose household surveys carried out in a variety of Latin American countries. Each of the surveys chosen is carried out on a regular basis, and so forms part of a permanent survey program.⁴ In most cases these are multi-issue investigations, but in both design and content there is a central module that focuses on analyzing the labour market.

Table 1 lists the databases used from 16 countries, with data from years around 1990, 1994 and 1997 (46 surveys altogether). The agency running each survey is also specified, and certain characteristics are described relating to geographical coverage, the period to which the survey relates and sample size. In some surveys the information relates to the whole country (urban and rural zones), while in others it only covers urban areas, a sector of them or the Metropolitan Region alone.

2.2 Income categories for which it is possible to detect or infer non-response

A significant number of the surveys analysed investigate a broad spectrum of income types, not only covering incomes in money and in kind arising from labour-market participation, but also social security transfers (retirement and other pensions), property income (interest, dividends, rental incomes), other transfers (donations and gifts), and the imputed rental value of owner-occupied housing. Other surveys record a more limited concept of income, either not covering some of the income flows mentioned above, capturing monetary incomes only, or else being confined exclusively to income from the main occupation (see table 2).

However, quite apart from the breadth of the concept being investigated, in the survey file it is not always feasible to identify missing values relating to certain incomes and also faithfully attribute this to an omission or refusal to inform on the part of the respondent. For certain types of income this is practically impossible (e.g., transfers such as donations or gifts, interest on deposits or dividends from shares), because it is not practicable to strictly relate one or several attributes of a person or household with the certainty or high probability of having received such incomes. However, in other cases such an association can be established, based on the close link that exists, for example, between being in a paid occupation and receiving income from work, or declaring oneself retired and receiving a pension.

The detection of non-response can also be made more difficult by certain circumstances inherent in the information gathering operation. It is well-known that the design and clarity of the questionnaire, the writing and breakdown of the questions and the interviewee's understanding of them, along with survey manual specifications, the skill of the interviewer and the relevance and knowledge of the informant, are all factors affecting the precision of the data collected. Indeed, for example it is often impossible to identify with the desired rigor whether data relates solely to income from the main occupation or covers all occupations,

⁴ In the case of Chile the National Socioeconomic Survey (CASEN) was used, but it should be pointed out that the Survey of Employment and Unemployment is also carried out on a regular basis by INE. For Mexico, the (biannual) National Household Income and Expenditure Survey was used, although INEGI also periodically carries out the National Employment Survey and the National Urban Employment Survey.

whether it covers money incomes alone or also payments in kind, whether or not bonuses and overtime are included, and whether declared income from property corresponds exclusively to interest on deposits, or includes stock dividends and rental incomes as well. Thus, in practice it is impossible to know whether one is dealing with the omission of a certain type of income, or simply problems of identification, classification or under-estimation of the reported amounts.

In addition, it is also well-known that the option codes for variables relating to income amounts normally include the categories "not applicable", "zero income" and "not known / no reply", along with positive values. Yet, despite the fact that each of these categories is assumed to have a precise meaning, one often finds in database analysis that all three, rather than just the last, seem to relate to non-response events. It is therefore advisable from all points of view that these categories be carefully analyzed. In the case of incomes where the recipient can be identified, the code "not applicable" is clearly inconsistent and should be corrected. Moreover, the option "zero income", which is perfectly admissible as the survey asks about the value of income received in a given period, can also be validated *ex post* with a view to detecting possible inconsistencies.

In the light of these considerations and the restrictions they clearly imply, the categories used in this paper for identifying, quantifying and eventually correcting problems of non-response to questions about income were as follows:

- (i) People who declare themselves as employed in a category other than unpaid family worker, but who do not report the value of the income received from their main occupation.
- (ii) People who declare themselves to be retired or living from widows' or other pensions, but do not report the value of income received from such pensions.
- (iii) Households living in owner-occupied housing without reporting an imputed rental value.⁵

2.3 Incidence of non-response

To assess the extent of non-response in the three types of income mentioned above, it is helpful to have additional information on the practices followed in different countries for carrying out surveys and refining the data. Unfortunately the information that would have been useful for this purpose has often not been available. In particular, it would be interesting to identify surveys that have already undergone some type of imputation in this respect, to know whether household replacement is used in cases of refusal or incomplete information, whether only direct informants are accepted, or the number of visits made to the home to obtain the data.

In any event, the rates of non-response shown in table 3 reflect the state of the information in the respective surveys exactly as it has been made available to users. The table gives information on wage-earners who do not declare wages or salaries, self-employed persons not declaring incomes either as own-account workers or employers, pensioners who do not report the value of their retirement or other pension, and the percentage of households with no income.

⁵ It should be kept in mind that the specification of both group (i) and (ii) implicitly assumes the non-existence of errors of response and/or in the codification of the variable "activity status", whereas in group (iii) this assumption applies to the variable "home ownership". Moreover, as will be seen later, correction for non-response on imputed rent was applied, by way of illustration, only to the survey of Chile.

According to these figures, the incidence of non-response in some cases is quite high, and its magnitude is not always constant over the years, nor does it display a clear downward trend. Despite the variety of situations that can be detected, wage-earners in general have lower rates of non-response than the self-employed, and, within the latter group, own-account workers have lower rates than those who are employers. In addition, there are specific cases of high non-response rates among recipients of social security transfers. The result of all this is a situation where some surveys show more than 10% of households with no income.⁶

As regards non-response among wage-earners, the three surveys in Costa Rica stand out especially, each with an incidence of over 10%, as do Argentina-90 (16%) and Ecuador-94 (13%). The picture is clearly worse among self-employed workers: for instance the case of Panama-89 with rates close to 50%, or Argentina-90 and Panama-94 and 97 where they exceed 35% of income-earners in this category. In Argentina, however, it should be kept in mind that the high level of non-response is due to the fact that the survey normally does not investigate income of own-account workers in the agriculture and livestock sectors. However, notwithstanding the few cases mentioned above, it can be concluded that the extent of non-response is relatively low in most countries, at least among wage-earners (below 10% and sometimes only about 2% to 3%), and somewhat higher than this among the self-employed. Households reporting no income are even smaller percentages than those recorded for recipients of wages and salaries.

3. Some alternatives for dealing with non-response

When processing survey information to deal with the problem of non-response to questions about the value of certain incomes, there are several different criteria and methodological alternatives that can be adopted. Some of these are indicated below.

(a) Criteria

- For analysis involving income variables, exclude from the sample individual records where non-response is detected, along with the households to which these people belong. This type of procedure implicitly assumes that people who fail to declare all or some of their incomes have similar characteristics (broadly speaking) to those who do declare, so the distribution would not be affected. This is a strong assumption in itself, which at the very least would need to be supported by field investigation.
- Exclude those not responding to income questions, as above, but adjust sample unit expansion factors —based on an analysis of their distribution— so as not to alter the representativeness of the survey.
- Impute incomes wherever non-response is clearly detected.⁷

⁶ It should be made clear that despite what was said in section II.2 in terms of assessing the extent of non-response and its subsequent correction, this exercise has included people who figure with the value “zero” in the respective income category.

⁷ As has been stated already, this does not present great problems in income flows from work, retirement or other pensions, or imputed rents (which normally cover 90% of total incomes). Naturally it is more complicated in the other types of income where it is very difficult to detect possible omissions. For that reason they were not included in this exercise.

(b) Methodological alternatives

Where the last of these criteria is adopted, there are several methodological alternatives and proven computational techniques for making such imputations, depending on the type of income involved. In general, they consist of using information contained in observed data to construct "reasonable" estimates of the missing values. The most commonly used techniques include:⁸

- Mean imputation.
- Imputation by regression.
- Principal components imputation.
- Hot Deck imputation.

The criteria and procedures used in this paper to make income imputations in each case were generally as follows:

(i) *Employed people without income from work.* The technique used was mean imputation,⁹ consisting of imputing to each employed person the value of the mean income¹⁰ reported by people of similar characteristics. In most cases groups were defined in terms of the simultaneous intersection of five variables, namely:¹¹

- Occupational category (all codes except unpaid family work and unknown)
- Kinship relation (head; non-head)
- Gender (man; woman)
- Educational level (Primary complete; Primary complete and Secondary incomplete; Secondary complete and Higher)
- Branch of economic activity (primary; secondary and tertiary)

(ii) *Retired and otherwise pensioned persons without income from retirement or other pensions.* Here the procedure was similar to that for employed persons, but the only variables involved are: kinship relation, gender and educational level. Within this framework, the technique of averaging was also used.

(iii) *Owner-occupied households without imputed rents.* The "Hot Deck" technique was applied to the geographically ordered file.¹² Households are selected according to the variables: housing situation ("own paid for" and "own being paid for"), and type of housing (for example, house or apartment). At the same time, for households reporting a positive value for imputed rent despite not being owners of the home they occupy, this value is eliminated for consistency reasons or due to the precariousness of the condition of tenancy.

⁸For a brief but illustrative description of these methods, see G. Ramírez, "Imputación de Datos" in: *Informe del Primer Taller Regional del MECOVI*, ECLAC, document LC/R.1826, July 1998. As is indicated there, most of these techniques are based on the assumption that the missing values are caused by completely random mechanisms.

4. Results of imputation

The results of income imputation due to informant non-response are presented separately for employed persons (wage-earners and the self-employed) and those who are retired or otherwise pensioned (tables 4.1 to 4.3).¹³ Changes caused in the level of average income and in the Gini coefficient for the respective category were used as a measure of the impact of that imputation, taking as a reference the value of these parameters both in the set of people making up the group (including those not declaring income) and the smaller set of those who do declare. The percentage of households without incomes, both before and after the imputation to deal with non-response in these three categories, are shown in table 4.4. Finally, table 5 describes the correction made to incomes reported in the category of rent from owner-occupied housing in the CASEN survey in Chile.¹⁴

Some interesting facts can be inferred—in general terms—from the information obtained in this exercise. Firstly, as indicated above, the proportion of records affected by imputation varies from case to case, because the extent of omission by class of activity or type of income varies widely between different surveys. Secondly, the same is true as regards the impact of the imputation, at least when evaluated in terms of changes to average group income (wage-earners, self-employed and retired), compared to the previous situation considering all members of the respective category. Thus analyzed, the impact of imputation is correlated with the level of omission,¹⁵ but the value of average income of recipients goes up more than proportionately when there is a high rate of non-response. In the third place, if the comparison is made only with respect to the group declaring their income, the imputation may either raise or lower average income. Nevertheless, in this case the variation tends to be quite small, except where the lack of response is high, in which case the variation may become significant.

⁹ This estimates missing values by applying the mean of observed or available values for individuals of similar characteristics.

¹⁰ Average monetary income from main occupation.

¹¹ In some countries, including Chile, two additional variables were included: region and occupation (the latter being recoded at the level of Large Groups).

¹² As can be seen in table 2, only the surveys for Chile, Dominican Republic, El Salvador, Mexico, and Uruguay analysed the concept of imputed rent from owner-occupied housing. Accordingly, the procedure described was applied in those countries exclusively. The results shown in the following point come from the CASEN survey in Chile.

¹³ It should be noted that corrected cases do not always cover 100% of non-response, because sometimes it is impossible to find people who have reported their incomes and have the same characteristics as the person being analysed. When this happened, an attempt was made to reduce the number of attributes considered. However, in general it meant working with very few variables to obtain a significant increase in the number of "paired" records, with a consequent loss of precision as regards the value to impute.

¹⁴ Although not included here, it would also be interesting to consider a statistical evaluation of the data in terms of the changes in sampling errors in the different income variable estimators, as a result of introducing imputed values.

¹⁵ As was to be expected, apart from anything else, by virtue of the criteria used in making the imputation (average income declared by respondents of similar characteristics).

In the latter situation, this could be taken as a clear indication that non-response does not generally follow the same distribution as the set of people who do report their incomes. This is strengthened by considering the effects of imputation on the income distribution of the respective categories. Comparing corrected data with the original data from the group as a whole reveals that imputation appreciably alters the Gini coefficient (by an amount which rises with the degree of non-response), whereas this changes less (but in no way negligibly) when compared to the set of people who do properly declare their incomes.

Finally at an aggregate level, the imputation of incomes, in the terms discussed above, drastically reduces the proportion of households without incomes or with partial declaration, with a consequent increase in household mean income.

For the particular case of imputed rent on owner-occupied housing, table 5 presents data from the CASEN survey in Chile. Of households in an ownership situation (own home paid for, or being paid for) no more than 6% failed to report a value for imputed rent. Yet even this percentage, corresponding to the 1994 survey, is considerably higher than in 1996 (2.0%) and 1990 (4.6%).

However, the problem assumes bigger proportions when one considers households that report income from this source without being owners. As will be recalled, both cases were corrected (people who do not respond and people who, for this purpose, are deemed to have made an inappropriate response). The first group was assigned an income in accordance with a "Hot Deck" technique, and in the second case the value reported was suppressed. Although this information has not been included, it should be mentioned that for the majority of years analyzed in this specific case the net outcome of the operation was negative, compared to the global amounts recorded originally in the survey.

5. Conclusions

The analysis of problems of omission or non-response to questions about income in Latin American household surveys reveals the existence of a wide variety of situations, and confirms that these attain significant proportions in more than a few cases. This underlines, first of all, the need to pay greater attention to non-response in the control tasks included in the process of data collection. It also shows the advisability of using systematically applied evaluation criteria to identify the affected categories, quantify the extent of the problem, and detect possible biases that need to be taken into account in the data analysis, and which would help to overcome this shortcoming in future surveys. All of this helps to avoid the temptation, into which one often mistakenly falls, of assuming *a priori* and in a generalized way that non-response is a quantitatively irrelevant phenomenon, or else does not affect the statistical reliability of the data or the level and/or distribution of incomes measured in the surveys.

Consequently, depending on the nature of the issue to be studied on the basis of this information, it may be advisable to apply *ex post* imputation procedures on the missing data. Not to do so, for example, on issues such as the measurement and analysis of living conditions or income distribution, could call the quality of the study and the validity of its conclusions and policy recommendations seriously into question. There are a variety of proven techniques that enable this imputation task to be carried out, and their effects on the original data ought also to be subjected to careful evaluation.

Table 1
LATIN AMERICA: DESCRIPTION OF SELECTED HOUSEHOLD SURVEYS

COUNTRY AND YEAR	NAME	EXECUTIVE AGENCY	GEOGRAPHICAL COVERAGE	PERIOD	SAMPLE SIZE		SAMPLING FRACTION (Households)	EXPANDED SAMPLE	
					Households	Persons		Households	Persons
ARGENTINA	Permanent Household Survey	National Institute of Statistics and Censuses		October					
1990	"	"	Greater Buenos Aires	"	3,001	10,434	1/1085	3,255,937	11,233,064
1994	"	"	20 conurbations	"	21,771	81,969	1/239	5,207,695	18,222,412
1997	"	"	Greater Buenos Aires	"	3,423	11,418	1/1029	3,520,817	11,689,330
BOLIVIA	Integrated Household Survey	National Institute of Statistics	Eight departmental capital cities plus El Alto a/	November	5,483	26,820	1/96	528,016	2,518,557
1989	"	"	"	July-December	6,102	27,284	1/114	693,028	3,091,841
1994	"	"	"	November	8,461	36,752	1/215	1,822,204	7,826,844
1997	National Employment Survey	"	National						
BRAZIL	National Household Survey	Brazilian Geographical and Statistical Institute	National b/						
1990	"	"	"	October-December	73,200	306,493	1/488	35,710,589	147,305,524
1993	"	"	"	September	80,167	322,205	1/462	37,063,900	148,216,677
1996	"	"	"	September	84,947	331,263	1/469	39,837,794	154,360,589
CHILE	National Socio-economic Survey	Ministry of Planning and Cooperation	National	November					
1990	"	"	"	"	25,127	102,412	1/126	3,172,550	12,934,650
1994	"	"	"	"	45,379	178,057	1/78	3,536,774	13,809,195
1996	"	"	"	"	33,636	134,262	1/107	3,587,641	14,232,244
COLOMBIA	National Household Survey	National Bureau of Statistics		September					
1990	"	"	8 principal cities c/	"	15,139	68,546	1/165	2,504,340	11,102,456
1994	"	"	National	"	25,407	111,427	1/302	7,669,348	33,863,478
1997	"	"	National	"	32,443	143,402	1/282	9,155,481	39,296,819
COSTA RICA	Multi-purpose household survey	Bureau of Statistics and Censuses	National	July					
1990	"	"	"	"	8,153	36,269	1/78	634,314	2,804,409
1994	"	"	"	"	9,000	38,771	1/80	719,844	3,070,918
1997	"	"	"	"	9,923	41,277	1/80	793,561	3,270,700

Table 1 (Cont.) LATIN AMERICAN: DESCRIPTION OF SELECTED HOUSEHOLD SURVEYS

COUNTRY AND YEAR	NAME	EXECUTIVE AGENCY	GEOGRAPHICAL COVERAGE	PERIOD	SAMPLE SIZE		SAMPLING FRACTION (Households)	EXPANDED SAMPLE	
					Households	Persons		Households	Persons
ECUADOR	Periodical Employment and Unemployment Survey	National Statistics and Census Institute	Urban	November					
1990	"	"	"	"	7,910	37,216	1/167	1,319,315	6,180,749
1994	"	"	"	"	8,239	37,409	1/179	1,471,522	6,654,260
1997	"	"	"	"	8,259	36,684	1/203	1,678,584	7,520,361
EL SALVADOR	Multipurpose Household Survey	Department of Statistics and Censuses							
1990	"	"	Urban	January-June	5,710	25,707	1/92	526,584	2,340,996
1995	"	"	National	January-December	8,482	40,004	1/139	1,169,454	5,464,185
1997	"	"	"	"	8,387	39,089	1/151	1,265,365	5,829,753
HONDURAS	Permanent Multi-purpose Household Survey	Department of Statistics and Censuses	National						
1990	"	"	"	September	8,597	46,534	1/100	860,017	4,695,313
1994	"	"	"	October	5,320	27,891	1/185	981,726	5,271,278
1997	"	"	"	September	6,355	32,526	1/173	1,100,474	5,713,453
MÉXICO	National Household Income and Expenditure Survey	National Institute of Statistics, Geography and Information	National	3 rd quarter					
1989	"	"	"	"	11,313	56,315	1/1401	15,853,226	78,725,023
1994	"	"	"	"	12,815	60,068	1/1517	19,440,271	89,814,982
1996	"	"	"	"	14,042	64,560	1/1441	20,231,665	92,039,266
NICARAGUA	Household Survey for Urban Employment Measurement	Ministry of Labour							
1997			Urban	October	4,457	22,336	1/75	333,566	1,657,628
PANAMÁ	Household Labour Force Survey	Statistics and Census Office	National	August					
1989	"	"	"	"	8,817	38,416	1/55	485,512	2,122,648
1994	"	"	"	"	9,342	38,633	1/60	564,671	2,404,807
1997	"	"	"	"	9,897	39,706	1/62	612,884	2,527,227

LATIN AMERICAN: DESCRIPTION OF SELECTED HOUSEHOLD

Table 1 (Conclusion)

COUNTRY AND YEAR	NAME	EXECUTIVE AGENCY	GEOGRAPHICAL	PERIOD	SAMPLE SIZE		SAMPLING FRACTION (Households)	EXPANDED SAMPLE	
					Households	Persons		Households	Persons
PARAGUAY	Household Labour Force Survey	Department of Statistics, Surveys and Censuses	Metropolitan Area Urban	June-August	988	4,784	1/241	240,996	1,154,034
1990	"	"		August & September	2,950	13,360	1/188	553,734	2,509,024
1994	"	"		August-December	2,594	11,470	1/259	672,576	2,995,054
1996	"	"	Urban						
DOMINICAN REPUBLIC	National Labour Force Survey	Central Bank	National	April	1,746	7,966	1/816	1,424,810	6,875,174
1992	"	"		June	5,546	23,730	1/273	1,514,080	7,351,331
1995	"	"		April	3,757	15,842	1/425	1,597,540	7,589,448
1997	"	"							
URUGUAY	Continuous Household Survey	Department of Statistics and Censuses	Urban	2 nd quarter					
1990	"	"	"	"	9,552	31,320	1/89	845,424	2,771,639
1994	"	"	"	"	9,578	30,937	1/92	882,225	2,845,434
1997	"	"	"	1997	20,003	64,028	1/47	939,800	3,010,923
VENEZUELA	Household Sample Survey	Central Statistics and Informatics Office	National	2 nd quarter					
1990	"	"	"	"	62,114	318,489	1/62	3,880,845	19,592,397
1994	"	"	"	"	19,672	96,127	1/220	4,331,745	21,385,559
1997	"	"	"	"	15,948	76,965	1/300	4,790,520	22,784,025

Source: ECLAC, Division of Statistics and Economic Projections, based on country household surveys.

a/ Cochabamba, La Paz, Oruro, Potosí, Santa Cruz, Sucre, Tarija, Trinidad and El Alto.

b/ Excluding the rural zone of the Northern Region.

Table 2
INCOME CONCEPT INVESTIGATED IN HOUSEHOLD SURVEYS *a/*

COUNTRY AND YEAR	INCOME CONCEPT <i>b/</i>	TYPE OF INCOME					INCOME REFERENCE PERIOD
		WAGES AND SALARIES	EARNINGS FROM SELF-EMPLOYMENT	TRANSFERS	PROPERTY INCOME (in cash)	IMPUTED RENT (use of owner occupied home)	
ARGENTINA							
1990	TMI	X	X	X	X	-	Previous month
1994	TMI	X	X	X	X	-	Previous month
1997	TMI	X	X	X	X	-	Previous month
BOLIVIA							
1989	PMI/TMI <i>c/</i>	X	X	X	X	-	Previous month
1994	PMI+T	X	X	X	-	-	Previous month
1997	PMI+T	X	X	X	X	-	Previous month
BRAZIL							
1990	TI-OC	X	X	X	X	-	September
1993	TI	X	X	X	X	-	September
1996	TI	X	X	X	X	-	September
CHILE							
1990	TI+IR	X	X	X	X	X	Previous month
1994	TI+IR	X	X	X	X	X	Previous month
1996	TI+IR	X	X	X	X	X	Previous month
COLOMBIA							
1990	PI-OC+T	X	X	X	-	-	Previous month
1994	PI+T <i>d/</i>	X	X	X	-	-	Previous month
1997	PI+T <i>d/</i>	X	X	X	-	-	Previous month
COSTA RICA							
1990	PMI+T	X	X	X	-	-	Previous month
1994	PMI+T	X	X	X	-	-	Previous month
1997	PMI+T	X	X	X	-	-	Previous month
ECUADOR							
1990	TI	X	X	X	X	-	Previous month
1994	TI	X	X	X	X	-	Previous month
1997	TI	X	X	X	X	-	Previous month
EL SALVADOR							
1990	TI	X	X	X	X	-	Variable
1995	TI	X	X	X	X	X	Variable
1997	TI	X	X	X	X	X	Variable
HONDURAS							
1990	PMI	X	X	-	-	-	Previous month
1994	PMI	X	X	X	X	-	Previous month
1997	TI	X	X	X	X	-	Previous month
MEXICO							
1989	TI+IR	X	X	X	X	X	Variable
1994	TI+IR	X	X	X	X	X	Variable
1996	TI+IR	X	X	X	X	X	Variable
NICARAGUA							
1997	TMI	X	X	X	X	-	Previous month

Table 2 (concl.)

COUNTRY AND YEAR	INCOME CONCEPT ^{b/}	TYPE OF INCOME					INCOME REFERENCE PERIOD
		WAGES AND SALARIES	EARNINGS FROM SELF-EMPLOYMENT	TRANSFERS	PROPERTY INCOME (in cash)	IMPUTED RENT (use of owner occupied home)	
PANAMA							
1989	TMI-AE	X	X	X	X	-	Previous month
1994	TMI	X	X	X	X	-	Previous month
1997	TMI-AE	X	X	X	X	-	Previous month
PARAGUAY							
1990	TI	X	X	X	X	-	Previous month
1994	TI	X	X	X	X	-	Previous month
1996	TI	X	X	X	X	-	Previous month
DOMINICAN REPUBLIC							
1992	MWS+MG	X	X	-	-	X	Week
1995	MWS+MG	X	X	-	-	X	Week
1997	TI	X	X	X	X	X	Variable
URUGUAY							
1990	TI+IR	X	X	X	X	X	Previous month
1994	TI+IR	X	X	X	X	X	Previous month
1997	TI+IR	X	X	X	X	X	Previous month
VENEZUELA							
1990	PMI	X	X	-	-	-	Previous month
1994	PMI+T	X	X	X	-	-	Previous month
1997	PMI+T	X	X	X	-	-	Previous month

Source: ECLAC, Statistics and Economic Projections Division, based on country household surveys.

a/ The letter "X" means that this type of income was investigated.

b/

- 1.- TMI = Total monetary income.
- 2.- PMI = Primary monetary income.
- 3.- PMI+T = Primary monetary income plus transfers.
- 4.- TI-OC = Total income minus own consumption.
- 5.- TI+IR = Total income plus imputed rent.
- 6.- Tiemp - OC = Total income of employed persons minus own consumption.
- 7.- PI - OC + T = Primary income minus own consumption plus transfers.
- 8.- PI + T = Primary income plus transfers.
- 9.- MWS = Monetary wages and salaries.
- 10.- TIM - AE = Total monetary income minus agricultural earnings.
- 11.- MWS + MG = Monetary wages and salaries plus monetary gains.

c/ At the level of employed persons, the income concept is PMI and at the household level it is TMI.

d/ In the rural area the income concept is: Primary monetary income plus transfers.

Table 3

RATE OF NON-RESPONSE TO QUESTIONS ON INCOME

(Percentages)

COUNTRY AND YEAR	EMPLOYED PERSONS				RETIRED AND/OR OTHERWISE PENSIONED	HOUSEHOLDS WITH NO INCOME
	WAGE- EARNERS	SELF-EMPLOYED				
		TOTAL	OWN-ACCOUNT WORKERS	EMPLOYERS		
ARGENTINA						
1990	16.19	38.94	36.90	48.04	6.43	13.42
1994	6.40	13.34	11.66	22.31	3.65	6.71
1997	9.61	16.35	12.85	29.86	2.46	7.52
BOLIVIA						
1989	2.96	5.42	5.15	10.18	n.a. a/	3.48
1994	1.71	1.47	1.19	2.59	2.69	0.71
1997	1.42	16.34	18.10	4.32	21.44	9.29
BRAZIL						
1990	0.79	1.75	1.66	2.18	0.56	1.36
1993	1.02	4.05	4.24	2.92	n.a. b/	1.69
1996	1.07	2.91	2.91	2.87	n.a. b/	2.53
CHILE						
1990	2.95	4.56	4.12	8.43	11.03	0.46
1994	4.86	7.04	6.36	11.63	10.78	0.92
1996	7.14	13.36	13.27	13.85	19.28	0.48
COLOMBIA						
1990	6.64	14.60	13.51	21.07	11.89	6.17
1994 U	7.39	14.00	13.05	19.08	12.48	6.38
R	4.10	15.74	15.20	19.64	5.84	6.06
1997	8.61	16.69	15.84	23.32	23.84	8.82
COSTA RICA						
1990	13.61	27.81	25.41	36.69	4.73	11.70
1994	10.32	17.15	15.72	21.01	5.72	7.94
1997	11.03	14.94	12.01	22.77	5.35	6.65
ECUADOR						
1990	6.23	4.29	4.20	4.84	6.80	3.37
1994	13.36	16.19	15.22	19.58	14.55	10.24
1997	6.31	8.10	6.70	13.16	6.55	5.07
EL SALVADOR						
1990	0.59	0.84	0.65	2.39	2.76	1.06
1995	0.44	5.26	4.47	8.88	0.11	1.20
1997	1.53	3.57	3.25	5.41	1.21	1.32
HONDURAS						
1990	2.06	3.55	3.42	8.53	n.a.	7.97
1994	1.54	2.25	2.22	2.66	14.31	2.13
1997	0.69	8.44	9.26	1.60	13.56	1.20
MEXICO						
1989	1.11	2.69	2.85	1.50	6.55	0.03
1994	0.26	4.05	4.05	4.03	0.92	-
1996	0.37	3.04	2.96	3.46	0.67	0.01
NICARAGUA						
1997	0.93	1.66	1.41	5.66	6.83	4.72
PANAMA						
1989	0.15	49.17	50.86	23.23	0.94	9.05
1994	0.37	37.04	38.32	25.12	1.44	5.97
1997	2.94	35.25	36.23	25.95	6.29	3.12
PARAGUAY						
1990	0.21	0.46	0.43	0.54	-	0.10
1994	-	0.11	0.16	-	-	0.23
1996	0.21	2.62	3.00	1.29	4.76	0.29

COUNTRY AND YEAR	EMPLOYED PERSONS				RETIRED AND/OR OTHERWISE PENSIONED	HOUSEHOLDS WITH NO INCOME
	WAVE- EARNERS	SELF-EMPLOYED				
		TOTAL	OWN-ACCOUNT WORKERS	EMPLOYERS		
DOMINICAN REPUBLIC						
1992	0.29	-	-	-	n.a.	9.21
1995	0.20	-	-	-	n.a.	10.94
1997	-	-	-	-	27.50	1.45
URUGUAY						
1990	2.09	3.63	4.23	1.80	1.76	0.09
1994	3.45	3.15	3.14	3.21	1.70	0.29
1997	2.51	3.32	3.39	2.92	2.09	0.04
VENEZUELA						
1990	4.41	6.21	5.84	7.33	n.a.	12.01
1994	2.32	4.92	4.77	5.60	n.a. b/	2.43
1997	6.92	9.75	9.45	13.05	n.a. b/	3.77

Source: ECLAC, Statistics and Economic Projections Division, based on special tabulations from country household surveys.

Note: The geographical coverage of each survey is indicated in table 1, and the income concept investigated in table 2.

A dash means there are no records with omitted incomes in the database.

a/ Questioned at the household level.

b/ Activity status not identified.

Table 4.1

RESULTS OF INCOME IMPUTATION FOR WAGE-EARNERS

COUNTRY AND YEAR	Not declaring incomes (%)	Percentage variation in mean income compared to:		Absolute variation in Gini coefficient compared to:	
		All wage-earners	Wage-earners declaring income	All wage-earners	Wage-earners declaring income
ARGENTINA					
1990	16.19	19.32	-0.75	-0.0999	-0.0165
1994	6.40	6.84	0.07	-0.0380	-0.0074
1997	9.61	10.63	-0.39	-0.0574	-0.0163
BOLIVIA					
1989	2.96	3.05	-0.16	-0.0140	-0.0047
1994	1.71	1.74	-0.17	-0.0083	-0.0020
1997	1.42	1.44	-0.20	-0.0074	-0.0011
BRAZIL					
1990	1.56	1.58	-0.43	-0.0068	-0.0002
1993	1.20	1.22	-0.07	-0.0051	0.0000
1996	1.29	1.31	-0.10	-0.0058	-0.0007
CHILE					
1990	2.95	3.04	0.03	-0.0158	-0.0024
1994	4.87	5.11	1.09	-0.0265	-0.0006
1996	7.14	7.69	0.29	-0.0381	-0.0017
COLOMBIA					
1990	6.64	7.11	1.29	-0.0353	-0.0100
1994 U	7.39	7.98	1.01	-0.0372	-0.0135
R	4.10	4.28	1.48	-0.0137	-0.0070
1997	8.90	9.77	1.74	-0.0459	-0.0121
COSTA RICA					
1990	13.61	15.75	3.47	-0.0829	-0.0096
1994	10.32	11.50	3.76	-0.0622	-0.0043
1997	11.03	12.39	3.70	-0.0652	-0.0088
ECUADOR					
1990	6.23	6.64	0.31	-0.0352	-0.0077
1994	13.36	15.41	0.91	-0.0742	-0.0208
1997	6.31	6.74	0.33	-0.0335	-0.0105
EL SALVADOR					
1990	0.59	0.59	-	-0.0034	-
1995	0.44	0.44	0.17	-0.0025	-0.0004
1997	1.53	1.55	0.69	-0.0083	-0.0017
HONDURAS					
1990	2.03	2.07	1.26	-0.0106	-0.0013
1994	1.54	1.56	0.08	-0.0084	-0.0022
1997	0.69	0.69	0.17	-0.0039	-0.0002
MEXICO					
1989	1.11	1.12	-	-0.0062	-
1994	0.26	0.26	-	-0.0013	-
1996	0.37	0.37	-	-0.0019	-
NICARAGUA					
1997	0.93	0.93	0.35	-0.0046	-0.0011
PANAMA					
1989	0.15	0.15	0.02	-0.0008	-0.0003
1994	0.37	0.37	0.15	-0.0020	0.0000
1997	2.94	3.02	0.65	-0.0154	-0.0034
PARAGUAY					
1990	0.21	0.21	0.03	-0.0013	0.0000
1994	0.00	0.00	-	0.0000	-0.3984
1996	0.21	0.21	0.07	-0.0012	-0.0001

Table 4.1 (concl.)

COUNTRY AND YEAR	Not declaring incomes (%)	Percentage variation in mean income compared to:		Absolute variation in Gini coefficient compared to:	
		All wage-earners	Wage-earners declaring income	All wage-earners	Wage-earners declaring income
DOMINICAN REPUBLIC					
1992	0.29	0.29	-0.03	-0.0015	-0.0007
1995	0.20	0.20	-0.02	-0.0011	-0.0004
1997	0.00	0.00	-	0.0000	-
URUGUAY					
1990	2.57	2.64	-0.37	-0.0157	-0.0024
1994	3.45	3.57	7.96	-0.0194	-0.0203
1997	2.87	2.96	9.14	-0.0156	-0.0238
VENEZUELA					
1990	4.41	4.61	0.32	-0.0297	-0.0047
1994	2.53	2.60	0.13	-0.0151	-0.0026
1997	8.52	9.31	-0.02	-0.0501	-0.0082

Source: ECLAC, Statistics and Economic Projections Division, based on special tabulations from country household surveys.

Table 4.2

RESULTS OF INCOME IMPUTATION FOR SELF-EMPLOYED WORKERS

COUNTRY AND YEAR	Not declaring incomes (%)	Percentage variation in mean income compared to:		Absolute variation in Gini coefficient compared to:	
		All wage-earners	Wage-earners declaring income	All wage-earners	Wage-earners declaring income
ARGENTINA					
1990	38.94	63.77	1.42	-0.1953	-0.0434
1994	13.34	15.40	1.69	-0.0684	-0.0139
1997	16.35	19.55	3.67	-0.0830	-0.0155
BOLIVIA					
1989	5.42	5.74	0.87	-0.0239	-0.0096
1994	1.47	1.50	0.66	-0.0070	-0.0012
1997	16.24	19.40	-10.44	-0.0607	-0.0089
BRAZIL					
1990	4.90	5.16	-1.69	-0.0184	-0.0003
1993	5.81	6.16	-1.41	-0.0183	-0.0005
1996	4.54	4.76	-1.36	-0.0177	-0.0003
CHILE					
1990	4.56	4.77	0.99	-0.0169	-0.0023
1994	6.97	7.49	2.61	-0.0253	-0.0028
1996	13.36	15.42	0.76	-0.0497	-0.0034
COLOMBIA					
1990	14.60	17.09	3.74	-0.0601	-0.0237
1994 U	14.00	16.28	3.40	-0.0469	-0.0206
R	15.74	18.68	0.49	-0.0663	-0.0349
1997	16.72	20.07	2.24	-0.0638	-0.0189
COSTA RICA					
1990	27.81	38.52	2.52	-0.1406	-0.0523
1994	17.15	20.70	2.09	-0.0819	-0.0244
1997	14.94	17.57	2.65	-0.0736	-0.0259
ECUADOR					
1990	4.29	4.49	-0.11	-0.0215	-0.0078
1994	16.19	19.32	1.71	-0.0736	-0.0289
1997	8.10	8.81	1.76	-0.0420	-0.0067
EL SALVADOR					
1990	0.84	0.85	-	-0.0037	-
1995	5.26	5.55	-0.88	-0.0231	-0.0070
1997	3.57	3.70	-0.96	-0.0147	-0.0014
HONDURAS					
1990	2.94	3.03	0.84	-0.0106	-0.0015
1994	2.24	2.29	0.00	-0.0093	-0.0028
1997	8.43	9.20	-2.12	-0.0327	-0.0138
MEXICO					
1989	2.69	2.76	-	-0.0088	-
1994	4.05	4.22	-	-0.0130	-
1996	3.04	3.14	-	-0.0096	-
NICARAGUA					
1997	1.66	1.69	1.41	-0.0070	0.0004
PANAMA					
1989	49.17	96.73	-0.05	-0.1990	-0.0009
1994	37.04	58.83	0.62	-0.1524	-0.0046
1997	35.25	54.44	2.25	-0.1500	-0.0077
PARAGUAY					
1990	0.46	0.46	0.12	-0.0023	-0.0008
1994	0.11	0.11	-0.04	-0.0006	-0.0001
1996	2.62	2.69	-1.26	-0.0092	-0.0002

Table 4.2 (concl.)

Country and year	Not declaring incomes (%)	Percentage variation in mean income compared to:		Absolute variation in Gini Coefficient compared to:	
		All wage-earners	Wage-earners declaring income	All wage-earners	Wage-earners declaring income
DOMINICAN REPUBLIC					
1992	0.00	0.00	-	0.0000	-
1995	0.00	0.00	-	0.0000	-
1997	0.00	0.00	-	0.0000	-
URUGUAY					
1990	3.63	3.77	-0.79	-0.0098	-0.0032
1994	3.15	3.25	3.19	-0.0147	-0.0090
1997	3.86	4.02	4.03	-0.0163	-0.0115
VENEZUELA					
1990	6.21	6.62	0.49	-0.0357	-0.0079
1994	4.92	5.17	0.21	-0.0275	-0.0070
1997	9.75	10.81	0.46	-0.0462	-0.0175

Source: ECLAC. Statistics and Economic Projections Division, based on special tabulations from country household surveys.

Table 4.3

**RESULTS OF INCOME IMPUTATION FOR RETIRED PERSONS AND OTHER
PENSIONERS**

COUNTRY AND YEAR	Not declaring incomes (%)	Percentage variation in mean income compared to:		Absolute variation in Gini Coefficient compared to:	
		All wage-earners	Wage-earners declaring income	All wage-earners	Wage-earners declaring income
ARGENTINA					
1990	6.43	6.87	1.68	-0.0476	0.0025
1994	3.65	3.79	0.71	-0.0215	-0.0040
1997	2.46	2.52	0.27	-0.0136	-0.0031
BOLIVIA					
1989	-	-	-	-	-
1994	2.69	2.76	-	-0.0162	-
1997	17.65	21.44	-8.64	-0.1051	-0.0183
BRAZIL					
1990	0.56	0.57	0.59	-0.0016	-0.0004
1993	-	-	-	-	-
1996	-	-	-	-	-
CHILE					
1990	11.03	12.40	-1.17	-0.0621	-0.0109
1994	10.78	12.08	-1.40	-0.0575	-0.0111
1996	19.28	23.88	-2.52	-0.1072	-0.0180
COLOMBIA					
1990	11.89	13.50	1.64	-0.0744	-0.0115
1994 U	12.48	14.26	0.30	-0.0795	-0.0187
R	5.84	6.20	0.83	-0.0389	-0.0047
1997	19.25	23.84	2.14	-0.1149	-0.0275
COSTA RICA					
1990	4.73	4.96	0.23	-0.0292	-0.0042
1994	5.72	6.07	0.47	-0.0300	-0.0063
1997	5.08	5.35	0.85	-0.0284	-0.0061
ECUADOR					
1990	6.80	7.29	-0.34	-0.0463	-0.0112
1994	14.55	17.03	-0.09	-0.1055	-0.0160
1997	6.55	7.01	0.86	-0.0413	-0.0069
EL SALVADOR					
1990	2.76	2.84	-	-0.0170	-
1995	0.11	0.11	-	-0.0007	-
1997	1.21	1.23	0.22	-0.0077	-0.0010
HONDURAS					
1990	-	-	-	-	-
1994	14.31	16.70	0.64	-0.0805	-0.0058
1997	13.56	15.68	0.66	-0.0638	-0.0239
MEXICO					
1989	6.54	7.00	-	-0.0396	-
1994	0.92	0.93	-	-0.0051	-
1996	0.67	0.67	-	-0.0042	-
NICARAGUA					
1997	-	-	-	-	-
PANAMA					
1989	0.94	0.95	0.01	-0.0060	-0.0011
1994	1.44	1.46	-0.01	-0.0088	-0.0018
1997	6.29	6.72	1.00	-0.0373	-0.0078
PARAGUAY					
1990	0.00	0.00	-	0.0000	-0.4723
1994	0.00	0.00	-	0.0000	-0.4498
1996	4.76	5.00	-0.48	-0.0283	-0.0084

Table 4.3 (concl.)

COUNTRY AND YEAR	Not declaring incomes (%)	Percentage variation in mean income compared to:		Absolute variation in Gini coefficient compared to:	
		All wage-earners	Wage-earners declaring income	All wage-earners	Wage-earners declaring income
DOMINICAN REPUBLIC					
1992	-	-	-	-	-
1995	-	-	-	-	-
1997	27.54	38.01	-	-0.0698	-
URUGUAY					
1990	1.76	1.79	-0.45	-0.0092	-0.0027
1994	1.15	1.16	0.11	-0.0064	-0.0010
1997	1.39	1.41	0.35	-0.0075	-0.0013
VENEZUELA					
1990	-	-	-	-	-
1994	-	-	-	-	-
1997	-	-	-	-	-

Source: ECLAC, Statistics and Economic Projections Division, based on special tabulations from country household surveys.

Table 4.4

RESULTS OF HOUSEHOLD INCOME IMPUTATION

COUNTRY AND YEAR	1990		1994		1997	
	Percentage of households without income					
	Before imputation	After imputation	Before imputation	After imputation	Before imputation	After imputation
ARGENTINA	13.42	1.63	6.71	2.68	7.52	2.34
BOLIVIA	9.78	2.06	0.73	0.34	9.29	0.00
BRAZIL	1.36	0.95	1.69	1.25	2.53	1.92
CHILE	0.46	0.42	0.92	0.57	0.48	0.23
COLOMBIA U	6.17	1.03	6.38	0.98	8.82	1.78
R	-	-	6.06	1.17	-	-
COSTA RICA	11.70	2.41	7.94	1.86	6.65	1.47
ECUADOR	3.37	1.09	10.24	2.40	5.07	1.38
EL SALVADOR	1.06	-	3.31	2.37	1.32	0.70
HONDURAS	7.97	6.66	2.13	1.51	1.19	0.96
MEXICO	0.03	-	0.00	-	0.01	-
NICARAGUA	-	-	-	-	4.72	4.15
PANAMA	9.05	8.98	5.97	5.78	3.12	1.74
PARAGUAY	0.10	0.10	0.23	0.23	0.29	0.24
DOMINICAN	9.21	9.21	10.94	10.94	1.45	-
REPUBLIC						
URUGUAY	0.09	0.08	0.29	0.18	0.23	0.17
VENEZUELA	12.01	9.29	2.43	1.14	3.77	0.94

Source: ECLAC, Statistics and Economic Projections Division, based on special tabulations from country household surveys.



ECLAC
Economic Commission for Latin America and the Caribbean

INCOME DISTRIBUTION DATA FOR LATIN AMERICAN COUNTRIES: ROBUSTNESS ASSESSMENT REPORT ^{2/}

^{2/} This document was compiled by the Economic Commission for Latin American and the Caribbean (ECLAC).

1. Background

1. One of the activities of the Canberra Group has been the establishment of a questionnaire designed to study the robustness of income distribution estimates based on household surveys. This questionnaire was answered in a first stage by Australia, Canada, The Netherlands, United Kingdom and USA.
2. ECLAC develops a number of activities related to the improvement of household surveys in the Latin-American region. Within them, it has distributed to a selected group of countries the original questionnaire and has received answers of five countries. There is a translation available of four of them: Argentina, Brazil, Chile, and Mexico. Recently, the questionnaire of Peru was received at ECLAC, but has not been translated to English.
3. The content of the questionnaires is presented to the Canberra Group in this document. Some comments will be presented at the next meeting of the group to be held in Ottawa in June 1999.
4. A more complete analysis will be prepared for a meeting of the Latin-American group that will be held in Buenos Aires in the second semester of 1999 under the framework of the MECOVI Programme.
5. It is highly probable that most of the activities in this field in the Latin-American region is quite recent, due to the fact that the experience is also much shorter than that of developed countries. Nonetheless, the fact of introducing this questionnaire will probably prove useful as an organized way of dealing with the need of discussing the robustness of income distribution estimates. ECLAC is involved in this effort and will try to establish permanent procedures in this field that will contribute to improve the quality of income statistics.

COUNTRY: Argentina

INSTITUTION: National Institute of Statistics and Censuses (INDEC)

PERMANENT HOUSEHOLD SURVEY

2. Name, description and major features of the survey

2.1. What is the name of the survey?

It is called the **Permanent Household Survey**.

Working through the Dirección de Encuestas a Hogares [Household Surveys Administration], the National Institute of Statistics and Censuses (INDEC) has been carrying out the Permanent Household Survey (PHS) since 1974. The geographical coverage of the survey has been gradually extended so that it now includes 28 urban centres and one urban-rural area.

These 28 urban centres are provincial capitals or cities with over 100 thousand inhabitants.

2.2 What is the sampling frame for the survey?

The survey gives separate estimates for each of the 28 urban centres, which means that these constitute **study domains** in themselves.

For the purposes of census operations, the country is divided into fractions, and these in turn into enumeration districts, which are continuous areas containing approximately 300 dwellings apiece.

For each of the 28 urban centres covered by the survey, the **sampling frame** was devised using information on enumeration districts provided by the 1991 National Population and Housing Census and the corresponding maps.

2.3 What are the main purposes pursued by the survey?

The PHS is a multi-purpose survey which collects information on households and individuals in relation to the following subject areas: employment situation, basic demographic characteristics (age, sex, etc.), and migratory, housing, educational and income characteristics. It periodically includes modules dealing with one-off issues.

The survey basically measures the dynamics of the Argentine labour market. Among other things, this means monitoring the structure of the labour market, exploring the profiles of the employed and unemployed, and extending the framework of possible approaches for diagnosing different aspects of our economy and society.

2.4 How is the data obtained?

In each survey operation 650 highly trained interviewers visit some 33,500 private dwellings selected from across all the urban areas and personally interview their occupants to obtain information on the subjects covered by the survey.

The usual operating procedure for the survey is to obtain information directly from the individual concerned. In the case of members who cannot be contacted in person, responses from another member of the household are acceptable when the triangulation method is used. This method consists in having the informant obtain the data on the household member being surveyed directly from that person, then pass it on to the interviewer on a subsequent visit.

2.5 If data is drawn from more than one source, how is the data linked?

Linking is carried out by analysing results and ensuring methodological compatibility with information from other survey operations. PHS information is also incorporated into the Sistema Integrado de Indicadores Sociales [Integrated System of Social Indicators].

2.6 What are the achieved sample size and response rates?

The sample size for the 28 urban areas surveyed in May 1998 was 33,700 households. Of these, 88.4% were surveyable. The response rate of surveyable households was 92.2%.

For Greater Buenos Aires (City of Buenos Aires and Districts of the Conurbation), the total number of households included in the sample was 4,300. The proportion of surveyable households was 89.8%, and the response rate for these was 88.6%.

In the households responding to the survey in Greater Buenos Aires, 96.2% of individuals responded to the income variable.

2.7 What is the measurement period for income?

Data always relates to a set period. In the case of employment status, the reference period is one week, while in the case of **income** it is one month, understood as the full month immediately preceding the reference week.

2.8 Is data collected throughout the year, or at one or more points in time?

Under the current methodology, it is collected three times a year on a point in time basis. This methodology is currently being reformulated to make collection continuous, so that data is gathered throughout a whole year.

2.9. Is data “current” or “retrospective”?

Data is current, and always relates to a specific period.

3. Completeness of coverage of the population

3.1 What is the total population of the country?

The total population of the country is 32,615,528, according to the 1991 National Population and Housing Census.

3.2 Which of the groups below are excluded, completely or in part, from the sampling frame or the dataset, and what are the likely effects on income analyses?

As the question does not explain which groups information is required for, we shall refer to inclusion/exclusion of the population aimed at by the survey.

The survey is aimed at people living in private dwellings in urban areas, i.e. dwellings used for all or most of the year as the normal family residence. These include: houses, apartments, workplace accommodation, informally occupied housing, mobile housing, premises not built for residential purposes (but used for these purposes), tenements, boarding houses and hotels with up to 10 rooms.

The coverage excludes collective housing, i.e.: retirement homes, reformatories, boarding schools, hospitals, prisons, barracks, monasteries and convents and hotels with more than 10 rooms. It does include families living in these establishments that form an independent group, as may be the case with their managers, caretakers and porters.

According to the 1991 National Population and Housing Census, 87.2% (28,439,499 people) of the population is urban, of which 70.3% (19,993,509 people) falls within the 28 urban areas of the PHS.

4. Sample design, non-response biases, weighting

4.1 What are the sampling fraction(s) and sample design?

As has already been noted, the PHS is carried out in 28 urban centres and one urban-rural area. Each one of these constitutes a study domain. Probability, stratified, two-stage and self-weighting samples are used within each urban centre.

The enumeration districts are the primary sampling unit, these being selected with probability proportional to size measured by the number of private dwellings in the 1991 Census. These primary units are grouped into strata by the level of education of heads of household, in accordance with information provided by the same Census.

The secondary sampling units are dwellings, which are selected systematically within these.

Sampling fractions vary between urban centres, the range being from 1/25 to 1/907.

4.2 What is known about the effects of sample design on sampling error?

The design effect for the unemployment rate variable, the main indicator to be calculated, varies between 1.5 and 2.0, depending on the urban centre.

Fuller information can be obtained from:

INDEC. *Encuestas de Hogares. Errores de Muestreo y Efectos de Diseño*. Colección Estudios. Number 19. National Institute of Statistics and Censuses, Buenos Aires, 1990, 23 p.

4.3 Is a standard set of weights available? If so, what is their purpose and how are they derived?

Expansion of the sample is carried out in three stages:

- a) It is expanded by the inverse of the probability with which each dwelling in the sample was selected.
- b) It is corrected by a *non-response corrector* stratum by stratum. To construct this, use is made of information from the family questionnaire on the reasons why the interview could not be held. These reasons are classified into two groups:

First group

Absence
Refusal
Other Reasons

Second group

Unoccupied
Demolished
Weekend
Construction
Dwelling used only as working premises
List problems

The first group is for genuine cases of non-response, as it refers to dwellings where a household does exist but could not be contacted. On this basis, an enumeration is made of what are known as "actual dwellings", these being those that respond plus those that do not respond for reasons included in the first group. This information is used to construct a corrector Ch:

Ch:
$$\frac{\text{Total number of actual households in stratum } h}{\text{Total number of responding households in stratum } h}$$

c) Adjustment is carried out using the population projections produced at INDEC.

4.4 What non-response biases are known or strongly suspected?

Refusal rates are somewhat higher in the upper strata, as is commonly the case with household surveys.

4.5 What conclusions can be drawn – from comparisons with tax records, benefit records or other administrative records – about possible non-response biases likely to affect income distribution estimates?

The income variable obtained by the PHS is currently being validated against various external sources (Sistema Integrado de Jubilaciones y Pensiones [Integrated System of Pensions and Allowances], National Survey of Household Expenditure, industrial surveys and others, and the System of National Accounts).

Preliminary results suggest that there are no major biases in income from work. However, a higher non-response level is detected in the case of income from other sources, as specified in point 4.1.

A questionnaire test operation was carried out in the field in November 1998, and this will be repeated, after readjustment, in April 1999, with the objective of achieving better coverage of the diversity of income sources.

4.6 Are there any groups where non-response problems are suspected?

Analysis of the survey itself has revealed an income non-response rate of 3.8% in Greater Buenos Aires, for May 1998. The groups with the highest non-response rates are employers (18.6%) and professionally qualified employees and own-account workers (10.8% and 11.5% respectively).

4.7 Overall, which income estimates are thought to be most at risk of substantial non response bias?

The PHS does not apply corrections to income results obtained, which means that some of its components are at relatively high risk of non-response bias (see point 4.1).

In terms of the different income categories used in the survey to construct decile scales, Total Family Income and Per Capita Family Income have the greatest non-response biases. This is the case because in the PHS household income is constructed by totaling individual incomes, which means that all members of a given household have to supply all the amounts that make up their individual incomes for the total income of the household to be obtained.

5. Item non-response, imputation and editing

5.1 Which three income components have the largest incidence of non-response? What is the incidence for these three?

Income from remuneration paid to the waged labour force is always the category that gives the best results.

Conversely, earnings from capital (1. rents, property income, interest, and 2. dividends, profits, proceeds) evince the highest risk of non-response bias due to failure to report amounts and, above all, under-reporting of these.

5.2 Are any other income components significantly affected by item non-response?

5.3 Are any important categorical variables – e.g. age, economic status – significantly affected by item non-response?

Although there is no important categorical variable that is affected by non-response, some variables, detailed below, are imputed with the objective of obtaining databases without information gaps:

Age, Education (Literacy, School Attendance and Studies completed or in progress), Marital Status, Sex, Employment Status and Occupational Category of those in work in accordance with the criteria mentioned in 4.4.

5.4 What imputation techniques have been used for the variables identified above?

Current imputation processes are of two types.

The first one is used for demographic variables. Databases of individuals are processed using a programme (“Imputa”) employing overlapping of 75% of the sample from wave to wave. The data for the individuals being retained is compared with the value they had in the previous wave so that the missing data can be imputed. The variables that are imputed in this process are: Age, Education (Literacy, School Attendance and Studies completed or in progress), Marital Status and Sex.

The second process relates to the variables Employment Status and Occupational Category for those in work. Imputation is carried out with the hierarchical hot-decking method, using the variables Sex, Age, Family Relationship, stratum and rotation group.

5.5 What top- or bottom-coding has been employed? How many observations are affected? How have negative incomes after tax been treated?

No top- or bottom-coding is used, and incomes are not in fact coded in any way. Income tabulations are presented in a decile scale constructed from declared incomes.

5.6 Is the reporting of income net of direct taxes affected by imperfect data on direct taxes? If so, what are the main practical effects on estimates of the distribution of net incomes?

In the PHS, cash earnings are calculated for wage earners, and all components, both ordinary and extraordinary, are included. Employers’ social security contributions are excluded, as is income tax paid.

Where the self-employed are concerned – own-account workers and employers – income is measured in an approximate way using disposable income.

The most usual way of obtaining this income is to ask for the net operating result in the reference period, for which the respondent has to estimate the value of sales and/or income and deduct expenses from this. The net result approach means that direct taxes of all kinds are deducted.

Taxes that are paid in a completely direct way, both by the self-employed and by wage earners, may be omitted along with expenses when the amounts actually received are declared.

Since the PHS does not ask about direct taxes paid, there is no way of knowing the practical effects on the distribution of net incomes.

5.7 What other editing has been employed, affecting over 5% of the sample? How large an impact is this thought to have on measured incomes?

All the variables for which data is obtained, including income, are subjected to rigorous controls at the different stages: receipt of questionnaires, supervision, data input, correction of inconsistencies and information processing.

5.8 Which results are thought to be most sensitive to any imperfections (known or suspected) in imputation and editing?

No results that are sensitive to imperfections have been detected for any of the variables. In the specific case of incomes, imputation is not carried out.

6. Accuracy of data

6.1 How much of the data was collected by proxy?

None of the variables in the survey are collected by proxy.

6.2 How much of the data on earned income was (a) supplied by employer and (b) checked against employer's statements?

All survey information is obtained from direct sources, and the employer is not approached to corroborate the declaration made. However, interviewing staff report that pay-slips are often shown when they exist.

6.3 How does grossed income data from the micro-dataset compare with National Accounts estimates? What are the implications for income distribution estimates?

A major study carried out by ECLAC in 1993¹⁶ found that the degree of variation differed by income source.

This implies that some income sources are being underestimated (see point 4.1).

¹⁶ ECLAC, *Ingreso medio según las cuentas nacionales y la Encuesta Permanente de Hogares en 1985, según fuentes de ingreso en cada quintil*, ECLAC office in Buenos Aires, 1993, unpublished.

6.4 Is the picture of employment patterns, in the incomes micro-dataset, consistent with information from the Labour Force Survey or other data sources?

The PHS covers a wide range of subjects and, although it is a multi-purpose survey, it deals primarily with the labour force. The income variable, therefore, is collected in this context, which means that information about types of employment and incomes is absolutely consistent.

Research is currently being done on the relationship between the PHS and the National Survey of Household Expenditure (held nationally for the first time in 1997).

6.5 Any other comments?

Due to the fact that the income variable in the PHS is linked to and validated by other labour market variables, it is being suggested that once a year the revised survey, on top of this regular investigation, should include a module dealing more thoroughly with this issue, for use in calculating the Poverty Line.

7. Validity of data as guide to consumption capabilities

7.1 What comparisons have been made of median or mean net income with expenditure for (a) quintiles of the income distribution (b) particular groups e.g. the self-employed, farmers? What do these show? What are the implications for the validity of data, as a guide to quintiles'/groups' capacity to consume those goods and services normally financed from household disposable income?

The PHS does not collect information about household expenditure. The income distributions of waves from the two surveys (Permanent Household Survey and National Survey of Household Expenditure) are being compared.

7.2 In your country, do cash substitutes – e.g. food stamps, company cars – make significant additions to the incomes of particular groups or segments of the income distribution? What are the implications for the interpretation of income distribution results? What information is available in the incomes micro-dataset?

The PHS records earnings in kind (both goods and services) and food tokens (luncheon vouchers, food baskets and others), but does not put a value on them. It is planned that these will be quantified in the revised survey. To do this, we shall draw on the experience gained by discussing comparative methodology with the National Survey of Household Expenditure.

7.3 What types of housing are subsidized, and to what extent? Are the beneficiaries concentrated in one segment of the income distribution? What results are sensitive to this, and to the treatment of imputed rents for owner-occupiers?

The PHS collects information on structural characteristics and on the basis whereby housing is occupied, but no use is made of imputed rent methodologies.

7.4 Any other comments?

8. Households, families, individuals, children

8.1 What are the units of observation for income data?

Individuals are the unit of observation.

Information on income sources and amounts are obtained from these.

Individual amounts are totalled up to construct household incomes (Total Family Income and Per Capita Family Income).

8.2 How are “households” and “families” defined?

The Permanent Household Survey works not with the concept of the “family” but with that of the “household”.

Households may be private or collective.

A private household is a person or group of people, related or not, living under the same roof and having common provision for food and other essentials of living.

A collective household is a group of people living in the same dwelling in a non-family setting, for reasons of work, study, religion, punishment, military service, etc. It should be noted that households of this type are not studied by the PHS.

8.3 Which income components are not reported at the level of individuals?

All monetary income is reported, with details of the source and amount, as is the existence or otherwise of income in kind, tokens or luncheon vouchers, and other non-monetary income.

The information is presented in decile scales, with Income from Main Occupation, Total Individual Income, Total Family Income and Per Capita Family Income being accounted for in a standardized form.

Additionally, breakdowns of micro-data can be accessed through User Databases.

8.4 Is it possible to aggregate from “individuals” to “families” or “households”? What are the smallest and largest units for which income can be calculated?

Because of the way information is recorded, it is possible to identify the members of a given household. This means that, through the use of identification codes, income can be tabulated for both individuals and households, and their characteristics connected. The smallest unit, therefore, is the individual, and the largest unit is the household.

8.5 How are “children” defined?

The family questionnaire asks respondents to identify each of the members of the household being surveyed and their kinship with the head of household.

8.6 Is income data collected for children? If so, is it assigned to them or to other household members?

Income data is collected for each member of the household, and can thus be assigned to any relationship of kinship without distinction. All the questions in the questionnaire, including the income questions, are applied without any age limit.

8.7 How are individuals assigned to a “household” or “family”?

All the individuals composing a private household are considered to be members of the same household. A private household is defined as a person or group of people, related or not, living under the same roof and having common provision for food and other essentials of living.

8.8 Are the family relationships between different members of the household clearly identified? Is it possible to identify when members do not, in general, share incomes/budgets?

Family relationships are clearly identified in relation to the head of household, which means that what is recorded for each member is their relationship to the head of household. This means that the family relationships between the other members of the household are not always identified.

If those living in a dwelling do not share food or other essential costs, they are deemed to belong to different households even though they share the dwelling.

8.9 How are students and their income treated?

The educational variable is one of the variables dealt with by the survey and is not a distinct category. Students with incomes are treated in the same way as other members of the household, i.e. as individuals with incomes.

8.10 Are any of these features particularly important for the analysis of income distribution data for your country?

The fact that income is treated in a way that integrates it with other social indicators at the household level is very important, since an essential analytical framework for the Permanent Household Survey is that of Life Strategies. These Strategies, among which strategies for employment and the meeting of needs feature very prominently, are centred upon the “domestic unit”, a concept corresponding to the “household”.

COUNTRY: Brazil

**INSTITUTION: Brazilian Geographical
and Statistical Institute Foundation (IBGE)**

NATIONAL HOUSEHOLD SURVEY - PNAD

1. Name, description and major features of the survey

1.1 What is the name of the survey?

National Household Survey – PNAD.

1.2 What is the sampling frame for the survey?

It consists of a sample of households (private households and residential units in collective households) obtained in three selection stages – municipalities, sectors and households.

1.3 What are the main purposes pursued by the survey?

Yearly survey of household and population characteristics. It is divided into a basic survey and supplementary surveys. The basic survey deals with the following subjects:

- housing conditions, ownership of household equipment;
- demographic characteristics;
- school attendance and schooling;
- internal and external migration;
- fertility;
- work and income.

The supplementary surveys are used to expand on the subjects dealt with by the basic survey or to study issues appropriate to household surveys for which there is no need to design a specific sample. During the 1990s, the following subjects have been studied:

marriage rates;
child labour;
social mobility;
supplementary teaching;
health and physical mobility characteristics.

1.4 How is the data obtained?

By direct interview, in most cases with one of the occupants who answers for the rest.

1.5 If data is drawn from more than one source, how is the data linked?

There is no other data source.

1.6 What are the achieved sample size and response rates?

In 1997 the sample included 109,541 households and 346,269 individuals, with a response rate of 80.9%.

1.7 What is the measurement period for income?

The income surveyed is that normally received in September.

1.8 Is data collected throughout the year, or at one or more points in time?

The survey is held from October to December, but data is obtained from different periods, depending on the subject being studied.

1.9 Is data “current” or “retrospective”?

Data is current.

2. Completeness of coverage of the population

2.1 What is the total population of the country?

157,070,163, according to the Population Count held on 1/8/1996.

2.2 Which of the groups below are excluded, completely or in part, from the sampling frame or the survey, and what are the likely effects on income analyses?

- Population living in rural areas of the Northern Region, representing 2.5% of the total population of the country and 34.9% of that of the Northern Region.
- Population living in collective households in institutional establishments (soldiers in barracks or in buildings attached to military installations, convicts, those living in hospitals, boarding schools, old people's homes, orphanages, members of religious orders in monasteries and convents, etc.).
- Those living in embassies, consulates or legations.
- Those born after the reference date of the survey.

3. Sample design, non-response biases, weighting

3.1 What are the sampling fraction(s) and sample design?

Variable sampling fractions depending on the geographical area, as per the table below.

**SAMPLING FRACTION AND SAMPLE COMPOSITION,
BY UNITS IN THE FEDERATION AND METROPOLITAN REGIONS
1997**

Unidades da federação e regiões metropolitanas = Units in the federation and metropolitan regions

Fração de amostragem = Sampling fraction

Composição da amostra = Composition of the sample

Municípios = Municipalities

Setores = Sectors

Unidades domiciliares = Household units

Pessoas = Individuals

Names as original, except:

BRASIL = BRAZIL

RM DE = MR OF

DISTRITO FEDERAL = FEDERAL DISTRICT

Nota: A composição etc. = N.B.: The composition of the sample for the Unit of the Federation includes the Metropolitan Region

The National Household Survey (PNAD) is carried out using a probability sample of households obtained in three selection stages: primary units – municipalities; secondary units – enumeration sectors; and tertiary units – household units (private households and residential units in collective households).

In the first stage, the units (municipalities) were classified into two categories: self-representing (probability of belonging to the sample is 1) and non-self-representing. Municipalities belonging to the second category were put through a process of stratification and, in each stratum, were selected with replacement and probability proportional to the size of the resident population, as given by the 1991 Population Census.

In the second stage, the units (enumeration sectors) were likewise selected, for each municipality in the sample, with proportional probability and replacement, the measurement of size used being the number of household units in existence when the 1991 Population Census was taken.

In the final stage an equal probability selection was made, in each enumeration sector of the sample, of private households and residential units in collective households, so that the characteristics of the occupants and housing could be studied.

3.2 What is known about the effects of sample design on sampling error?

No research has been done on the subject.

3.3 Is a standard set of weights available? If so, what is their purpose and how are they derived?

Sample expansion is carried out using ratio estimators whose independent variable is the projected resident population, by type of area (metropolitan and non-metropolitan regions). These projections set out from the population change that occurred between the 1980 and 1991 Population Censuses, with growth forecasts being based on fertility, mortality and migration rates. Thus, each person has a weighting associated with them, calculated as: projected population of the area / total number of people in the sample, in that same area.

3.4 What non-response biases are known or strongly suspected?

No research has been done on the subject.

3.5 What conclusions can be drawn – from comparisons with tax records, benefit records or other administrative records – about possible non-response biases likely to affect income distribution estimates?

No research has been done on the subject.

3.6 Are there any groups where non-response problems are suspected?

No.

3.7 Overall, which income estimates are thought to be most at risk of substantial non-response bias?

Estimates of income from sources other than work.

4. Item non-response, imputation and editing**4.1 Which three income components have the largest incidence of non-response? What is the incidence for these three?**

The incidence cannot be measured, but it is presumed that the highest incidence of non-response is for financial applications.

4.2 Are any other income components significantly affected by item non-response?

None that is known of.

4.3 Are any important categorical variables – e.g. age, economic status – significantly affected by item non-response?

No.

4.4 What imputation techniques have been used for the variables identified above?

There is no imputation of data in the survey. In the case of income data, inconsistent values are ignored.

4.5 What top- or bottom-coding has been employed? How many observations are affected? How have negative incomes after tax been treated?

Negative values for income from work are identified using a specific code, but their value is not reported. Consequently, there are blank values for cases where there are losses or for inapplicable cases (e.g. unpaid workers), and from 1 to 999999999998 for real values.

4.6 Is the reporting of income net of direct taxes affected by imperfect data on direct taxes? If so, what are the main practical effects on estimates of the distribution of net incomes?

What is studied is the gross income normally received. No adjustment is made with a view to obtaining net income.

4.7 What other editing has been employed, affecting over 5% of the sample? How large an impact is this thought to have on measured incomes?

As a rule, data is subjected to a process in which the logical sequence of questions is reviewed. In addition, information about incomes undergoes an analysis which concentrates on employment position, branch of activity, schooling and characteristics of the home. There are no recent studies on the impact of this review on incomes.

4.8 Which results are thought to be most sensitive to any imperfections (known or suspected) in imputation and editing?

No research has been done on the subject.

5. Accuracy of data

5.1 How much of the data was collected by proxy?

None.

5.2 How much of the data on earned income was (a) supplied by employer and (b) checked against employer's statements?

Income information is supplied solely by the occupant of the selected residence, and it is not compared with information from the employer.

5.3 How does grossed income data from the micro-dataset compare with National Accounts estimates? What are the implications for income distribution estimates?

5.4 Is the picture of employment patterns, in the incomes micro-dataset, consistent with information from Labour Force Survey or other data sources?

The PNAD deals simultaneously with labour force characteristics and income.

5.5 Any other comments?

No.

6. Validity of data as guide to consumption capabilities

6.1. What comparisons have been made of median or mean net income with expenditure for (a) quintiles of the income distribution (b) particular groups e.g. the self-employed, farmers? What do these show? What are the implications for the validity of data, as a guide to quintiles'/groups' capacity to consume those goods and services normally financed from household disposable income?

6.2 In your country, do cash substitutes – e.g. food stamps, company cars – make significant additions to the incomes of particular groups or segments of the income distribution? What are the implications for the interpretation of income distribution results? What information is available in the incomes micro-dataset?

Yes, food vouchers and transport are a substantial part of wage earners' income. At present the survey only determines whether or not these and other benefits are received, without measuring them.

6.3 What types of housing are subsidized, and to what extent? Are the beneficiaries concentrated in one segment of the income distribution? What results are sensitive to this, and to the treatment of imputed rents for owner-occupiers?

In the “characteristics of the home” subject area, we ascertain whether the home is occupied on a “provided by the employer” or “otherwise provided” basis, and whether the occupier is in receipt of a housing subsidy. In neither case is the value of the benefit measured. There is no observed concentration as regards who or what type of housing is being benefited.

The income calculation does not include the value of the rent that would be paid if the home were not owned.

6.4 Any other comments?

No.

7. Households, families, individuals, children

7.1 What are the units of observation for income data?

Income data is sought for all occupants aged 10 or over. Personal incomes are used to calculate family and household incomes.

7.2 How are “households” and “families” defined?

The unit selected for the survey is the home, defined as: premises used as the residence of one or more people (regardless of whether or not there are ties of kinship between them). A single building or plot may contain more than one home, in which case homes are identified in accordance with the following conditions:

- the residential premises must be walled and roofed;
- the person or group of people living there must be able to isolate themselves from others;
- the person or group of people must share in some or all of their food or living expenses;
- the residential premises must have direct access, enabling the occupants to leave or enter without passing through the residential premises of others.

A family is a group of people united by ties of kinship, domestic dependency (relationship established between the person used as the reference and domestic employees and guests of the family) or rules for communal living (rules established to facilitate the common life of people who are not united by ties of kinship or domestic dependency, but who dwell together), living in the same housing unit. The term family also extends to someone living alone in a housing unit. More than one family may live in a single housing unit.

7.3 Which income components are not reported at the level of individuals?

Income received by children aged under 10 is not included.

7.4 Is it possible to aggregate from “individuals” to “families” or “households”? What are the smallest and largest units for which income can be calculated?

Family and household income is derived from the income of individuals.

7.5 How are “children” defined?

All biological children, children by adoption or upbringing and stepchildren of the person used as the reference for the home (or family) or that person’s spouse, with no age limit.

7.6 Is income data collected for children? If so, is it assigned to them or to other household members?

Income received by children aged under 10 is not recorded, nor is it assigned to other members of the family.

7.7 How are individuals assigned to a “household” or “family”?

A person is regarded as an occupant if the housing unit is their normal place of residence. Anybody who is present on the date of the interview and who does not have any other normal place of residence will also be treated as an occupant, as will people who are not present but who normally reside in the housing unit, if on the date of the interview they are temporarily absent, for a period of no more than 12 months, due to:

- travel for pleasure, business, service or other reasons;
- residence at workplace for convenience or due to the nature of their duties;
- boarding at a school, residence in a boarding house or other similar premises, stay at the home of relatives or among friends, exclusively for study purposes;
- temporary admission to hospital, etc.;
- detention without final sentencing.

7.8 Are the family relationships between different members of the household clearly identified? Is it possible to identify when members do not, in general, share incomes budgets?

The position of each occupant, both in the home and in the family, is ascertained:
person used as reference;

spouse;

child;

other relative;

guest;

lodger;

domestic employee;

relative of domestic employee.

For the purposes of calculating household and family income, no account is taken of the income of people whose status in the household or family, respectively, is that of a lodger, domestic employee or relative of a domestic employee.

7.9 How are students and their income treated?

There is no special treatment for students. Thus, if a student is aged 10 or over and resides in the household unit, his or her income, if any, will be assessed in the same way as that of the other occupants.

7.10 Are any of these features particularly important for the analysis of income distribution data for your country?

No.

COUNTRY: Chile

INSTITUTION: Ministry of Planning and Cooperation (MIDEPLAN)

NATIONAL SOCIO-ECONOMIC SURVEYS (CASEN)

1. Name, description and major features of the survey

1.1 What is the name of the survey?

The survey is called the "National Socio-economic Survey (CASEN)". This survey has been held in Chile since 1987, and was last executed in 1998.

1.2 What is the sampling frame for the survey?

Chile has a national frame of households based on the listing of housing units made for census operations, and this is constantly updated.

The sample for the 1998 survey was 49,000 households. The survey has national, regional, urban and rural coverage. The sampling unit is the private home, in which households are identified.

1.3 What are the main purposes pursued by the survey?

The CASEN Survey is an instrument used to construct indicators which serve to maintain a constantly updated picture of the socio-economic situation of the country's households.

Briefly, the general objectives of the CASEN 1998 survey are basically as follows:

- a) To ascertain the redistributive impact of social spending, or the way in which social spending is distributed, and to establish what proportion is received by the lowest income sectors.
- b) To measure income distribution in the population as a whole, corrected for transfers in the form of social spending and monetary and non-monetary subsidies. At the same time, to ascertain the distribution of self-employment and monetary incomes among the population.
- c) To evaluate current social programmes, and to determine what courses of action should be followed and what corrections and adjustments should be implemented, to ensure that social spending reaches the population segments identified as priority targets of social policies and of each of the programmes.
- d) To build up a profile of the population by socio-economic strata on the basis of people's housing and educational conditions, their labour force participation, and the composition of family incomes.
- e) To measure household poverty levels and profile the situation of households, and to relate poor households to the other aspects measured in the survey.

1.4 How is the data obtained?

The data is obtained by personal interview with each member of the household aged 12 and over, particularly for the sections dealing with employment, income and expenditure.

1.5 If data is drawn from more than one source, how is the data linked?

The data is taken only from the survey, and the results are presented accordingly. The only adjustment that is carried out is correction of Incomes on the basis of the Households Account produced by the Central Bank.

1.6 What are the achieved sample size and response rates?

When the survey was held in 1998, 49,000 households were visited. A response was obtained in 47,699, i.e. the non-response rate was less than 4%.

In these 47,699 households, information was obtained from 190,000 people.

1.7 What is the measurement period for income?

Income figures are for the month preceding the survey, except for interest, property income, etc.

1.8 Is data collected throughout the year, or at one or more points in time?

Data is collected between 15 November and 20 December, every two years.

1.9 Is data “current” or “retrospective”?

Income data is “current” (previous month) and “retrospective” (for some items).

2. Completeness of coverage of the population**2.1 What is the total population of the country?**

The population estimate produced by the National Institute of Statistics for June 1998 gave a figure of 14,821,714 people.

2.2 Which of the groups below are excluded, completely or in part, from the sampling frame or the survey, and what are the likely effects on income analyses?

The CASEN Survey includes households and members of these households living in private homes. People living in collective housing (normal residence of people subject to some administrative authority or obliged to comply with rules for communal living, such as: hospitals, boarding schools, monasteries, convents, prisons, old people's homes, military barracks, etc.), are not included in the survey.

Another population group which is included in the survey, but whose incomes are excluded from the household, are domestic servants. Although these have a tie to the household, their relationship is economic, being based on paid service, and they share in expenditure but not in income.

3. Sample design, non-response biases, weighting

3.1 What are the sampling fraction(s) and sample design?

The sampling frame used in the CASEN Survey has the following characteristics:

- a) It is the combination of 26 regional, urban and rural frames (the 13 regions of the Republic of Chile).

SAMPLING TYPE

Multi-stage stratified sampling by clusters. For each stratum, an independent sample was obtained to represent it. All these combined represent the country.

STRATIFICATION

The stratification used is of a geographical type. The country was divided into 249 strata (see Annex Two), these being understood as the conjunction of an administrative division (commune or group of communes) with a geographical area (urban or rural).

Separately, communes were divided into self-representing and jointly represented.

Self-representing communes are ones that must be included in the sample, due to the socio-economic importance attributed to them within their Province or Region. For these, it is also useful to have independent estimates. A total of 124 communes, representing 73.7% of homes in the country, are in this category.

Jointly represented communes are all communes other than self-representing ones.

Two strata are formed within each Region, corresponding to urban and rural areas within these communes, and some of these are selected within each stratum with probability proportional to size, size being measured by the number of homes there.

The Urban-Rural classification is the same as was used by the National Institute of Statistics in the 1992 Census.

Urban Entity:

Concentrated area of housing with more than 2000 inhabitants, or between 1001 and 2000 inhabitants when 50% or more of its population is economically active in secondary and/or tertiary activities.

Rural Entity:

Concentrated or dispersed area of housing with 1000 inhabitants or less, or between 1001 and 2000 inhabitants when less than 50% of its population is economically active in secondary and/or tertiary activities.

SAMPLING UNITS

Case 1: For Self-representing Communes (two-stage design)

PRIMARY SAMPLING UNITS (PSUs)

In both the urban and rural strata, PSUs are made up of census enumeration sectors (clusters of dwellings).

In urban areas, these are a block or part of one, provided this contains a number of dwellings such that the census enumerator can survey them in one day.

In rural areas, a sector is a group of dwellings close enough to one another for the census enumerator to be able to survey them, again, in one day.

These conditions meant that, in practice, a large number of sectors contained fewer dwellings than required by the design of the sample. Some way of correcting the situation needed to be sought, and the solution proposed was to construct appropriate sampling units by converting enumeration units.

This suggestion could have been put into practice by joining together enumeration sectors until the requisite number of dwellings was obtained; however, it was rejected, for debatable reasons. As a result, there was no choice but to run the risk of choosing sectors that were too small, that would be inadequate for implementing the plans drawn up, and that would be detrimental to the efficiency of the design.

SECOND STAGE UNITS (SSUs) or ULTIMATE SAMPLING UNITS

SSUs are constituted, in the urban area, by permanently occupied private dwellings in existence at the time updating is carried out and, in the rural area, by permanently occupied private dwellings in existence at the time the survey is held. No subsampling of any kind was carried out within these SSUs, since all households were included, along with everybody normally residing in them.

Case 2: For Non-self-representing Communes (Jointly Represented) (three-stage design)

PRIMARY SAMPLING UNITS (PSUs)

The self-representing communes having been dealt with separately, these PSUs cover the remainder of the region and are constituted by the urban parts of jointly represented communes, or by the rural parts of these (clusters of sectors in both cases), depending on whether the urban or rural stratum is being studied.

SECOND STAGE UNITS (SSUs)

In both the urban and rural strata, SSUs consist of census enumeration sectors (clusters of dwellings).

In urban areas, these are a block or part of one, provided this contains a number of dwellings such that the census enumerator can survey them in one day.

In rural areas, a sector is a group of dwellings close enough to one another for the census enumerator to be able to survey them, again, in one day.

THIRD STAGE UNITS or ULTIMATE SAMPLING UNITS (USUs)

USUs consist, in the urban area, of permanently occupied private dwellings in existence at the time updating is carried out and, in the rural area, of permanently occupied private dwellings in existence at the time the survey is held. No subsampling of any kind was carried out within these USUs, since all households were included, along with everybody normally residing in them.

In the I, II, III, XI and XII Regions there were no Ultimate Sampling Units, as no subsampling was carried out within SSUs.

At each selection stage within the strata (urban localities and rural localities) a fraction of the sample is fixed and used to construct selection probabilities at each stage and in each case.

By definition, the expansion factor or weights in a multi-stage sample design are the product of the inverses of the selection probabilities at each stage.

3.2 What is known about the effects of sample design on sampling error?

To determine sample size, an expected response rate of 95% was used; also taken into account were aspects such as estimates of possible design effects, costs and the workload that could reasonably be handled by an interviewer.

The material that has been accumulated and the experience gained through the household surveys carried out by MIDEPLAN since 1985 have enabled coefficients of variation and design effects to be calculated for income-correlated variables.

3.3 Is a standard set of weights available? If so, what is their purpose and how are they derived?

Weights are calculated in such a way that each member of a household or income unit has the same weighting, and this weighting is also used for the household or income unit and the expenditure unit. These weights are adjusted to reflect non-response.

3.4 What non-response biases are known or strongly suspected?

Households with high incomes are presumed to have higher non-response rates, but in reality there has been no research from which precise data could be obtained.

3.5 What conclusions can be drawn – from comparisons with tax records, benefit records or other administrative records – about possible non-response biases likely to affect income distribution estimates?

Comparison with other sources of information reveal under-declaration of income by around 20%, a figure which has been falling over the years: in 1987 under-declaration was 47%, while in 1996 it was 19%.

3.6 Are there any groups where non-response problems are suspected?

No.

3.7 Overall, which income estimates are thought to be most at risk of substantial non response bias?

The survey does not have major non-response problems. Generally speaking, since household income is reckoned against expenditure, questionnaires that do not give income for earners in the household are not accepted. The only contentious point is the Interest and Property Income item.

4. Item non-response, imputation and editing

4.1 Which three income components have the largest incidence of non-response? What is the incidence for these three?

In CASEN, "Don't know" is not a response option for virtually any of the variables; as interviewing is carried out over one month/day, information on sensitive variables such as income is obtained, if possible, directly from the earner, to prevent this type of non-response occurring; when there is no response for the income item, the interviewer returns to the household surveyed, and if the problem is not resolved the questionnaire will not be regarded as complete and correct.

4.2 Are any other income components significantly affected by item non-response?

No.

4.3 Are any important categorical variables – e.g. age, economic status – significantly affected by item non-response?

No.

4.4 What imputation techniques have been used for the variables identified above?

To correct income figures, use has been made of the Households Account of the Central Bank. The procedure consists in comparing the different income items in the survey with the same items in this Account, which provides a frame of reference for carrying out correction.

4.5 What top- or bottom-coding has been employed? How many observations are affected? How have negative incomes after tax been treated?

The top- and bottom-coding employed in CASEN is based on frequencies in previous operations (1985, 1987, 1990, 1992, 1994 and 1996).

When these go outside the ranges, the information in the source questionnaires is studied to ascertain the reason, and inconsistencies are corrected. Errors are in fact minimal.

It is important to note that CASEN obtains net figures for income, and not gross figures.

4.6 Is the reporting of income net of direct taxes affected by imperfect data on direct taxes? If so, what are the main practical effects on estimates of the distribution of net incomes?

The survey obtains net figures for income, and not gross figures, which means that Income Distribution figures are not affected by distortions of this type.

4.7 What other editing has been employed, affecting over 5% of the sample? How large an impact is this thought to have on measured incomes?

A very wide range of editing techniques is applied to each record: the data entry system incorporates consistency and logical sequence checks; questionnaires are entered twice; the file is cleaned up using frequencies and routines (cross-checking of related variables) and the consistency of these related variables is analysed.

4.8 Which results are thought to be most sensitive to any imperfections (known or suspected) in imputation and editing?

The problems that have been detected in the income figures recorded by CASEN are under-estimates of income.

5. Accuracy of data

5.1 How much of the data was collected by proxy?

No data is collected by proxy.

5.2 How much of the data on earned income was (a) supplied by employer and (b) checked against employer's statements?

For entrepreneurial income, figures are obtained by interviewing the owner or employer or the own-account worker personally in their own home.

5.3 How does grossed income data from the micro-dataset compare with National Accounts estimates? What are the implications for income distribution estimates?

When the Income Survey is compared with the System of National Accounts, the following criteria are used:

- 1) Under-declaration of income in surveys is more closely associated with the type of income than with its amount.
- 2) The undeclared amount of each type of income is equal to the difference between the income measured by the survey and the estimate derived from the National Accounts, as long as the value estimated by the survey is lower than that reported by the SNA.
- 3) If the income declared in the surveys is higher than that derived from the National Accounts, and analysis of data quality does not suggest possible over-estimation, the survey figure is accepted as being more accurate.
- 4) Under-declaration of each type of income follows a unit elasticity pattern, with the exception of property income.
- 5) Under-declaration of property income is concentrated in the top quintile of the income distribution, which shows that both receipt and under-declaration of this type of income are much more common among households situated in the upper part of the income distribution.

5.4 Is the picture of employment patterns, in the incomes micro-dataset, consistent with information from Labour Force Survey or other data sources?

The employment or labour force survey is reasonably consistent with the CASEN Survey, as we set out from similar conceptual frameworks and work with the same frame of households. The only difference is that MIDEPLAN updates this frame on the basis of new building permits issued in municipalities.

5.5 Any other comments?

No.

6. Validity of data as guide to consumption capabilities

6.1 What comparisons have been made of median or mean net income with expenditure for (a) quintiles of the income distribution (b) particular groups e.g. the self-employed, farmers? What do these show? What are the implications for the validity of data, as a guide to quintiles'/groups' capacity to consume those goods and services normally financed from household disposable income?

This survey only asks about household income, and not expenditure.

6.2 In your country, do cash substitutes – e.g. food stamps, company cars – make significant additions to the incomes of particular groups or segments of the income distribution? What are the implications for the interpretation of income distribution results? What information is available in the incomes micro-dataset?

Some employees receive a food allowance as a payment in kind at work; in these cases, non-monetary income (self-supply, payment in kind and gifts) is regarded as part of the income from work.

This information is included in the micro-data and may or may not be taken into account when calculating income distribution. If it is taken into account, the effect on the Gini coefficient is minimal, as in Chile this type of income stands at very low levels.

6.3 What types of housing are subsidized, and to what extent? Are the beneficiaries concentrated in one segment of the income distribution? What results are sensitive to this, and to the treatment of imputed rents for owner-occupiers?

More than 60% of the Chilean population own their own homes; the survey includes an estimate for the rent imputable to people's housing, as a form of non-monetary income. When this is included in the calculation of income distribution, it has a positive effect on it.

6.4 Any other comments?

No.

7. Households, families, individuals, children

7.1 What are the units of observation for income data?

The unit of observation for income data is the "individual". Income data can be produced for "households" by adding together all the incomes of individual earners in the household.

7.2 How are "households" and "families" defined?

Household:

This can be a single person or a group of people. When there are two or more people, these may or may not have ties of kinship. They normally make common provision for living, i.e. they reside and eat together (occupy the same dwelling and have a joint budget for food).

One or more households may live in a single dwelling. However, a household may not occupy more than one dwelling.

There is no definition of the family in the survey, only of the nuclear family, as it is not a unit of observation or analysis.

7.3 Which income components are not reported at the level of individuals?

The "estimated rental value of the dwelling" and the Family Allowance, which is imputed to whoever declares family contributions.

7.4 Is it possible to aggregate from “individuals” to “families” or “households”? What are the smallest and largest units for which income can be calculated?

Income data is recorded for “individuals”, but household income is arrived at by totalling up the incomes of the individuals making up the household.

7.5 How are “children” defined?

These are own children, adoptive children or children acknowledged as such, whether minors or not and whether married or not, provided they are members of the household.

In the case of adoptive or acknowledged children, these were recorded as children of the head of household provided they were recognized by him, regardless of whether or not legal adoption had taken place and of whether they had any relationship by blood or marriage with the head of household.

7.6 Is income data collected for children? If so, is it assigned to them or to other household members?

The incomes of each and every earner who is a member of the household are recorded, regardless of their family relationship with the head.

In the case of income from “transfers”, such as “allowances”, these may be assigned to children if they are for their maintenance; in the case of “study grants”, these are assigned to children, and likewise for “wages”, “earnings”, “tips”, etc.

7.7 How are individuals assigned to a “household” or “family”?

Individuals are assigned to “households” solely by virtue of their being members of the household.

The following are household members in normal residence:

People who are in occupation there in accordance with the conditions stated in the definition of household.

People in the following situations also qualify:

Those who, at the time of the survey, are temporarily resident outside the household, whether because of holidays, illness, business or any other reason, provided that such periods of absence do not exceed three months. These people, therefore, have not chosen any other place of normal residence;

People who provide domestic services (for payment) and are normally resident in the household (“live-in domestic service”);

Foreigners working or studying in the country who have been living in the home, or intend to live there, for 3 months or more;

People doing their Military Service who do NOT normally reside in barracks;

People serving prison terms on a night-time lock-in or day leave basis (they sleep only on the prison premises), provided such people normally reside in the household surveyed.

The following are not household members:

People who are temporarily staying in the home being surveyed for study reasons, but whose normal place of residence is elsewhere in a home occupied by their household, upon which they are economically dependent, and to which they regularly return;

Lodgers who are members of another household from which they are temporarily absent, as per the definitions given; in other words, their normal place of residence is the other household, to which they regularly return and on which they are economically dependent, in the case of students.

These people are members of the households which are their normal private residences, and so should not be surveyed.

Lodgers who do not meet the conditions set out in the previous paragraph are to be regarded as households in themselves, and the survey must be applied to them in that capacity.

Members of the armed forces who normally live in their barracks and are in the home for vacations, leave or other reasons;

People who provide domestic services (for payment) and are normally resident in another household ("live-out domestic service").

7.8. Are the family relationships between different members of the household clearly identified? Is it possible to identify when members do not, in general, share incomes budgets?

Family relationships between the members of the household are clearly identified in the survey.

Whether or not income is shared is determined in accordance with the definition of household used for the survey and with the criteria in the variables relating to income.

7.9 How are students and their income treated?

Students who live with their parents, regardless of their marital status, and who share in spending (in accordance with the definition of household), are considered to be members of the household and their income is included in household income.

Students living outside the household are treated as separate households, and their income pertains to this other household.

7.10 Are any of these features particularly important for the analysis of income distribution data for your country?

The criteria and definitions appearing in the survey make it clear that the information being presented relates to units of income and expenditure shared between people living in private households.

COUNTRY: Mexico

**INSTITUTION: National Institute of Statistics, Geography
and Information (INEGI)**

**NATIONAL HOUSEHOLD INCOME AND EXPENDITURE SURVEY
(ENIG)**

1. Name, description and major features of the survey

1.1 What is the name of the survey?

The survey is called the National Household Income and Expenditure Survey (ENIG). This survey has been held in Mexico since 1956, and was last taken in 1998.

1.2 What is the sampling frame for the survey?

Mexico has a national frame of households, based on the enumeration of housing carried out for census operations, and constantly updated.

The sample for the 1998 survey was 12,776 households. The survey has national, urban and rural coverage. The sampling unit is the private home, in which households are identified.

1.3 What are the main purposes pursued by the survey?

The general purpose of the National Household Income and Expenditure Survey is to provide information on the distribution, amount and structure of household income and expenditure.

Its specific objectives are to generate information about:

- The structure of Current Household Income by income source.
- The structure of Current Household Expenditure on purchases of consumer goods, and transfers to other units.
- The value of goods and services produced by households for their own consumption, payments in kind and gifts received.
- The structure of financial and capital receipts and outgoings which have the effect of changing the asset base of households.
- The socio-demographic characteristics of household members.
- The employment status and occupational characteristics of household members aged 12 and over.
- The infrastructure characteristics of the dwelling occupied by the household, and
- Household equipment.

1.4 How is the data obtained?

The data is obtained by personal interview with each household member aged 12 and over, especially for the employment, income and expenditure sections.

1.5 If data is drawn from more than one source, how is the data linked?

Data is simply extracted from the survey and presented without adjustment in the results.

1.6 What are the achieved sample size and response rates?

When the survey was held in 1998, 12,776 households were visited. A response was obtained in 10,907, i.e. the non-response rate was 14.6%, of which 1.5% was due to a refusal to give information and the remainder to problems with the sample frame.

In these 10,907 households, information was obtained from 47,567 people.

1.7 What is the measurement period for income?

Income figures are recorded for each of the six months preceding the month in which the survey is taken, and are presented in standardized quarterly form.

1.8 Is data collected throughout the year, or at one or more points in time?

Data is collected in the August to November quarter of the survey year.

1.9 Is data “current” or “retrospective”?

Income and expenditure data is “current” (previous month) and “retrospective” (6 months preceding the month of interview).

2. Completeness of coverage of the population

2.1 What is the total population of the country?

The population count held in March 1995 produced a figure of 91,158,290 people, 19,403,409 private dwellings and 19,848,316 households.

2.2 Which of the groups below are excluded, completely or in part, from the sampling frame or the survey, and what are the likely effects on income analyses?

The National Household Income and Expenditure Survey includes households and members of those households residing in private dwellings; people living in collective housing (normal residence of people subject to some administrative authority or obliged to comply with rules for communal living, such as: hospitals, boarding schools, monasteries, convents, prisons, old people's homes, military barracks, etc.), are not included in the survey. In Mexico, collective housing accounts for only 0.1% of all housing, and its occupants for only 0.4% of the total population, which means that the effects are not great. Another population group whose incomes are excluded are lodgers and domestic servants, who do have a connection with the household, but one that is of an economic nature in the form of paid service, and who share in expenditure but not in income. These represent only 0.8% of the total population of households.

3. Sample design, non-response biases, weighting

3.1 What are the sampling fraction(s) and sample design?

The sampling frame used in the National Household Income and Expenditure Survey has the following characteristics:

- a) It is the combination of 32 state frames (the 32 states of the Mexican Republic).
- b) In each of the population strata that the sample was divided into, 40 primary sampling units (PSUs) were taken with an average of 50 homes per PSU, selected by systematic sampling of the list areas.
- c) A separate design was produced for each state (different criteria by state), distributing PSUs among cities that are included automatically, urban localities and rural localities.
- d) To select PSUs from within cities that are included automatically, use was made of probabilities proportional to size on the basis of the number of homes given by the 1990 census.
- e) To select PSUs in urban localities that are not included automatically, and in rural localities, each of these was assigned to the appropriate stratum. Given the sample size, PSUs were selected with probabilities proportional to size. A stratified multi-stage sampling design was used for ENIG-98.

At each selection stage within the strata (urban localities and rural localities) a fraction of the sample is fixed and used to construct selection probabilities at each stage and in each case.

By definition, the expansion factor or weights in a multi-stage sample design are the product of the inverses of the selection probabilities at each stage.

3.2 What is known about the effects of sample design on sampling error?

To set the size of the sample, an expected response rate of 85% was used; also taken into account were aspects such as estimates of possible design effects (calculated as a quotient of the variance obtained with the design used and the variance of a simple random sampling), costs and the workload that could reasonably be handled by an interviewer.

The accumulated material from household surveys carried out by INEGI has enabled variances, coefficients of variation and design effects to be calculated for income-correlated variables.

From the experience thus acquired, the maximum value for the design effect was found to be 2.3 when the selected housing segment was 5 (urban localities), and 3.9 when the selected housing segment was 10 (rural localities).

3.3 Is a standard set of weights available? If so, what is their purpose and how are they derived?

Weights are calculated in such a way that each member of a household or income unit has the same weighting, and this weighting is also used for the household or income unit and the expenditure unit. These weights are adjusted to reflect non-response.

3.4 What non-response biases are known or strongly suspected?

Households with high incomes are presumed to have higher non-response rates, but in reality there has been no research from which precise data could be obtained.

3.5 What conclusions can be drawn – from comparisons with tax records, benefit records or other administrative records – about possible non-response biases likely to affect income distribution estimates?

Comparison with other sources of information show a good degree of correlation in structures by income source.

3.6 Are there any groups where non-response problems are suspected?

No.

3.7 Overall, which income estimates are thought to be most at risk of substantial non-response bias?

The survey does not have major non-response problems. Generally speaking, since household income is reckoned against expenditure, questionnaires that do not give income for earners in the household are not accepted.

4. Item non-response, imputation and editing**4.1 Which three income components have the largest incidence of non-response? What is the incidence for these three?**

In ENIG, "Don't know" is not a response option for any of the variables; as interviewing is carried out over seven days, information on sensitive variables such as income is obtained, if possible, directly from the earner, to prevent this type of non-response occurring; when there is no response for the income item or the discrepancy between income and expenditure is large and no consistent explanation for this is forthcoming, the questionnaire will not be regarded as complete and correct and, consequently, will be treated as a non-response, and the expansion factor adjusted to reflect this.

4.2 Are any other income components significantly affected by item non-response?

No.

4.3 Are any important categorical variables – e.g. age, economic status – significantly affected by item non-response?

No.

4.4 What imputation techniques have been used for the variables identified above?

No imputation is carried out in respect of the income, age or economic situation variables.

4.5 What top- or bottom-coding has been employed? How many observations are affected? How have negative incomes after tax been treated?

The top- and bottom-coding employed in ENIG is based on frequencies in previous operations (1984, 1989, 1992, 1994 and 1996).

When these go outside the ranges, the information in the source questionnaires is studied to ascertain the reason, and inconsistencies are corrected. Errors are in fact minimal.

Negative values (trading losses, loss of harvest, etc.) are combined with positive ones to obtain total household income.

It is important to note that ENIG obtains net figures for income, and not gross figures.

4.6 Is the reporting of income net of direct taxes affected by imperfect data on direct taxes? If so, what are the main practical effects on estimates of the distribution of net incomes?

The survey obtains net figures for income, and not gross figures, which means that Income Distribution figures are not affected by distortions of this type.

4.7 What other editing has been employed, affecting over 5% of the sample? How large an impact is this thought to have on measured incomes?

A very wide range of editing techniques is applied to each record: the data entry system incorporates consistency and logical sequence checks; questionnaires are entered twice; the file is cleaned up using frequencies and routines (cross-checking of related variables) and the consistency of these related variables is analyzed.

4.8 Which results are thought to be most sensitive to any imperfections (known or suspected) in imputation and editing?

The problems that have been detected in the income figures recorded by ENIG are under-estimates or over-estimates of property income and transfers.

5. Accuracy of data

5.1 How much of the data was collected by proxy?

No data is collected by proxy.

5.2 How much of the data on earned income was (a) supplied by employer and (b) checked against employer's statements?

For entrepreneurial income, figures are obtained by interviewing the owner or employer or the own-account worker personally, and the income and expenditure of the business are set against each other in a specific format included in the questionnaire.

5.3 How does grossed income data from the micro-dataset compare with National Accounts estimates? What are the implications for income distribution estimates?

Although the income categories used in ENIG closely parallel those of the System of National Accounts (SNA), the objectives of the two information accounts are different. Thus, the basic purpose of SNA is to quantify a set of macroeconomic variables to explain the overall performance of the country's economy.

Income and expenditure surveys, for their part, are essentially intended to provide information that gives an understanding of the level of well-being enjoyed by families, through the composition of their income and expenditure, and of socio-demographic factors that affect their behaviour.

Another important aspect that should be noted is that income and expenditure surveys record net income received by household members, since employers' social security contributions and other kinds of taxes are deducted. The SNA, on the other hand, records the current income of households in gross terms, including taxes and social security contributions.

When making comparisons between the Income and Expenditure Survey and the System of National Accounts, the following criteria are used:

- 1) Under-declaration of income in income and expenditure surveys is more closely associated with the type of income than with its amount.
- 2) The undeclared amount of each type of income is equal to the difference between the income measured by the survey and the estimate derived from the National Accounts, as long as the value estimated by the survey is lower than that reported by the SNA.
- 3) If the income declared in the surveys is higher than that derived from the National Accounts, and analysis of data quality does not suggest possible over-estimation, the survey figure is accepted as being more accurate.
- 4) Under-declaration of each type of income follows a unit elasticity pattern, with the exception of property income.
- 5) Under-declaration of property income is concentrated in the top quintile of the income distribution, which shows that both receipt and under-declaration of this type of income are much more common among households situated in the upper part of the income distribution.

5.4 Is the picture of employment patterns, in the incomes micro-dataset, consistent with information from Labour Force Survey or other data sources?

The employment or labour force survey is consistent with the Income and Expenditure Survey, as we set out from the same conceptual framework and work with the same frame of households.

5.5 Any other comments?

No.

6. Validity of data as guide to consumption capabilities

6.1 What comparisons have been made of median or mean net income with expenditure for (a) quintiles of the income distribution (b) particular groups e.g. the self-employed, farmers? What do these show? What are the implications for the validity of data, as a guide to quintiles'/groups' capacity to consume those goods and services normally financed from household disposable income?

In Mexico there has been found to be an imbalance between income and expenditure in the lower deciles of the income distribution. From our analysis it can be concluded that this is because:

- Lower income households finance themselves from loans made to them by small shops so that they can buy indispensable items such as food, cleaning and toiletry articles, etc., loans which the survey does not record as financing.
- These loans are paid off with income from agricultural and livestock production, but since this is received once a year, in differing periods or in small quantities, it has not been recorded correctly in the survey periods.

6.2 In your country, do cash substitutes – e.g. food stamps, company cars – make significant additions to the incomes of particular groups or segments of the income distribution? What are the implications for the interpretation of income distribution results? What information is available in the incomes micro-dataset?

Employees receive a food allowance as a payment in kind at work; non-monetary income (self-supply, payment in kind and gifts) is a very substantial proportion of the total in most of the income distribution deciles. In Mexico there are households that survive entirely on non-monetary income.

This information is contained in the micro-data and may or may not be taken into account when calculating income distribution. If it is taken into account, the Gini coefficient is less unequal than if it is not.

6.3 What types of housing are subsidized, and to what extent? Are the beneficiaries concentrated in one segment of the income distribution? What results are sensitive to this, and to the treatment of imputed rents for owner-occupiers?

Some employees receive a housing subsidy as a benefit, but in reality this proportion is very low.

In Mexico, more than 80% of the population are owner-occupiers; the survey includes an estimate for rent imputable to housing, as a form of non-monetary income, and when this is included in the calculation of income distribution it has a positive effect on this.

6.4 Any other comments?

No.

7. Households, families, individuals, children

7.1 What are the units of observation for income data?

The unit of observation for income data is the "individual" for monetary income and payments in kind from employment; for non-monetary income it is the "household". Income data can be produced for "households" by adding together all the incomes of individual earners in the household.

7.2 How are "households" and "families" defined?

Household: Group of people, whether or not united by ties of kinship, who are normally resident in the same dwelling and make common provision for food buying, i.e. they consume food that has been prepared on a common budget. A person living alone also constitutes a household.

There is no definition of the family in the survey, as the family is not a unit of observation or analysis.

7.3 Which income components are not reported at the level of individuals?

Non-monetary income, such as "self-supply", "gifts" and "estimated rental value of the dwelling".

7.4 Is it possible to aggregate from "individuals" to "families" or "households"? What are the smallest and largest units for which income can be calculated?

Income data is recorded for "individuals", but household income is arrived at by totalling up the incomes of the individuals making up the household.

7.5 How are “children” defined?

These are own children, adoptive children or children acknowledged as such, whether minors or not and whether married or not, provided they are members of the household.

In the case of adoptive or acknowledged children, these were recorded as children of the head of household provided they were recognized by him, regardless of whether or not legal adoption had taken place and of whether they had any relationship by blood or marriage with the head of household.

7.6 Is income data collected for children? If so, is it assigned to them or to other household members?

The incomes of each and every earner who is a member of the household are recorded, regardless of their family relationship with the head.

In the case of income from “transfers”, such as “allowances”, these may be assigned to children if they are for their maintenance; in the case of “study grants”, these are assigned to children, and likewise for “wages”, “earnings”, “tips”, etc.

7.7 How are individuals assigned to a “household” or “family”?

Individuals are assigned to “households” solely by virtue of their being members of the household.

Household members are people who live in a private dwelling, eat and sleep there, and make common provision for food buying.

This category excludes:

- Absentee heads, these being people who are recognized as the head by members of the household, but who are not in residence in the private home for reasons of work or study or for personal reasons, and who have been away for three months or more at the time of the interview.
- Domestic servants and their families, these being people who work for a household by carrying out domestic tasks or providing other types of service, and
- Lodgers, i.e. people living in the home who pay remuneration for board and lodging.

7.8 Are the family relationships between different members of the household clearly identified? Is it possible to identify when members do not, in general, share incomes/budgets?

Family relationships between the members of the household are clearly identified in the survey.

Whether or not income is shared is determined in accordance with the definition of household used for the survey and with the criteria in the variables relating to income.

7.9 How are students and their income treated?

Students who live with their parents, regardless of their marital status, and who share in spending (in accordance with the definition of household), are considered to be members of the household and their income is included in household income.

Students living outside the household are treated as separate households, and their income pertains to this other household.

7.10 Are any of these features particularly important for the analysis of income distribution data for your country?

The criteria and definitions appearing in the survey make it clear that the information being presented relates to units of income and expenditure shared between people living in private households.



Update on Work Bank Measures on Income Distribution

7

Canberra Group

Session 7: UPDATE ON WORLD BANK MEASURES ON INCOME DISTRIBUTION**Chair:** Paul van der Laan, Statistics Netherlands**Focus paper:** Michael Ward, World Bank**Discussant:** Pedro Sainz, ECLAC**Rapporteur:** Statistics Canada

The Chair opened the session by passing the floor to Michael Ward (World Bank) for some opening comments. Mr. Ward reminded participants that, traditionally, many governments have promoted the use of public resources to improve the situation of the disadvantaged. This is normally done directly through fiscal policy and indirectly through the overall and especially targeted provision of nonmarket goods and services. With these methods, it is often difficult to identify the appropriate and most deserving beneficiaries of the main thrust of social policy. The link to specific households is not clear. This underlines the importance of trying to define the total "incomings" accruing to households when matching concepts of income to actual situations of well-being where the latter is brought about by a combination of available income in its broadest sense and imputed income arising from the individual acquisition of public nonmarket goods and services.

Mr. Ward concluded in saying that there is a need to be able to define income in relationship to the provision of market goods and services and non-market goods and services. There should also be an attempt to develop more clearly aggregate perspectives to match income and population distributions. Finally, there is a need for more research on social categories of analysis, though this is difficult to foresee within the World Bank at the present time.

Discussant:

The Chair thanked Michael Ward for his very interesting presentation and called on Pedro Sainz as the discussant for the session. He opened by commenting that the group had been discussing how to better measure income and what is desirable and possible to include. He felt that Michael Ward was bringing a different perspective, in the sense that he was making proposals that call to attention the fact that measurement of income alone is insufficient and may be misleading. Pedro Sainz felt that Michael Ward was questioning the goals of measuring income according to appropriate concepts and of improving operational procedures. He was including other, complementary components, since these goals fell short of what was required. To justify this, Pedro Sainz observed, Michael Ward first points out that there are policy considerations for which income alone, as a homogeneous variable, may lead to misleading conclusions. The example cited was the need to measure both public expenditure and the relationship between the benefits received by specific groups and the indirect taxes paid. In other words, there are policy considerations for which additional information is required for specific components, rather than concentrating on developing a complete list of income components and estimating normal income distributions.

In other fields, Pedro Sainz continued, the argument put forward by Michael Ward was that one needs to introduce other variables, such as "social groups" if an understanding of behaviour behind consumption or expenditure is sought, since an income classification alone is insufficient. In many situations, the argument continues, expenditure may be more important than income, and if a decision must be made between obtaining information about income or expenditure, it should be made in favour of expenditure.

Pedro Sainz's reaction to this argument was that in areas of policy analysis, income is rarely enough. However, the need for complementary measures as identified by Michael Ward should not lead to abandonment of attempts to improve income measures. Pedro Sainz felt efforts should continue to improve income concepts and their measurement, but at the same time, for many policy analyses, other characteristics should also be introduced. He illustrated his point with an example. In a previous social panorama prepared by ECLAC, typologies of households were produced, in addition to the income distributions. A demographic dimension for Latin America was included, indicating correlation of high income with small households, and low income with large households. ECLAC also measures the "density of employment", or the ratio of employed household members to total household size. This measure varies significantly by decile in Latin America: in Argentina, for example, it ranges from 0.2 to 0.7 in the lowest and highest deciles respectively. These measures, he felt, were complementary in that they were useful for explaining income distributions. Demographic characteristics, distribution of employment and health characteristics are all useful for understanding income distributions.

On the issue of social groups, ECLAC has been dealing with the challenge of measuring the change in Latin American social structure over the last 20 years. Pedro Sainz indicated that he agreed with many of the comments in Michael Ward's paper, that social change and economic change are related. When ECLAC studies poverty lines, he pointed out, it also has a profile of the poor. This is because one can identify a number of homogeneous low income groups, different one from another, that require different policy considerations. Rural poor, without adequate access to water, have different needs than urban poor, where the priority may be instead adequate employment. When moving from indicator to policy, then, there is a need for information complementary to income. In summary, Pedro Sainz agrees with Michael Ward's line of argument, but not at the expense of further progress on improving income measures.

Discussion:

The chair thanked Pedro Sainz for his remarks and invited Tim Smeeding (LIS) to open the discussion. Tim Smeeding stated that, first, he was attracted to the Human Development Report measures, the idea of a concept of human capital literacy and its distribution, not just a number. He is also attracted to a measure of the distributions of health status, not just mortality rates, as well as distributions of income and consumption as put forward by Michael Ward. The World Bank's framework for moving from a single indicator such as the human development index to a human poverty index, which gives a distribution, was a good one. Second, he felt that economies of scale should be factored into calculating PPPs. While economies of scale for food may be limited in relation to poor people in developing countries, there are still other economies of scale for people wherever they live in the world. Third, world distributions could be derived using the approach that LIS has used for developed countries: by converting an individual's income in PPPs into dollars, Eurodollars, or whatever, analysts could see where individuals fall on the distribution, regardless of country, and thereby determine, for example, how many people in the bottom or top quintile are from what country. While there is insufficient data to do this exercise for all countries, it could be done with a subset of countries using the LSMS. Looked at another way, perhaps each country could be represented with a decile measure, and then use weights to get a world total. Ten observations would be produced for each country, appropriately weighted according to each country's population, to get to the world total. Progress could be made using microdata.

Thesia Garner commended Michael Ward for his paper and the ideas presented, and expressed support for the comments of Pedro Sainz and Tim Smeeding. Expenditure distribution data should be viewed as a complement to, rather than a substitute for, income statistics, since they measure different things: income is where people could be, whereas expenditures are where people are, representing "two sides of the coin". Wealth distributions would complete the picture. In future sessions, perhaps all three could be tied together. In terms of market research and behaviour literature, or "cluster analysis", Thesia Garner indicated that she had a problem with the concept of "classes" or "social groups". The terms "poverty" and "class" are highly-charged terminologies in the U.S., but if one uses the term "social group" for analysis, certain socio-economic variables could be selected, along with additional core variables, such as expenditure on food, or owned housing, for cluster analysis.

Duncan Ironmonger indicated that he had great difficulty with any reference to the term "class" in any paper. Income, or members of the household, or occupations are no problem, but he found the use of the term "class" repugnant. Any mention of a social grade or class should, in his view, be dropped.

Dr. Everaers commented on the complementary nature of the different issues relating to income. The primary, secondary and tertiary income components should be used in a complementary fashion and be made available so that analysts may distinguish between their respective influences on behaviour. In regard to the social grouping issue, he noted that Eurostat began development of a new socio-economic grouping for Europe about a year ago. This was based on work done in Britain, and French groupings were recently published. It developed from the need for an additional variable that could augment other variables. However, this is the point at which another problem is introduced. Since clustering techniques are used for marketing research, they are very strongly influenced by time and by culture or national background. As a result, constructing a social grouping which can be used over a longer period (since statisticians require consistency in variable definitions) and which allows international comparisons, is very difficult or too simplistic. He questioned who would be the users of socio-economic groupings, given their simplistic categorical structure, based on simple harmonized variables like occupation, income, etc. Dr. Everaers concluded by saying that he was putting out a call for tender, asking experts in the field to develop a socio-economic grouping that could be used by the European member states and perhaps other countries.

The Chair then turned the floor over to Michael Ward for his reaction to the preceding comments. Michael Ward indicated that he found the comments illuminating. In reference to social class, he acknowledged that there were problems, in terms of its "fluidity" (a term used in the paper), and in the distaste some people express for the term. The fact that something is, in some sense, socially unacceptable or distasteful, however, should not preclude its measurement if it is deemed to have an important explanatory role in analysis, since policy may not be addressed effectively without that component. General social groupings have existed for 80 years in the UK, with two categories now produced by the Registrar General. It is probably best at present, he felt, for further developments of social groupings to be conducted by research institutions rather than by government officials or international agencies. As Thesia Garner suggested, cluster analysis and principal component analysis can make a valuable contribution to determine the important categories. A more scientific, rather than political, selection of class should emerge, indicating which variables seem to affect behaviour. Michael Ward continued by accepting the point taken by Tim Smeeding concerning PPPs. He concluded by expressing his problem with how one defines the concept of income

that would correspond with what one really wants to know about total welfare of individual household groups. It has, in a sense, been disregarded because it is pragmatically very difficult to bring the macro delivery process, which can be identified in totality, down to the micro level of individual household receipts across the profile of income. More needs to be done here.

Duncan Ironmonger commented in a follow-up remark that the call for simplistic social class indicators, based on aggregated information on items such as occupation, education, etc., should be rejected. He did not see the demand for this forced simplicity, and did not feel that income analysts should necessarily follow the lead of market researchers in the construction of such scales. Multivariate analysis will lead to a better understanding of the phenomena that one is attempting to explain.

Thesia Garner concluded the discussion by commenting on the idea of using socio-economic groups, cluster analysis, and principal component analysis. She felt that it is comparable to subjective minimum income and income evaluation questions, in the sense that those responses are coming from the population. A similar result comes from cluster analysis or principal components analysis, in that the population tells the interviewer where the groupings are. She agrees that this type of research, as a possible input to the statistical community, should perhaps remain in the research area for now. Analysts may want to see how these groups shift over time. For example, it is known, based on cohort analysis, that people over 60 years of age 30 years ago spent very differently than people who are 60 today. This kind of analysis, done over time, can show how cohorts are moving over time; one cannot assume long-term stability in consumption patterns.

“COMPARING DISTRIBUTIONS; MATCHING CONCEPTS OF INCOME TO MEASURES OF WELFARE”

By

Michael Ward
Development Data Group
The World Bank

The views expressed here are solely the responsibility of the author and do not necessarily reflect any official position or policy of the World Bank.

1. Introduction

This paper addresses the basic question of whether there is a suitable concept of comprehensive income that can be operationalized and serve as an indicator of welfare—or at least as a measure of the capacity of households to achieve a desired level of well-being—and whether information about social class can add anything further to the understanding of consumption behavior that might prove useful in defining policy. It looks at some of the issues of using consumption (sometimes only ‘expenditures’) as a means of approximating the household distribution of well-being undertaken in the Development Data Group of the Bank to present, symbolically, the global distribution of income.

2. Sources of Information

Understanding the nature of income and how it impacts on household welfare is crucial to defining socio-economic development policy. For around two decades, the Luxembourg Income Studies (LIS) has taken a uniquely “micro” household level data approach to this problem. The LIS has focussed dominantly on the developed industrial countries and played a lead role in defining how household income should be measured and compared across countries, as well as over time. It has identified the many problems of assigning incomes, transfers, gains and other receipts to total “incomings” to households that are encountered in the process. In a number of instances, such information is supplemented by data computed from alternative administrative sources, in particular, Inland Revenue departments. Agencies such as the US Bureau of the Census, the Australian Bureau of Statistics and Eurostat have also gone to great detail to compile coherent and consistent definitions of income. But new “landmines”¹ are still being uncovered to complicate the drawing of consistent global comparisons of the distribution of household income and of matching such measures to corresponding notions of well-being.

Nothing comparable to the LIS unified household income database exists for the developing countries. Indeed, the only other major survey exercise in this area, the World Bank’s Living Standards Measurement Studies (LSMS) program, generates nationally managed surveys tailored made to fit individually the special circumstances of each respective country where the household survey is implemented. Most surveys are not, in their present state, very suited for the kind of comparative income analysis that LIS carries out, as Demery (1996) and Grootaert (1995) have shown. Steps are being made, however, to reconstruct the original micro data from the LSMS surveys and archive them in a way whereby they may prove more useful for cross-country analysis.

3. Determining Appropriate Measures of Income

The LIS, from the start, spent a lot of effort in defining what should be the appropriate measure of income by which to compare households. It then also addressed the issue of how to adjust that income for differences in the size and demographic composition of each household so as to come up with different but inter-related measures of standardized incomes in terms of “adult equivalents.” The implicit goal of such calculations was to match effectively the derived measure of income with some relevant notion of household welfare, or at least a concept of the total sovereign economic capability to acquire the material goods and services to generate welfare for each household. Primary attention was focussed on disposable money income. Since this was assumed to be the best measure of the resources readily available to satisfy consumption demands.

¹ Atkinson, Rainwater, & Smeeding; “Full comparability of income distribution data is not attainable but we now have a much better idea of where the land mines are located, but we still have to tread very carefully,” (1994 *op.cit.*).

In its seminal 1994 study conducted for the OECD, the LIS reached its working definition of disposable income by adding actual public transfer payments (pensions, family allowances, sickness benefits, unemployment support, etc.) to a measure of market income, from which it then deducted direct taxes. Market income in this context takes primary income such as wages and salaries and income from self-employment, i.e., the returns to labor as a factor of production, and adjusts this aggregate to include private cash income transfers like occupational pensions, alimony and child support. The more restrictive definition of 'Primary Income' or cash earnings formed the main basis of comparison in a widely quoted previous study of income distribution of the OECD countries (Sawyer, 1976). Again, the intention of the LIS was to get closer, in some unambiguous way, to the basic component that determines total household well being. But this 1994 LIS definition, nevertheless, falls short of being comprehensive, even as a measure of actual income, because it excludes capital gains (realized or imputed), imputed rent from home ownership, the value of home production for own consumption and other household income or receipts in kind. Perhaps even more important, the measure takes no account of the value of individual and household benefits from public spending—financed out of taxation (and perhaps even borrowing)—on national health care, education and household subsidies. These non-market "receipts" are taken into consideration, however, in preparing national accounts measures of consumption because they fall as aggregates, into their respective categories of public and private consumption. Significantly, in a departure from convention, these same public-spending components, although now defined in more detail, are treated as household consumption measures in the International Comparisons Program (ICP). This is because the ICP applies the notion of "use" rather than "expenditure outlay" as the conceptual and definitional basis of the measure of "total consumption of the population". This concept is now also enshrined in the 1993 System of National Accounts (SNA).

It should be noted, however, that most measures of income are not adjusted for the payment of commodity taxes, i.e., indirect taxes on goods and services. While this is an outlay rather than income concern, it does have important implications for how income is allocated to different expenditures. It should be further noted (see Graph 1) that benefits accruing to households from the public provision of a non-market service like education do not fall evenly across household income classes and socio-economic groups. This makes it very difficult to compare total household "incomes" over time because policies shift and the nature of access to the services available to different households change. It also makes it difficult to compare incomes and related consumption patterns across countries. Such comparisons are complicated by the fact that some countries may support different families placed in similar situations in quite separate ways e.g., via state scholarships to academic achievers, subsidized housing, etc. whereas others might help low income families through straight cash benefits rather than providing 'free' or subsidized services of education, school meals or shelter. The importance of taking these non-market elements into account in 'recognizing' welfare is not only because of the value that accrues to those households which receive such benefits but also because of the fact that, in the absence of these entitlements, households would be obliged to commit some of their outlays to these categories of expenditure when they are not provided by the state. Payments for health services and private medicine—which form an increasing share of 'consumption' outlays as households get older—are a good case in point. There is, consequently, as the share of public and private provision of goods and services changes, in response to budgetary constraints an emerging differential between 'voluntary' (or selective) consumption and obligatory and unavoidable consumption. The latter may not be carried out as a matter of choice but determined by the need for, yet non-availability of equivalent public non-market goods and services.

4. Household Distribution in Developing Countries

4.1 Income Approach

All this becomes far more complicated when attention is shifted to low income developing countries where the age and size distribution of households is very different social groupings may be more diverse and employment opportunities are more restricted and varied in nature, especially in urban areas. Consequently, the percentage share of receipts coming from primary income sources, especially regular wage employment, is probably much smaller. The basic issues are that the nature of household income is not independent of the age and sex distribution as well as size of the household.

The LIS (and other studies), nevertheless, take into consideration, in their inter-temporal and international comparisons, the different size and composition of households. The LIS experiments with a variety of different methods to come up with "adult equivalent" income per household. It broadly concludes, however, that while the use of different methods leads to non-linear scalar adjustments to original household income, the actual ordering of households does not change very much according to the various approaches adopted, at least in the developed industrial countries. Such a conclusion might not hold in low-income countries where the nature of a "household" tends to be more variable.

Another difference between an "OECD" and low income country comparison lies in the fact such demographic characteristics have an important bearing on both "entitlements" as well as on the respective shares of household expenditures that represent 'voluntary' and 'obligatory' commitments of income. The LIS draws attention to the important way in which 'aging' populations affect the shares of receipts coming from various income sources. In most low-income countries the nature of "economic engagement" is often quite different and variable and the share of pensions, for example, is very small. Furthermore, where the average age is very low and the base of the population pyramid very wide this will reflect high dependency ratios and burdens on income earners. Overlaying this feature is the factor of the "population momentum" which, over the next two to three decades, is likely to impact heavily on the age profiles and the size of the working population (and hence sources of household income) of many developing countries.

A further note of caution must be added that affects how income distributions are interpreted, insofar as they allegedly provide equivalent and comparable commands over goods and services. Even comparisons of income distribution within the same country at a specific moment of time suffer from the problem that the price levels underlying the consumption of households at different income levels and social class are not the same, even for identical goods and services (although the exact quality of the latter may be more difficult to assess). In many countries, and low income countries in particular, the poor pay more for most things they buy because they buy from local stores in small amounts and often on a 'ticket' or carnet system². Furthermore, these local shops rarely have direct access to wholesale traders. The proprietors usually buy their goods in mini-bulk from larger self-service stores in nearby urban locations. The ICP results also show that households are required to pay more for the very things they consume most. Thus, inequality measures based on viz. P_{10}/Median and

² This system of getting billed is run by local traders and arises because people are paid at infrequent and irregular intervals and need to acquire their consumption needs on 'tick' viz. credit.

P_i /Median, respectively, at the top and bottom of the income (or consumption) scale, may not represent comparisons based on the same underlying price level across all purchases. Standard 'one price' comparisons tend therefore to understate the real disparities in acquired welfare.

A case can be made, too, for primary income (at least) to be adjusted for the number of days worked if the concept of welfare lies at the heart of any study of well being. This would allow, among other things, for changes in perspective that reflect the role of female employment and their increased share of market work. It would underline, too, their changing occupational status. The effect of aging of the work force on labor force participation would also be captured. Clearly, a household that works only two-thirds of the time to gain a similar income to a comparable equivalent household in full time employment is better off than that same household. In looking at days worked, the importance of seasonal, secular and cyclical trends in employment would become more clear. Such features are of particular relevance in most low-income developing countries where household income distributions will tend to vary according to the time of year.

What all this draws attention to is the changing structural features of income distributions. It indicates a distinction between a "permanent" income distribution driven by the core characteristics of factor relativities and a 'variable' distribution that changes with policy. The traditional differentiation of "before" and "after" tax distributions is also important. But it is only of interest to welfare analysis if the allocation of public sector non-market goods and services to households is also fully taken into account. Comparisons of the similarities and differences across countries and over time in the 'after tax' concept may be driven more by a desire to understand the various outcomes of different political, economic and related ideological regimes a wish to achieve greater efficiency.

4.2 Expenditure Approach

Much has been written already about the relative merit, especially in terms of practicalities, of using survey measured outlays and expenditures (or more comprehensively 'consumption') to estimate the distribution of well being of households. In many respects, since consumption results in an outcome profile of a household's nominal, real and implicit command over goods and services, this approach may be seen as superior to one based on income. The latter only the available "capacity" to fulfill the welfare needs of households. Consumption reveals a household's actual preferences as depicted by its use of income. Income itself tells analysts very little about how the resources at the disposal of households are actually used when such households acquire different bundles of goods and services.

In addition, because survey practitioners recognize a general tendency of households more substantively to under-report income as opposed to "earnings" analysts prefer to work with the expenditure figures. While earnings fall mostly into the category of observed, tangible primary income receipts like wages, there is an observed pre-direction of households not to disclose the full amount of such earnings. This non-response applies both to the separately defined components of income and to under-reporting biases where numbers are provided. While progress is being made to improve coverage through recently established standard review processes provided by the Robustness Assessment Reports, consumption (and specifically expenditures) is deemed still to be more fully and accurately recorded. Certainly, if the aim of looking at such distributions is to understand the special nature or the status of a particular segment of households, like the very poor or under-nourished, consumption data—

even as outcome and not instrumental measures—are indispensable. They help in identifying how policy can be an influence for the good in changing the situation. In this context, consumption (more than expenditure) data can be especially meaningful in establishing national poverty datum (sic. Income) lines. They can also provide baseline information for social protection programs.

The problem with consumption data, however, is when they are used to depict the whole income distribution spectrum they provide a distorted perspective. This is because, for a variety of well-known reasons, consumption (and especially money outlay expenditures) tend to condense the underlying real distribution (see diagram). For the most part, those households in life at the lowest end of the income scale, as well as those at the top end are left off the basic sampling frame and are, therefore, not sampled. This will be especially the case where the head of the households has no fixed abode or employment location, if the household is a single (mobile) individual, and if the household belongs to some ethnic, religious or even political minority. At the top end of the scale, while the physical location reference features can usually be established and confirmed by simple observation, access to the respective dwellings, and hence households concerned, is often barred. The actual person or household to be enumerated may be less easy to access because they are not so tied to that physical location on a daily basis. There is some suggestion that rich households are left out of surveys more often than poor ones and, to the extent this is true, the observed distribution will be more truncated and appear less skewed than it is in reality. In addition the mean and (probably less significantly) the median values will be affected by a strong downward bias.

The distribution of households by consumption levels will also appear less skewed if, as is generally assumed (and usually observed), the savings ratio increases as incomes rise, i.e., at the higher ends of the distributional scale, consumption will increasingly underestimate income (again, see diagram). In other words, the simple conversion of a consumption distribution into an income distribution cannot be performed in a meaningful way using a single scalar transformation.

Finally, there are usually problems with the consumption estimates themselves, in particular, with trying to impute, consistently, the value of transfers in kind (like food, clothing, etc.) and in estimating the value of household production for own consumption. In addition, some forms of consumption, (e.g., alcohol, personal services, drugs, purchase of illegal documents, etc. are consistently under-recorded or missed. Furthermore, the degree of this non-response and under-recording is not evenly spread across household consumption levels. But, for national accounts purposes, it is often possible to resort to some alternative estimation procedures (drawing on, say, production and import data) to fill the gaps in an “aggregate” sense, although these have little relevance in terms of attribution to specific households.

The virtue of consumption data is that they are disaggregable and easily identifiable because they are linked to specified goods or services. Thus, they can be readily processed in terms of different groupings and analytically meaningful patterns, like urban/rural and other relevant GIS characteristics. In particular, in terms of improving the quality of international comparisons of value aggregates, expenditure data are immediately amenable to standardization across countries through a direct purchasing power parity conversion process.

5. Social Class and Inequality

One new potential area of research, therefore, would be to try to understand the nature of personal and household income distribution and matters of income inequality by reviewing changes in the social structure and nature of economic activities performed by households. Countries generally classify households only by income levels, dividing them up as to whether they are rich or poor according to different percentiles, usually decile or quintile categories. This, in itself, is interesting because—by separating what is happening between the areas above and below the median—the data can reveal whether the distribution is changing because the rich are getting richer, the poor getting poorer, or if the whole inequality is getting worse. But it provides only a limited view and a better idea of why social behavior affects consumption needs to look also at ‘class’. Further an idea of the dynamics underlying such observations would need to go into the changing technological nature of the production process, the increase in self-employment, the engagement of women at different levels, changes in transfer benefits, and shifts from public to private sector economic activity, etc.

Social classifications within the framework of official statistics, however, are poorly developed in most countries. Where they exist they tend to be tied very closely to a recognized “occupational” categorization. Such a structure tends to beg the question of real interest and so it becomes necessary to turn to market research associations for more fluid concepts of social class. The notion of class is relevant principally because, from analysis and experience, market research organizations believe they are better able to explain and understand human behavior, not only with respect to the revealed demands of households for market goods and services but also for collective and social services. What is being assumed here is that ‘class’ is as important as income as a determinant of spending and the way households achieve welfare satisfaction. It is similarly quite well established that risk factors affecting individual vulnerability to serious disease, such as cigarette smoking, obesity, hypertension and high cholesterol are related as much to how many years people spend in school, their work patterns and where they stand relative to others in their offices and communities. In the developed industrial countries, social or status is one of the most powerful predictors of health. Risk of Cardiovascular disease, diabetes, arthritis, infant mortality, certain types of cancer and many infectious diseases varies directly with relative wealth and poverty, the higher the socio-economic status, the lower the risk, even at the upper echelons of society where ‘excess’ or abundance might have countervailing effects.

Historically, social classifications, as developed in the industrial countries, have concentrated on inequalities in health and related fields in terms of racial, regional and income differences rather than class! They have not, in general, focused explicitly on social status as affecting the spending pattern of individuals.

For an analysis and understanding of buying patterns and expenditure distributions, social class may be more interesting and useful than any occupationally based classification. After all, most market research organizations have devised just such a procedure to help them understand what provokes or induces people to buy a certain product or service so they can design their marketing strategies accordingly.

Socio-Economic Groupings (SEG) and social class groups based on occupation have been regarded as the most appropriate classifications for measuring and refining the analysis of these kind of social statistics. In the UK, in the socio-economic group classification used by the Office of National Statistics, an individual’s status is derived from job title information (coded to the Standard Occupational Classification at unit group level) and employment status (whether the individual is a manager, supervisor, employee, or self-employed). For coding to a SEG, it is also necessary to have information about the individual’s workplace size.

The relationship between social class and social grade classifications is complicated by a number of issues. The data collection methods used tend to vary between market research organizations (MRO) and between these organizations and the official government surveys. MRO surveys will require the interviewer to code an individual's social grade at the point of contact with the interviewee. Thus, the interviewer might ask a variety of questions surrounding occupation and related topics to establish an individual's position within the scheme. The UK Market Research Society's social grade classification, for example, works with a simple index, using a list of popular job titles and coding them straight to the social categories A-E, rather than asking for additional information about employment status, wealth, social, recognition, etc. Consequently, there is no simple one to one relationship between the categories of Social Grade and Social Class.³

In the UK, systems using Social Class categories A/AB/etc. refer to the Market Research Society's Social Grade scheme, which is normally used for analysis of consumption patterns for market research purposes. The Office of National Statistics does not produce any statistics based on social grade. In the case of households, the normal practice has been to classify them by the class/group of the head of households.

However, this may also be the household reference person. If there is more than one householder, then the householder with the highest income becomes the reference person. If the householders' incomes are equal, the reference person will be identified by age (with the older becoming the reference person).

For the moment, there is no standardized European socio-economic classification and so any analysis of how household income distributions are related to social and even occupational change is not feasible. Eurostat is interested in developing such a classification, however, and some preliminary work has been done in this area.

6. Other Unresolved Questions

Another reason for extending the boundaries of current definitions and concepts is to embrace relevant issues related to social equity. While social and cultural norms shape societal perceptions of equity, one of the concerns that most governments take upon themselves as a major function and "raison d'être" for public intervention is the establishment of a more equitable income distribution and "fairer" society. In this sense, social justice dictates that any circumstance that stands, as an impediment to a given person's choice, not only of goods and services but also of employment, can be considered unfair. The degree of importance attached to such questions has heightened over the past decade, as it has become more increasingly evident that the fruits of growth have not been shared equally within countries. Even by limited definitions of income, it is clear income disparities, particularly in the transition economies, have widened. Equity enhancing policies such as strengthening investment in human capital and improving health service to poor households are thought to contribute to the alleviation of poverty by providing greater access to opportunities and affording fairer treatment in the labor market. More important, perhaps, many of these "non market" policies that improve present welfare will also have desirable longer-term impacts on intergenerational well being. Improved social equity means that the legacy of poverty is not handed down as an unavoidable inheritance through successive generations. So it is important to assess and impute the value of such non-market goods and services at the household level.

³ The UK Market Research Society (MRS) has expressed an interest in producing some 2001 Census statistics based on social grade for market research purposes. To this end, the MRS have submitted a Census Business Advisory Group paper that suggests that 'approximated' social grade should be applied to households, using information derived from the Census questions. This proposal followed some tests, which indicated that the methodology could reliably derive social grade on a household basis.

Economists still know very little about the underlying dynamics that link equity and social justice to growth and improved living standards. By concentrating on the economic nature of growth enhancing structural reforms such as privatization, economists have overlooked the consequences for inequality in the short run where these are related to coincident reductions in the scope of public services, higher frictional unemployment, etc.⁴

7. Global Income Distribution

Recently, the World Bank has been reviewing the structure and changing pattern of world income distribution based on available household survey data and purchasing power parity numbers (to ensure international comparability and facilitate consistent aggregation procedures across categories and countries). This represents a significant improvement on the earliest studies in this field which proximated global income using an international macro level inequality approach based on purchasing power parity (PPP) adjusted mean incomes specific to each country. In this previous approach, the average incomes of countries ranked in ascending order, were appropriately modified for population size to derive the overall "international" distribution of income. A development of this procedure used the respective 'gini' coefficients of inequality in each country where calculated but imputed elsewhere to adjust the respective representative mean incomes so as to better reflect the entire pattern of income distribution covering the whole population within each country. Both of these approaches suffer from the problem that GNP or GDP per capita is an imperfect "locator" and does not provide a good representation of available (or disposable) household income and, even less so, is it a reflection of actual household expenditures. The gini coefficient is deficient because it is usually based on a sub-sample of the population, and conventionally of households rather than individuals (the incomes of whom are derived indirectly). Rarely is a 'gini' measure representative of the underlying true pattern of inequality. In fact, in the case of income in particular, evidence suggests that, more often than not, it seriously understates the degree of inequality in individual incomes. The gini coefficient also cannot predict the shape of any country's income distribution for the simple reason that the latter will change because of structural movements (sector shifts) that take place in the economy as well as because of individual income changes.

In view of these limitations, new research⁵ has focused on developing measures based solely on household survey data to derive the world income distribution at a given moment of time. These calculations are performed in the same manner as any national exercise to determine the income distribution, viz. it is based on the per capita disposable income or reported expenditures of individuals (or households). In this approach a country's individual equivalent income distribution is broken up into deciles, or some more detailed categorization from the lowest to the highest. Corresponding to this, an appropriate population number is identified to weight each respective income data point referring to a given decile range, i.e., all incomes in that decile category are assumed to be evenly spread. This representative income point is taken, logically, as the mid-point of each decile and it is expressed in PPP terms.

⁴ The increasing mobility of global capital combined with institutionally imposed barriers and rigidities that restrict the mobility of labor have also served to aggravate these problems for the developing countries.

⁵ Branko Milanovic, "True World Income Distribution, 1988 and 1993: First Calculation based on Household Surveys Alone", World Bank, May 1999.

Thus, for any given PPP income value on the aggregated international this distribution, it is possible to calculate the total world population falling below or above a particular level that is represented by, say, a pre-determined poverty line, also expressed in PPP terms. In addition, the approach can show the size of population falling below a given percentage share of the world mean—or median—income. In principle, it would also be possible to estimate how many people in these groups come from different countries, and what the share of those coming from one specific country below these 'threshold' levels constitutes in terms of the total population of that country.

In practice, this distribution does not turn out to be quite as smooth as might be intuitively expected. This is surprising given that, theoretically, with every individual's income or expenditure separately located and sequentially ordered within the hypothetical framework, the distribution curve should be a continuous, seamless function. The main reason why it is not is because there are some implicit assumptions and leaps of faith that have been taken in the derivation of the overall function that are not evident, even if they seem superficially obvious. The main statistical drawback lies in the definition of the upper and lower numerical boundaries applicable to each of the various decile, etc. class intervals. These are not uniform and they are also open-ended at the extremes. Although valued in the same common currency, each country's deciles can not be readily aggregated with another's. A graphical depiction of the resulting distribution shows considerable variation, with many "peaks" and "troughs" occurring where there are disjointed connections between non-identical, uneven and variable decile categories assigned to specific income points applicable to each country. The straight forward calculation thus results in the observed tessellation that is exaggerated by having large countries with wide income distributions incorporated in the aggregation. (See diagram; Milanovic, "World Income Distribution in 1988 and 1993" showing the world population according to its per capita income level in log terms).

While the above paper represents a significant advance, it falls short of being a clear and comprehensive depiction of global income distribution. The results the method generates are thus questionable. Global income distribution is better illustrated by a "Dikhanov Diagram" that uses a quasi-exact procedure to plot, by log income level, the distributional density functions of both the World Population and the Total World Income. The resulting graph shows each of the two key variables as a separate distribution above and below the income line, which is of interest in itself. But the diagram has the even greater merit of demonstrating the percentage (and, hence, implicitly, number) of people falling below or above any particular level of income. These shares can be obtained directly by inspection and may be recalculated easily. The diagram is smoothed essentially by a process that defines not individual incomes as the basic units of complication but the actual income distributions of each country as the means to get to the overall global distribution. The global 'curve' is obtained simply by aggregating the standardized income distributions for those countries as defined around various value points. Where a country's income distribution is not available it can be reconstructed symbolically using information about a neighboring or related country and then added together to provide an equivalent regional income profile. The "Dikhanov Diagram" in the text is obtained by proxying Brazil's income distribution for those of Latin America as a whole, and applying population weights, then adding in those for Germany (adjusted to represent the whole of the OECD) and the two largest countries of Asia, India and China, based on China's distribution. Total World GNP and total World Population are the defining aggregates to be explained. With more time and computing support, it would be possible to generate an even more relevant and useful consolidated distribution using detailed national level data for a greater number of countries. As it is, the present 'model' shows up much more clearly the true nature of the income distribution with its explicit shape and modes. None of this would be captured, of course, in any standard Lorenz Curve treatment of the distribution since such approach condenses the more analytically information available.

8. Summary

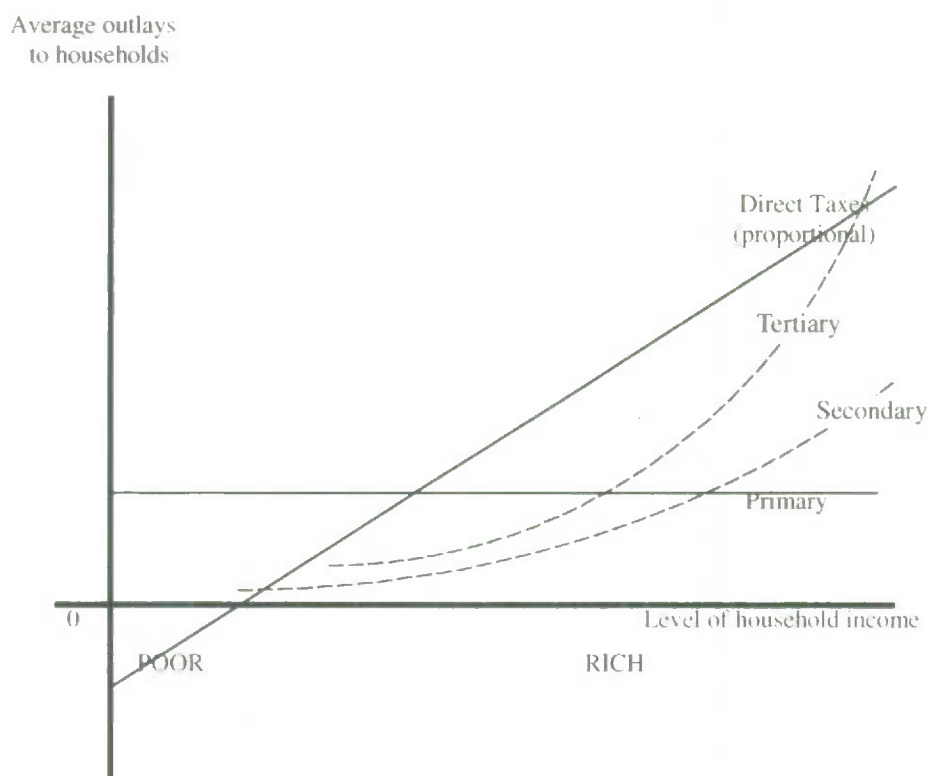
Traditionally, many governments have promoted the use of public resources to improve the situations of the disadvantaged and those in the bottom tiers of the income distribution.

The overall and especially targeted provision of non-market goods and services. Such allocations include the associated provision of collective goods in general. Unfortunately, while the expenditure side of the budget offers better continuing opportunities for improving the basic social structure and for redistributing income, it is often difficult to identify the appropriate and most deserving beneficiaries of the main thrust of social policy. The links to specific households is not clear.

Theory suggests that public expenditure should displace private expenditure only when it yields higher social benefits but such judgements cannot be made meaningful unless governments know who are the main recipients of such benefits and how their welfare status has been enhanced by public sector involvement. Trends towards the "privatization of health" in many low income countries, for example, might appear sound by this standing but in such countries, serious illness is often the single most important factor driving families into poverty. In this situation, the adoption of a 'consumption' standard for measuring distribution would lead to the paradoxical result that the poorest families would appear richer than they are simply because of having to spend money on self-health protection. This underlines the importance of trying to define the total 'incomings' accruing to households when matching concepts of income to actual situations of well being where the latter is brought about by a combination of available income in its broadest sense and imputed income (related to a pre-determined 'consumption') arising from the individual acquisition of public non market goods and services.

In addition, in terms of dynamic social analysis and the need to understand what underlies patterns of income distribution, it would seem desirable to link household income data not only to government outlays but also to some sort of social classification that helps to define class and status in the context of institutional relationships and household behavior.

INCIDENCE OF PUBLIC EXPENDITURES ON EDUCATION
ON DIFFERENT INCOME GROUPS



The table shows:-

- Richer households are the major recipients of public expenditures on education.
- The rich are the major beneficiaries, paying in taxes relatively less for the services they receive.

[This diagram is based on the work of Jeffrey Hammer and Dominique Van der Walle in the World Bank on beneficiary incidence assessment.]

Notes

Many Poor and Middle Income households do not get access to Tertiary Education because they do not complete secondary schooling—mainly because of real and opportunity cost factors.

For higher income households, the relative incidence of direct taxes may even decline as total incomes rise, thus increasing the net benefits to them.

Tertiary education costs (per pupil) are higher than those for secondary and primary (the lowest) education.

ANNEX: Sources of Acquired Welfare **Available Sources of Welfare;** **TOTAL OUTLAYS AND EXPENDITURES**

Market (Priced and Non-priced)
 Good & Services

PLUS

Non-Market Goods and Services

(a) Private consumption by Households

(b) Expenditures by the State on Serving Households

Expenditures to meet preference choices
 and obligations

Publically provided (politically generated)

Actual Revealed Preference

Supply/Budget Priorities and Choices

Demand Driven by Households

Collective provision by government

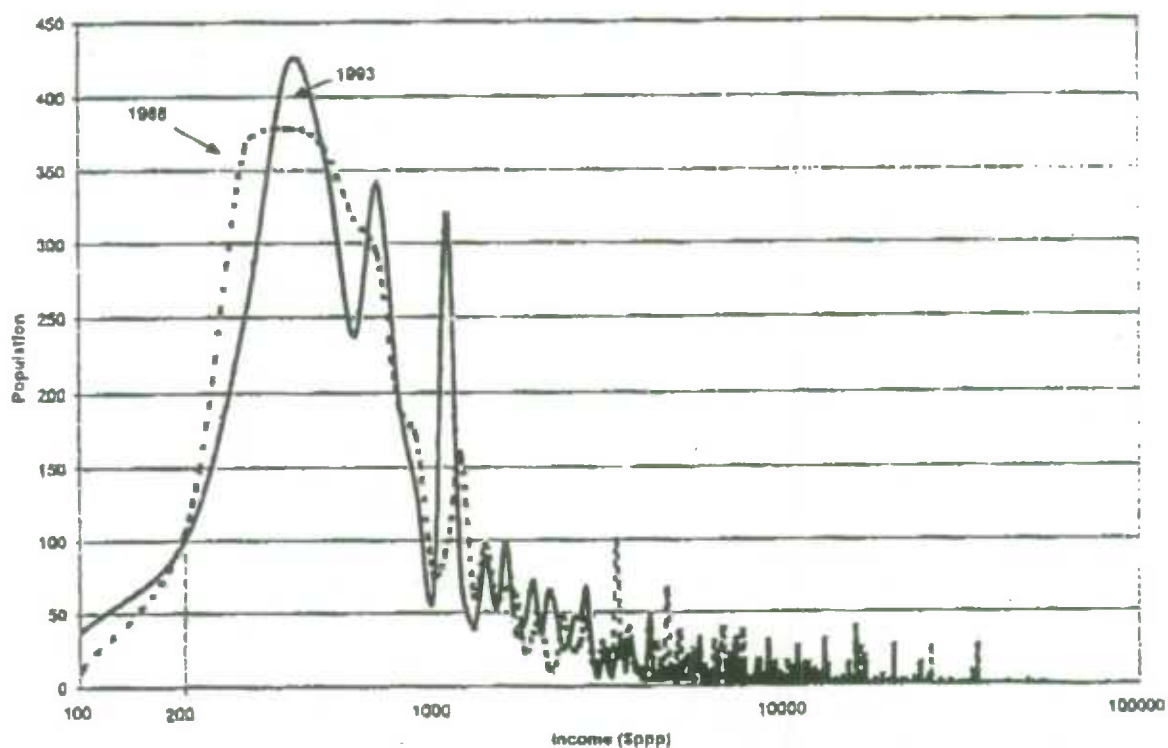
Prices as signals of need-
 individuals determine requirements
 ("States" & responses)

Indicators as signals of "Need"-
 Authorities determine requirements
 ("Pressures" & responses)

Outcomes
 (Individuals and Households)

Impact assessment
 (on Communities, Social Groups and the Nation)

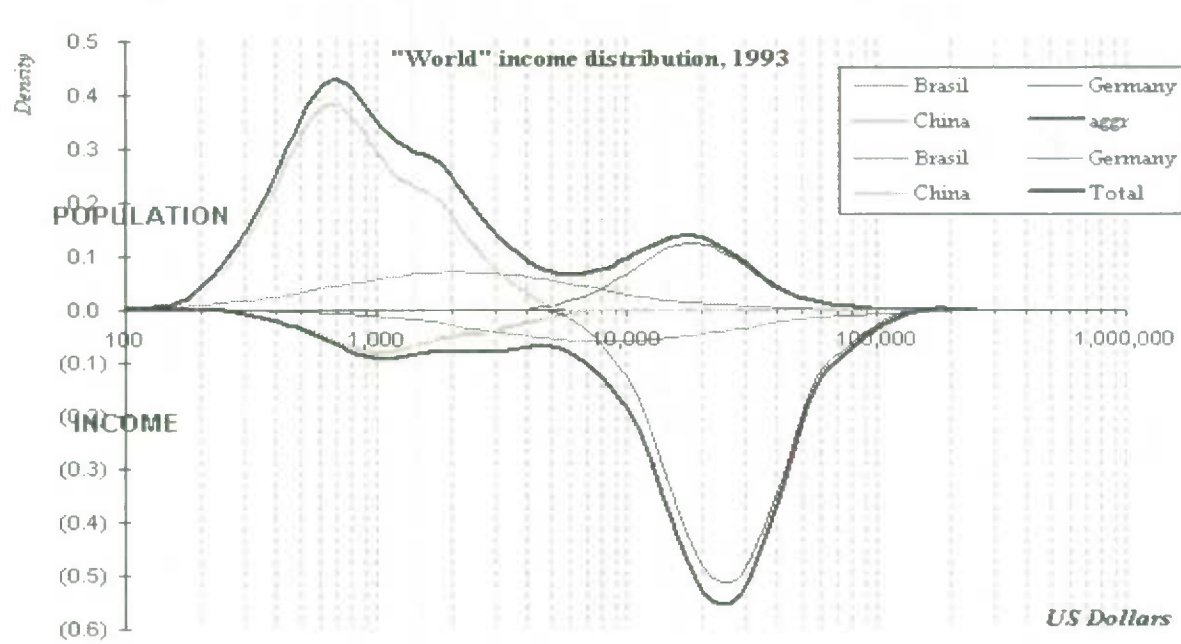
Figure 1: World income distribution in 1988 and 1993 (in million of persons)



Note: x-axis in logs

Source: B. Milanovic, (op.cit) 1999.

Figure 2: 'QUASI-EXACT' DEPICTIONS OF THE GLOBAL INCOME DISTRIBUTION



The lines are respectively population [above the x-axis] and income [below the x-axis] densities. The area between these curves and the horizontal axis is one. That makes it possible to **additively** decompose a total distribution into its components. Three countries are presented on the graph. They are expanded to take up weights for large regional country groupings on the assumption that these distributions -in this symbolic representation- are similar (China is China + India, Brasil is Latin America and Germany is OECD). So, this is not quite world distribution but an illustration how to analyze one. From that graph, for example, we can see what are the distribution components at each income level.

Let's say at \$1,000, we have more than 40% of the "world" population end up below that level and they earn only 6% of income [area under the curve from \$0 to \$1,000]. We can see that these people are mostly from "China", and some of them are from "Brasil", we can see from that diagram exactly how many. The same goes for income distribution. Being a flatter curve given the log-scale, we also can see that "Brazilian" inequality is enormous: population of this "country" enter all the spectrum of incomes that are represented on the diagram. We also can see that while the "world" population distribution has two peaks, the corresponding income distribution is sort-of one basket case - almost everything goes to the people on the right side.

Because of the diagram's area-retaining properties, a uniform shift in income does not change the shape of the curves, but will shift the overall distribution to left or right. This makes it convenient comparing various distributions: from different countries or from different years on one graph. Or, for that matter, to see if economic growth increased the number of poor and whom it benefited in the end.

Such a representation also makes it possible to decompose income by factors such as salary, capital income, transfers, family support etc., which could be quite relevant for analyzing effects of domestic tax and poverty alleviation policies.

The Possible Role of a Conceptual
Framework in the Development of
Internationally Comparable Statistics
on Income, Expenditure and Wealth

8

Canberra Group



SESSION 8: THE POSSIBLE ROLE OF A CONCEPTUAL FRAMEWORK IN THE DEVELOPMENT OF INTERNATIONALLY COMPARABLE STATISTICS ON INCOME, EXPENDITURE AND WEALTH

Chair: Paul van der Laan, Statistics Netherlands

Focus paper: Ian Macredie, Statistics Canada

Discussant: Daniel Weinberg, U.S. Bureau of the Census

Rapporteur: Statistics Canada

Ian Macredie started the session with a presentation of his paper in which he argues that a conceptual framework covering income, expenditure and wealth is useful and possible. With the exception of the SNA and, to some extent, labour statistics, no other domain has a conceptual framework, which he defines as a set of variables and the explicit relationships among them. In the case of income, expenditure and wealth statistics, the conceptual framework must include a description of the relationship with the SNA.

Once the conceptual framework has been fully described, one can make adjustments for:

- current practical considerations of survey collection and processing
- limitations imposed by the user community
- resource limitations

The major benefit of the existence of a conceptual framework is that it promotes harmonization of outputs, both within a country and between countries. In particular, it would allow an appropriate comparison between industrialized, developing and transition countries. It would facilitate the development of comparable terminology across languages.

In summary, Mr. Macredie proposed that we should embark on this development now, even though it may be something that would have been appropriate to do long ago. To make it manageable, he proposed that the development should proceed one country at a time.

Discussant:

The Chair invited the discussant, Daniel Weinberg, to lead off the discussion. As a starting point, he expressed his agreement with the basic points proposed in the paper. He outlined a set of issues which need to be dealt with in the development of a conceptual framework:

- value of non-wage compensation (i.e. fringe benefits)
- accounting for employer contributions to pension plans
- home production
- consumer durables
- publicly provided goods and services, such as health and education
- inheritances, lotteries, insurance receipts and spending out of capital
- inflation (changes in wealth affected)
- purchase power parities
- equivalence scales
- historical series - users may not accept changes
- measurement - cannot income, expenditures and wealth in one survey even though everyone agrees that they are conceptually linked

- dissemination/adoption - once we have a conceptual framework, how do we get a buy-in from national statistical agencies
- feasibility

Finally, Mr. Weinberg proposed a list of activities which should be undertaken:

- define each income component clearly
- place each income component in the SNA context
- as a result of these clarifications, metasurvey reports (as discussed in session 3) should be updated
- recommend ideal definitions of disposable income and full income
- recommend inflation, purchase power parity and equivalence scale adjustments
- develop “current practice” comparable measures - one could use updated Robustness assessment reports (RARs) – see session 2 – to assess quality and to note unmeasured major components

Discussion:

In the group discussion, the following points were raised:

- How can an “ideal” definition be developed if we do not outline what the data are to be used for? Similarly, there is likely more than one “ideal”.
- Perhaps the proposal is too ambitious, and therefore may not lead to a useful product within a reasonable length of time.
- Much work has already been done in this area; for example, the Eurostat framework developed by Walton et al. and the provisional ABS framework. One should start with these frameworks and move forward rather than starting from the beginning. Not only would such an approach be efficient but the current frameworks already reflect a certain level of international consensus.
- The ILO (International Labour Organization) has an interest in income and expenditures and would like to play a part in the development of such a conceptual framework.
- Perhaps the framework should concentrate on the realm of possibility and does not need to deal with all issues or become so long that it is difficult to understand.
- The Canberra Group has an “official” mandate, so adoption of a conceptual framework which has been developed by this group should not be a problem.
- The SNA has a shortcoming in that it does not explain why it is useful. One should consider a detailed description of rationale as an essential part of a conceptual framework of income.

THE POSSIBLE ROLE OF A CONCEPTUAL FRAMEWORK IN THE DEVELOPMENT OF INTERNATIONALLY COMPARABLE STATISTICS ON INCOME, EXPENDITURE AND WEALTH

By
Ian Macredie
Statistics Canada

1. Introduction:

It is common practice to group statistics according to the subject matter represented by those statistics. We frequently refer to labour statistics, health statistics or income statistics. In fact, when officials of national statistical agencies convene to share experiences, such labels are often used to organize the discussion, or to organize the event itself (e.g., International Conference of Labour Statisticians, or The Canberra Group). Such groupings are also used to organize national statistical agencies, resulting in such entities as the Bureau of Labor Statistics in the United States, or the Income Statistics Division in Statistics Canada.

While such groupings imply the existence of relationships among the elements of, say, income statistics, it is rare that these relationships are formally articulated. The one exception to this are statistics grouped under the heading of the System of National Accounts. There, a great deal of effort has gone into the articulation of the conceptual framework for national accounting, and many of the mathematical identities used to express the national accounting conceptual framework are in fact used in generating national accounts estimates.

What distinguishes the history of the SNA from labour statistics, health statistics, environment statistics or income statistics is that the conceptual framework came first. Over the years that the SNA was evolving to its present state, the conceptual framework was being polished and refined in step with improvements in the statistics which fed into the National Accounts.

Other groups of statistics like education statistics, health statistics and income statistics have grown up piecemeal, both nationally and internationally. None of them can point to a conceptual framework which guided their development in the past or which will guide their harmonization in the future¹.

The fact that the conceptual relationships among the various elements of income statistics are not articulated, and that income statistics are not conceptually related to other statistics such as those on expenditure and wealth, reflects their history. All of these programs, certainly in Statistics Canada and probably in most national statistical agencies, started at various points through time, in response to particular circumstances prevailing at the time, and have come to service the narrow needs of the insistent user communities which have grown up around each of the component programs. Under these circumstances, the need was never compelling to step back and articulate the logical relationships which should exist among the variables collected in these programs, or the choice of variables themselves.

¹ Labour statistics lie somewhere between the SNA and most other groups of statistics. Labour statistics, through the International Labour Organization, have had for many decades international standard definitions on selected topics. However, these standards have not been developed and adopted through reference to a labour statistics conceptual framework, and while one standard definition may make reference to another, there is nothing in the process used to establish these standards which ensures conceptual consistency across them. The other thing which distinguishes labour statistics is that some work, nationally and internationally, has been undertaken to develop Labour Accounting Systems (LAS). As the name suggests, these are explicitly patterned on SNA and consist of a series of accounting identities which express the relationships among various labour statistics. This gives the LAS many, but not all, of the properties of a conceptual framework. Furthermore, no international body has yet endorsed a particular LAS although EUROSTAT is currently looking into the possibility of creating a common LAS across the European Union.

The articulation of the conceptual relationships which should underlie statistical collection, processing and dissemination is what I call a conceptual framework, and its need is now becoming apparent. This stems from a growing emphasis on harmonization within national statistical systems, and the growing importance of international comparability. This paper attempts to show how the adoption of a single conceptual framework as the basis for generating statistics intended to be internationally comparable will further that comparability.

2. Definition of a conceptual framework:

A conceptual framework for income, expenditure and wealth statistics would begin by presenting and justifying the ideal choice of variables, and the ideal definitions of those variables, along with a description of the conceptual relationships among all of these variables. These specifications would be formulated on the assumption that the proposed variables would be measured through a program with household surveys at its core². This conceptual framework would then go on to explain the disparity between the ideal set of variables, and the variables (and their definitions) which are practicable given the state of the measurement art. The final stage involves comparing the theoretical ideal to actual practice. It would also reconcile the theoretical ideal definitions for household survey based variable with the corresponding measures for other major components of the national statistical systems such as the System of National Accounts.

3. Application of conceptual frameworks - nationally and internationally:

Within a statistical agency (or national statistical system where there is more than one agency) a conceptual framework is required in order to maximize the degree of harmonization in the income, expenditure and wealth estimates³. Without a conceptual framework, we cannot articulate precisely what the relationships among estimated variables *should* be and we cannot, therefore, measure progress towards (or even away from) greater harmonization.

An *international* conceptual framework would serve essentially the same role, that is, national statistics generated according to that framework would also be more harmonized. The result would be that they would have the same conceptual relationships across countries. This would serve to ensure that studies examining the relationship between, say, income and expenditure across countries would reflect underlying national differences rather than being burdened with a potentially large element of statistical artefact generated by differing relationships within the data themselves.

² This is not to say that only household surveys would be used. However, household surveys are specified because the resulting statistics will: (a) require the use of statistical units such as families or households for which data cannot generally be obtained from administrative sources, (b) involve all income sources, precluding any substantial role for establishment surveys, and (c) have to be capable of describing distributions across the population, precluding the use of techniques such as those found in the SNA which operate on aggregates only.

³ For national statistical systems, there is a prosaic, but nevertheless important application of a conceptual framework and that is in the preparation of what Statistics Canada refers to as meta data, i.e., information which describes our estimates. Application of a conceptual framework to the preparation of meta data will result in user-oriented meta data which is much more coherent, and consequently, much more convincing to the user community. It will also probably result in more concise meta data since far less material will have to be devoted to explaining and justifying disharmonies in the estimates.

But conceptual frameworks offer an additional benefit in terms of enhancing international comparability. This stems from the fact that a conceptual framework will tend to improve the effectiveness of international standard definitions. The reason for this is that standard definitions are limited in the degree of detail that they can contain. The economies of countries differ as do their institutions and their government programs. Standard international definitions cannot include all of the details which vary from country to country. Only by reference to a conceptual framework (conceptual standard if you wish) can decisions be made on definitional details by individual statistical agencies which will serve to enhance overall international comparability.

Since there are not, as yet, standard definitions relating to income variables, the power of conceptual frameworks to enhance the effectiveness of standard definitions will have to be illustrated using statistics for which there already are international standards, in this case, labour statistics.

The International Labour Organization has been issuing standard definitions for selected labour market variables for many decades, although, as noted, there is no conceptual framework supporting these definitional standards. The best known and most widely used of these definitions are those for employment and unemployment. (The current versions of the definitions were adopted in 1982.) Both Canada and the U.S. adopted definitions of unemployment which conformed to the international standard. This conformity was evident in the fact that compendia of international labour force statistics (e.g., those of the OECD and the ILO) showed Canadian and American published unemployment rates as being comparable without any adjustments. However, about four years ago, it was discovered that while both countries conform to the ILO definition of job search, so-called passive job search methods (e.g., looking at job advertisements in newspapers) are treated differently. In the U.S. individuals without jobs who use only passive job search methods are classified not in the labour force, while in Canada, individuals using only these methods are counted among the unemployed⁴. This difference in the treatment is enough to account for 0.7 percentage points (nearly 20%) of the approximately 4 percentage point gap between the U.S. and Canadian unemployment rates⁵. Not an inconsequential impact.

While it is not recorded officially, it appears that the difference in practice stems from a difference in the conceptual frameworks used in the two countries. In the U.S. the conceptual framework involves the "degree of labour force attachment". In other words, one's job search activities must demonstrate that the individual is sufficiently attached to the labour force that his/her offer of labour services, as evidenced by their job search activities, is great enough that the individual is likely to accept a reasonable job offer if one were presented to him/her. The Canadian conceptual framework operates on the principal of information gathering. Employers gather information about potential employees (i.e., recruitment, including placing job ads) while the potential employees (the unemployed) gather information about possible job openings. With this model, passive job search methods are included in the definition of unemployment since they are clearly information gathering activities.

In summary, had the ILO standard definitions been supported by a conceptual framework, this disparity in the Canadian and U.S. definitions would probably not have arisen.

⁴ Bureau of Labor Statistics officials have expressed it as, "all job search methods which do not have the potential to directly prompt a job offer are considered to be passive methods".

⁵ For further documentation see, Statistics Canada, *Labour Force Update*, Autumn 1998 (Cat. No. 71-005-XPB)

4. Institutional position on the application of the framework:

Those national statistical agencies which agree to develop or adopt a conceptual framework for income, expenditure and wealth statistics will have to accept advance that there will be disparities between what will be set out in this framework and what is practised in that country's existing income, expenditure or wealth programs (disparities which may persist for some time). Accordingly, the people charged with developing a conceptual framework should not feel constrained by these disparities.

This reflects the fact, previously noted, that most industrialized countries have long-standing programs in the income, expenditure and wealth fields which have been created without the use of a conceptual framework. Under these circumstances a certain lack of coherence is inevitable. In addition, since changes to existing survey programs are expensive, and since substantial user communities have grown accustomed to the content of these programs as they exist, the rate of progress in the application of the conceptual framework will be slower than would be the case if some or all of these programs did not exist or were in their infancy.

In other words, the ideal time to have developed an international conceptual framework would have been about 50 years ago before a multitude of statistical vested interests had arisen around various income, expenditure and wealth statistics programs, each created to closely serve different data user communities and each one containing conceptually incoherent elements in themselves.

The conceptual framework then becomes a set of goals towards which income, expenditure and wealth statistics aim. Progress will be made towards these goals as resources, developments in survey methodology, and the views of the user community, permit. While progress towards these goals may be slow, it can be made. Again, an illustration from the field of labour statistics may be useful. The current ILO standard definitions of employment and unemployment were first adopted in 1953⁶. For the next three decades, these standards went largely ignored in Europe and some other industrialized countries. Only in the 1980s, when Europe turned from administrative data to household surveys to measure unemployment did the ILO standards get adopted outside of North America. Their application is now almost universal among industrialized countries.

5. Organization of the conceptual framework document:

The document containing the conceptual framework could be organized into six sections, and several of these sections would address the issues using a three level structure.

The six sections are:

1. Introduction and overview:

The first section would present the most basic of the accounting relationships with which everything in the conceptual framework must be consistent, i.e.:

$$\text{Wealth}_t + (\text{Income}_{t,t+1} - \text{Expenditures}_{t,t+1}) = \text{Wealth}_{t+1}$$

⁶ The current standards were adopted in 1982 but the version adopted then can be seen as essentially a clarification of the 1953 standards.

This section would also choose and defend a single, overriding, conceptual objective for income, expenditure and wealth measures. For example, we might state that the objective of income, expenditure and wealth data is to measure the level (and changes in the level) of the economic well-being of individuals and families where well-being is expressed as their capacity to acquire goods and services in the reference period.

Such an overriding statement might seem extremely limiting, especially in light of the fact that most income, expenditure and wealth statistics programs in individual countries address several needs simultaneously. However, without the adoption of a single, overriding, objective it will be difficult to resolve and justify many of the very specific issues encompassed by the framework. This can be illustrated using two examples, namely, some forms of non-wage compensation, and the treatment of employer sponsored pension plans.

Non-wage compensation:

In many countries (at least those without national dental insurance), many employers with generous benefit packages provide dental insurance to their employees. To simplify the argument, let us look at the case where the employer pays all of the premiums. The question is, what dollar amount should we impute for membership in these plans for the purposes of measuring income? One approach, the one which would be prescribed by the SNA conceptual framework, would be to value them at the cost to the employer. However, the average employee receives more benefit from the plan than the plan costs the employer. (This relationship is generally true of non-wage compensation, i.e., it costs the employer less than it would cost the employee to purchase the same benefit as an individual.) If we adopt the "capacity to consume" objective, then clearly the cost to the employer valuation is inappropriate. Just which valuation would be appropriate will require additional thought. For example, one could either value the dental plan at the cost of an individual buying equivalent insurance coverage in the open market, or one could value it at the total amount of the individual's dental claims to the employer's insurance company in the reference period.

Employer sponsored pension plans:

Looking at employer sponsored pension plans, one could treat the accumulated funds of an individual in such a plan as just another asset. However, with the "capacity to consume in the reference period" as the overriding objective, this treatment may be inappropriate simply because the accumulated funds are inaccessible to the individual until such time as he/she is eligible for a pension, which may be many years off. Even at the time that the individual qualifies for a pension, only a predetermined fraction of the accumulated funds are available in a given year to the individual. In other words, unlike most other assets which can be liquidated to yield money to purchase goods and services, pension assets cannot.

Having articulated the overriding measurement objective for the conceptual framework, this section would address, in broad terms, the relationship between this conceptual framework and the System of National Accounts. While references to the SNA would be found throughout the document, and a separate section (Section 6) would be devoted to the details of this relationship, this introductory section would articulate the general principles. For example, this section will indicate that whenever definitions can be used which are in common with the SNA, such definitions will be adopted. However, SNA definitions should not be viewed as constraints.

2. Income:

This would address income statistics according to each of the levels shown below.

3. Expenditure:

This would address expenditure statistics according to each of the levels shown below.

4. Wealth:

This would address wealth statistics according to each of the levels shown below.

5. Units of measurement:

This will address the issues which are not intrinsically wealth, income, or expenditure concepts but which must be addressed as measurement issues. These include choice of statistical units (e.g., nuclear families, economic families or households), application of measures of inflation, equivalence scales, and so forth. In some cases, these issues would also be addressed at each of the three levels shown below.

6. Relationship to the System of National Accounts:

While comparisons with SNA practices would appear throughout the previous five sections, this section would bring all of these references together in order to convey a comprehensive appreciation of the relationship between statistics on the distribution of economic well-being and the SNA.

6. The three levels:

Each of sections 2, 3, and 4, (and parts of section 5) i.e., the sections on income, expenditure, wealth and units of measurement, would present the material using the following three levels:

Level 1:

The first level will lay out the framework as a conceptually ideal system of statistics, paying little heed to what any given country has found to date to be feasible. In other words, at this level, the framework might call for an abundance of imputed values (e.g., one of these might be the imputed rent of owner-occupied dwellings) even though no country has developed and adopted an algorithm for calculating such imputations.

The material in this section need not be restricted to what is actually selected for inclusion as a standard in the conceptual framework. For example, at this level the inclusion of the imputed value of unpaid work in the home as part of income might be considered and then rejected, but at this level, the grounds for rejection would be theoretical, not practical.

Level 2:

The second level will take each of the elements (generally variables) in the ideal conceptual framework described in sections 2 to 4 and classify them into categories of feasible and infeasible. "Feasible" refers to those things which the state of the income statistician's art can currently handle with acceptable degrees of accuracy. In the context of international statistics, the determination of "feasible" has a majority-rules element to it. For example, not all national statistical agencies have access to individual records from the personal income tax system. (Statistics Canada does.) If access to taxation microdata were the only way to make a proposed, after-tax, variable feasible, then if the majority of national statistical agencies did not have such access, then for purposes of this part of the international conceptual framework this particular variable would be deemed "infeasible".

In this level, infeasibility would not include limitations arising from considerations such as disruptions of existing time series.

Level 3:

The third level would reconcile the apparently feasible elements in the conceptual framework articulated in level 2 with our current practices. In other words, level 1 describes what should be measured, level 2 describes what can be measured, and level 3 describes what we are prepared to measure.

In each case where there is a disparity, this section of the framework will explain the disparity:

- a. by citing other impediments such as the preservation of existing time series or the need to be consistent with other variables outside of the framework, or
- b. by citing an incapacity to sell the idea to the user community at large. For example, it is argued that the withdrawals from employer-sponsored pension plans should not be counted as income since they are composed largely of reductions in savings. But can this idea be sold to the broader user community?
- c. by simply stating that we have not found the time or resources to make the change.

As a matter of keeping the exercise manageable, and as a means of getting feedback on one section as work proceeds on the next, it may be desirable to further sub-divide the construction of this framework. For example, we might wish to do level 1 for income alone, then move on to level 1 for expenditure, and so forth. Alternatively, we might wish to do levels 1, 2 and 3 for income, and then start on level 1 for expenditure, and so forth. Whichever approach is taken, it will require a number of iterations until the sections on income, expenditure and wealth are mutually coherent as dictated by the identity shown above.

7. Development sequence:

If we were to undertake the construction of a conceptual framework for income, expenditure and labour statistics, the only things that we would have available as templates are the conceptual framework of the SNA, the proto-framework of the Labour Accounting System, and the preliminary framework developed by the Australian Bureau of Statistics.⁷

This situation may make it difficult to sell an international body, or city group, on the idea of undertaking the construction of an international conceptual framework. Not only is it not clear exactly what such framework would look like, but it means that the exercise would be starting almost from scratch. Statistics Canada intends to build a conceptual framework for application to its own income, expenditure and wealth statistics programs. While there is no presumption that the Canadian framework would prove internationally acceptable, it would provide a starting point sufficiently well advanced that the amount of additional international work required would be modest enough to make the international undertaking appear to be feasible.

⁷ *A Provisional Framework for Household Income, Consumption, Saving and Wealth*, Australian Bureau of Statistics, (ABS Cat. No. 6549.0), 1995.



Income Units of Analysis - Update on
Sheridan and Macredie Paper

9

Canberra Group

SESSION 09: INCOME UNITS OF ANALYSIS - UPDATE ON SHERIDAN AND MACREDIE PAPER

- Chair:** Ian Macredie, Statistics Canada
- Focus paper:** Mike Sheridan, Statistics Canada
- Discussant:** Paul van der Laan, Statistics Netherlands
- Rapporteur:** Statistics Canada

Mike Sheridan focused on the factors to be considered in determining which common unit of analysis should be put forward by the Canberra Group: the household, the family or the individual? His paper assumed that the components of income were already defined.

With respect to the accumulation and sharing of income and capital, households likely make the same kind of decisions as families: probably not, however, as tightly as families. Therefore, further research is needed to better understand how households are different from families in this regard.

Expenditure-type units tend to be household rather than family-based. It appeared that more and more, the Canberra Group is inclined to draw expenditure information into the analytical framework.

The majority of the survey data collections are dwelling-based. There are generally fewer challenges in constituting households than families, from dwellings. The complexity of family definitions also tends to vary from one country to the other.

“A person or a group of persons who reside in the same dwelling” would constitute a household. Adding the notion of sharing meals to this definition would not likely make a large difference, either in the number or composition of households formed. However, this extension of the definition would benefit from further discussions by participants.

In summary, it appeared that everything considered:

- the household constitutes a good analytical unit to monitor the type of societal changes that the Canberra Group is interested in;
- the household is suitable for the purposes of national and international comparisons;
- it is also a suitable bridge to the national accounts;
- however, using households as a common unit of analysis does not preclude however the further formation of families, recognizing the fact that policy issues tend to be driven by the need to understand changes affecting families.

Discussant:

Mr. Paul van der Laan observed that the three units of analysis were pertinent. In his view, the household and individual units were more suitable for socio-economic analysis, while the family is more interesting for monitoring socio-demographic trends. Also, a clear distinction should be made between data collection and data presentation. For instance, one can collect income on an individual level; use the household in tabulations and count the number of persons living in a household, by income group.

As far as terminology is concerned, it is preferable to use "living quarters", rather than "dwelling", because of mobile homes. It also has the advantage of being consistent with census terminology.

The "household-dwelling" concept could be used to refer to all persons living together in the same dwelling, while the "household-keeping" concept would include individuals that share at least their income and maybe their meals, as it was proposed earlier. Empirically, in most countries, using either concept does not make a large difference, but the "household-dwelling" concept is easier to implement, especially with administrative data where additional information is lacking about income sharing.

The final version of the framework should make allowance for persons living in collective households.

Discussion:

In the general discussion, participants noted that in many of the income and expenditure surveys, the economic family unit is used for collecting data, even though it is referred to as a household, particularly in European countries. By adopting the dwelling/household as a common unit of analysis, we could be unable to use those data sources, since it was doubtful whether federal statistical offices would change their data collection.

It was also commented that how you define units of analysis also depends on which transfers of income between units one needs to catch: transfers between people living in the same dwelling or transfers between family members living in different dwellings, as an example.

On the importance of the notion of sharing meals together, it was observed that in Africa it was thought to be rather important whether people shared meals together or not. Because of varying living arrangements, eating together was often the thing that identified a common group of people that we would want to deal with as a unit. For other participants this issue was not deemed significant in their jurisdictions.

In selecting units of analysis, we should also bear in mind the growing number of cohabiters, at least in the United States, who share living quarters but are unrelated to each other.

It was noted that our preoccupations did not seem to correspond very well with the concepts on which policy makers base allocation of money. Perhaps the Canberra Group should review a list of policy actions and identify which units were more prevalent amongst policy makers. Somehow, we have to mesh the two together in a better way.

Participants argued that we should be as inclusive as possible and allow researchers as much choice as possible within their framework. Therefore, we ought to collect household data because of its inclusive nature and have a set of questions that determine relationships within households, as well as questions that identify joint and individual incomes. The Canberra Group would make a significant contribution if it could propose such an ensemble of questions to statistical agencies.

Dr. Ironmonger was then given the opportunity to share his view on the economic evaluation of non-market work.

Through his presentation, Dr. Ironmonger aimed at encouraging participants to take a larger view of "production" and consequently, of "income".

Time-use surveys show that in most developed countries, people spend more time in unpaid activities, than in paid work. If we price both non-market and market activities at market value, and account for household capital required, non-market work generates more value. For example, 1992 Australia data show that adults 15 years and over spent 34 hours conducting unpaid work every week, compared to 21 hours of paid work. At market price, household labour generated \$275 billion worth a year, while market labour accounted for \$200 billion. Similar results have been found in most developed economies where comparable figures could be obtained from time-use surveys.

Household production is of very large magnitude. And we really have two economies that are basically in competition with each other for certain products and commodities: mainly accommodation, meals, childcare, eldercare and clean clothes. As a result, significant levels of income are being allocated amongst individuals through this process.

Eurostat, through its support of time-use surveys, has commissioned Statistics Finland to provide a framework for the development of satellite household production accounts, inspired by current developments in the environment statistics field. While not yet completed, this framework will likely demonstrate that the best way to measure household production is to count its final outputs and cost them at market price. Since households are producing a very limited range of final outputs, measuring the value of household production would appear to be feasible.

Dr. Ironmonger recommended to collect the data through personal consumption diaries, which could yield data on both intra- and inter-households income transfer, as well as between the non-market and market economies. Diaries also provide data for longer time-periods.

Several participants were astonished at the magnitude of the estimates and wondered about the methodology used to value household production. Dr. Ironmonger granted that the basic figures presented earlier did overestimate the value. The final output method currently being developed, by taking into consideration the efficiency of the time used for household production, would yield lower estimates.

In the general discussion, it was mentioned that Denmark has developed estimates of household production for the seventies and eighties, where it was estimated at something like two-thirds of GDP. But interestingly enough, results also showed that household production essentially remained stable over this period. Therefore, the major consequence of adding it to GDP was to flatten out some of the interesting variations that occurred during this time. Dr. Ironmonger suspected that this flatness was due to interpolation between two or three data points, therefore masking cyclical variations that occurred during this period.

Finally, it was observed that time-use surveys are expensive and tend to be promoted by social statisticians. Economic statisticians will have to be convinced of their usefulness and additional funding provided, without which the likelihood of an expansion of this type of survey across different countries is not promising.

REVISITING STATISTICAL UNITS: CONCEPTS, DEFINITIONS AND USE

Prepared by:

Mike Sheridan

Director General, Labour & Household Surveys Branch

Ian Macredie

Director, Labour & Household Surveys Analysis Division

Statistics Canada

1. Introduction

The main purpose of this short paper is to update the contents of the paper titled *Statistical Units: Concepts, Definitions and Use*. This version of the paper also pulls some of the information from the robustness measures and utilizes some of the work from the Statistics on distribution of income, consumption and accumulation of households. It still relies heavily on the work of the ABS on *A Provisional Framework For Household Income Consumption, Saving And Wealth*. It also still ignores, to a high degree, the different categories on income and different ways of building income aggregates. While these “slots” or “boxes” remain an over riding characteristic they are addressed in other places. The Canberra Group expressed a desire to further explore the notion of defining some uniform approaches to the key sorts of survey units to be used in the analysis of income data. This paper consolidates some of the discussions to date on the potential set of harmonised defined units of analysis that could be used to make international comparisons of income.

While the paper tries to consolidate a set of proposed standard definitions for further discussion and future assessment, it also acknowledges at the outset that the ability to make meaningful comparisons will be greatly influenced by the source of the income information. For example, in the case of tax data or other administrative income data sources, these units of analysis may have to be derived making their use perhaps somewhat less attractive. Nevertheless one of the key requisites in making progress in the area of meaningful international data comparisons will be the establishment of the capacity to harmonise and standardise the units of analysis used in the development of income estimates from household surveys.

Statistical units become increasingly important in the assessment of the social and demographic implications of economic well being – especially when the yard stick is income distributions. Thus it is to a high degree that the choice of the statistical unit of analysis will depend on the analysis framework intended for the information. This idea is well articulated in the 1995 work from the Australian Bureau of Statistics – *A Provisional Framework for Household Income, Consumption, Saving and Wealth*. In short that Australian work suggests that an individual may be the preferred statistical unit when analysing, for example, the relationship between earnings and educational attainment. However, for the analysis of the distribution of income it is usually more appropriate and meaningful to group people according to the way income is potentially shared within, say families, to form a single spending unit.

Income, expenditure and wealth statistics are collected and necessarily disseminated using a limited range of statistical units such as households, various types of families and individuals. Practices in the choice of statistical units, and the definitions of those units, as evidenced by the Robustness Study by Gordon Harris varies from country to country, and may even vary within a given country's income and related statistics programs.

In the process of choosing optimal standard statistical units for income and related data, it may be useful to recall the underlying rationale for collecting income, wealth and expenditure data. Simply put, we are not interested in the income, wealth or expenditure as such. Rather, our interest in income, is derived from our ultimate interest which is the measurement of levels of capacity to acquire goods and services, or to use the phrase in the Canberra Group's mandate statement, levels of “economic well-being”. Income, expenditure and wealth statistics are simply indicators of this level of economic well being¹. The picture of the economic well being of individuals may vary considerably depending which statistical units are chosen and indeed on the legitimate statistical comparability of the unit of analysis.

The paper addresses various statistical units for use in the measurement of income, although many of the arguments are roughly applicable to the measurement of expenditure and wealth. The approach is to explore the statistical units at a conceptual level and then recommend some specific, operationally feasible definitions. In this way compromises which need to be made for practical reasons in choosing definitions for statistical units can be assessed against a theoretical ideal.

2. Income

2.1 Money income

For the purposes of this portion of the paper, income is broadly defined as money income. The implications of extending the definition of income to include imputed income (e.g., imputed rent for owner-occupied dwellings) will be addressed briefly at the end of this section of the paper.

Since income can be measured for individuals or for groups of individuals, such as families or households the question becomes, what groups of individuals could ideally be used for income measurement? As noted above the practice of measuring the incomes of groups of persons rather than just individuals, is based on the assumption that the incomes of the individuals in each group is shared among members of groupings such as families or households. Given the validity of the statement that makes family or household income potentially a better measure of the economic well-being of group members than is their individual incomes².

The sharing assumption must remain because we have limited data on actual sharing or pooling of resources within either households or families. In other words, it is not known to what extent individuals within statistical units reserve some or all of their individual incomes for the purchase and consumption of goods and services which the individual alone consumes. To some extent, we can infer sharing by the nature of the goods or services obtained. For example, housing must be shared (jointly consumed) since it is in the nature of the beast. On the other hand, the consumption of food and clothing by and large cannot be shared although their purchase may be by means of the incomes of individuals other than those doing the consumption. In some cases, there may be literal income sharing, e.g., children's allowances ("spending money") or monetary gifts exchanged among statistical unit members.

However, it is not necessary for there to be complete sharing of income in order for the sharing assumption to be important in the choice of statistical units. Even if there were sharing of just food purchases, shelter and transportation (the family car), the sharing assumption is still valid and important in the overall "well-being" measure of "sharing" unit, be it a family or a household.

¹ Even expenditure is an indicator or proxy of economic well-being rather than being a direct measure of economic well-being since it is consumption which is the direct measure of well being and expenditure and consumption are not the same. The most extreme example of the difference between expenditure and consumption is household capital goods. The expenditure, i.e., purchase or acquisition occurs in one period while the consumption is typically spread over several subsequent periods.

² Strictly speaking, it is not income which is necessarily shared. While some income may be literally shared (e.g., children's spending allowances provided by parents), what is more generally shared is the consumption made possible by current and historical expenditure, which in turn is largely driven by the statistical unit's income.

The relationship between collective accumulation of income and the collective decisions about spending or "sharing" economic resources have, in some countries, resulted in the development of a concept titled the "income unit" or the "spending unit". For budget studies which investigate patterns of family expenditure the important criteria is whether or not persons living together pool their incomes for expenditure purposes, that is, whether they constitute one spending unit or several spending units. In many respects intuitively the notion of "family" and the various combinations and permutations of the family definition and that of a income/spending unit may not have a profound impact on the assessment and evaluation of economic well being. The definitional nuances begin to creep into the process when the task is one of determining exactly how much control or command the particular family unit, however defined, has over the sharing of income and the subsequent expenditure decisions. For example, the income unit defined and used in Australia is a more structurally refined breakdown of the family unit. This finer breakdown of consumption and spending relationships attempts to describe the "degree" or impact each individual member of the largest possible definition of a family unit has on contribution to sharing the various components of the income. In the case of Canada, where the preferred statistical unit of analysis is the economic family (persons living together in the same dwelling unit related by blood, marriage or adoption), a single economic family could in fact yield two or three "income units" under the Australian definition of an income unit.

A study of the concepts and the relationships between the income and expenditure surveys conducted by Statistics Canada concluded that when assessing income there is "very little difference in income distributions between family types and spending units" it would be good to understand if this relationship holds true for other surveys. The only significant difference between spending units and families was in the area of unattached individuals. Not surprisingly, there were significantly more unattached individuals in the spending unit definition than in the family unit of analysis. Interesting enough, despite the increase in the number of unattached individuals on the spending unit base - there was little "well-being" difference between the unattached individuals defined on the spending unit base and the unattached individuals on an economic family unit base.

2.2 Definitions of statistical units:

Traditionally, groupings used for the measurement of income are households, broadly defined families (called "economic families") and nuclear families (smaller units - mother, father, sister brother).

These statistical units are assessed here according to two criteria, namely, what is the impact of the statistical unit on the income sharing assumption, and what are the practical challenges of collecting income and related data according to these statistical units.

Unattached individuals - Persons not in families:

One of the implications of the choice of families as statistical units is that each family definition creates a somewhat different group of individuals who we can refer to as "persons not in families." These can be divided into those who live by themselves, and those who reside with other persons. For those who are living by themselves, these individuals will all be classified as persons not in families regardless of the definition of the family used. The impact of the choice of family definitions is, therefore, found among those who share a dwelling with others. In the case of nuclear families, these people may be related to other people in the dwelling but they are considered to be persons not in families since the kinship ties are other than parent-child. In the case of broadly defined or economic families, the persons not in families are those who share only the same roof and have no kinship ties.

In the case of households, there are no analogues to “persons not in families” since households are defined to include persons living alone in a dwelling i.e., households of size one. Standard practice is to include all households in calculations regardless of household size. This raises one of the peculiarities of calculations performed using the households as statistical unit. For families, only groups of two or more individuals are included in calculations. The result is that while households are the more inclusive unit, average household income will be smaller, often substantially smaller, than average family income simply because the inclusion of households of size one in the calculations.

The impact of the choice of family definitions on persons not in families is most evident with calculations based on thresholds such as low-income cut-offs or poverty lines. In the case of nuclear families, for example, the economic well-being of persons living with relatives (but not in a parent-child relationship) will be calculated as though they were living alone. Their individual incomes may be quite low (which is frequently the case with the elderly) with the result that they will be erroneously counted among the “poor” even when they benefit considerably from income sharing with the nuclear family with which they reside. This can also occur in the case of economic families. However, in the case of economic families, persons not in families but living with others have no kinship ties with those with whom they live and so the likelihood of income sharing is presumed to be lower as is, therefore, the likelihood that their individual incomes misrepresent their economic well-being.

Households

Definition:

The definition of a household is usually deceptively simple. For example, in the case of Canada it is stated as “as all persons sharing a dwelling”. In the case of Australia, it is defined as a group of people who usually reside and eat together”.

Impact on the income sharing assumption:

Households may include persons who are not related by blood, marriage or adoption to all of the other household members. What does this do to the sharing assumption? In the extreme, some household members such as roomers and boarders may pay other household members for the services that they receive. The other household members may share in this income (the payments of the roomers and boarders) but they don't share in all of the income of the roomers and boarders. It is evident that at the household level, the income sharing assumption is not always valid.

On the other hand, there are instances of income sharing which cross household boundaries. For example, high income elderly families often transfer income to adult children (or grand children) living in separate dwellings. (In some cases, this serves to reduce their long-term income tax liability.) The currently highest-profile example of between-household sharing of income occurs when families break up and one spouse (usually the one without custody of the children) makes payments to the former spouse either for the support of the spouse or for the support of the children (or for both).

In other words, if we were to define statistical units as those groupings of individuals who shared income, then the “same dwelling” limitation in the definition might be both erroneous and unacceptable.

In order to capture all of the income sharing so that it includes between household transfers, it would be necessary to do either of two things.

- adopt statistical unit definitions which are not subject to the “same dwelling” constraint. However, this gets very complicated from a practical point of view since surveys would have to ask questions about inter-household income transfers just to identify statistical units³
- include as income all such inter-household transfers but this in turn might necessitate deducting these gifts from the donor household’s income.

Practical measurement implications:

Since a household is generally defined as all persons sharing a dwelling, the two principal issues are: how do you associate people with dwellings, and even more importantly, what is a dwelling?

Associating persons with dwellings:

The standard practice is to say that persons are associated with the dwelling that is their *usual* place of residence. That is easy to say but much more difficult to put into practice. Failure to associate everyone with a dwelling is believed to be a major source of undercoverage in censuses of population and in household surveys using area samples⁴. It might be dismissed as a problem for demographers but it also has serious implications in the assessment and analysis of income distributions. When a household member is away from the dwelling where his or her immediate family resides in order to get work, failure to associate that person with the family residence has obvious and serious implications for income distributions. The household or family income may be reduced, possibly erroneously putting the family or household income near the very bottom of the income distribution. In a one person household (that of the person away working) the income may be shown as being far higher than it really is in the scale of economic well-being.

Students away from the parental dwelling can create similar problems. A student not associated with their parental dwelling will show up as a very low income, one-person, household and the parental household’s economic well-being will be over estimated. Of a somewhat different nature, but still problematic, are joint custody arrangements for children following separation or divorce. These also pose problems for household definitions based on usual place of residence.

In general then, the use of the household as a unit to describe income distributions is perhaps necessary as a building block to other more useful analytical units. The reasons for this would include the fact that the household is a rather loosely defined set of individuals who share a common dwelling. The assumption of pooling or sharing of income and expenditure decisions is far less clear in the case of households than is the case for families.

³ In addition, the other household would have to be brought into the sample and surveyed, something which just isn’t practical when using area samples.

⁴ Age-specific undercoverage rates of 10% or more are not unheard of in household sample surveys.

Definition of a dwelling:

The conventional definition is that a dwelling is a structurally separate set of living quarters with an entrance from outside of the structure which does not pass through some other dwelling. Generally the application of this definition poses few problems, at least in the well-housed populations of developed countries.

Nevertheless, one can imagine cases where on site suites or cottages occupied by other family members might be problematic as would low-cost housing for individuals (e.g., rooming houses) with shared cooking and washing facilities.

Broadly defined families:*Definition:*

In Canada, the standard, broadly-defined, family is referred to as an "economic family" and is defined as all persons sharing a dwelling who are related by blood, marriage or adoption. With economic families we rely on the relationships (blood, marriage, and adoption) to substantiate the income sharing assumption. In the most generic of terms a family should exhibit the following characteristics. It should be comprised of two or more persons, one of whom should be of a minimum age (some countries use 15 years, others use 16) who are related by blood, marriage or adoption. The persons identified in the family should be usual members of the same dwelling. Both registered and de facto /common law marriages should be given equal status. All other persons living in a dwelling who do not meet the generic characteristics described above should be characterized as unattached individuals.

Impact on the income sharing assumption:

While seldom explicitly articulated, members of an economic family are assumed to share income because they are related to each other and choose to share a common dwelling. Being related alone is not sufficient to ensure income sharing since parents and adult children living in different dwellings, brothers and sisters living in different dwellings, and so forth, are not assumed to share income. As pointed out earlier, in the context of households merely sharing a dwelling may not be sufficient grounds for assuming income sharing.

However, when both kinship and shared dwellings are operative, as is the case with economic families, the assumption seems to stand on firmer ground.

Practical measurement implications:

For the purpose of summarizing this discussion let's say that the challenges associated with the collection of data necessary to identifying households are at least as complicated and equally relevant to the accurate identification of and classification of economic and other family types.

Nuclear families:*Definition:*

These are defined as parent(s) and unmarried children sharing a dwelling⁵.

Impact on the income sharing assumption:

Again, kinship and the sharing of a dwelling substantiate the income sharing assumption. In the case of the nuclear family, the influence of kinship is buttressed by the nature of the kinship ties. Specifically, the children in these families, especially those under a certain age have little or no income of their own and so all of their consumption is derived from parental income.

⁵ Sometimes an age limit for children (e.g., 18 years) is added to the definition.

3. Households, Families, Individuals and Extended Income Measures

Without usurping the ground covered by Smeeding and Weinberg, or getting into a discussion of income concepts. There are a number of income sharing situations, for which there will never be amenable unit of analysis. This may be the reason that, based on a rather quick review, very few if any, current member countries in the Canberra group go beyond money income in their income statistics. In fact, some countries do not even include all forms of money income. Canada, for example, excludes realized capital gains, in part on the grounds that reporting errors are so large, in part because it can be a very irregular source of income, and in part because it is excluded from the National Accounts. The following provides a few situations to illustrate the point that within the income framework the complexity of some income or benefits and the subsequent allocation to a dwelling, household, family or individual is simply too complicated to cover with a household survey methodology.

However, confining income statistics to money income can seriously compromise their adequacy as measures of economic well-being, regardless of the statistical unit of analysis. The example of non-money income most often cited is the implicit income stream coming from owner-occupied housing. However, the fringe benefits associated with many jobs are another numerically important source, although less widely recognised in discussions of imputed income. Whatever the merits and challenges of extending the income to include imputed income the issue here is what are the implications vis-à-vis the statistical units? These may be quite considerable.

Owner-occupied housing:

A "family" occupying a mortgage-free house clearly has a higher level of living than an otherwise demographically and financially identical family renting their accommodation. (On the topic of those renting, we should also note that those who live in state-owned housing, and who pay less than market rents, should also have the difference between the rent paid and market value imputed to them as income. Most of the following arguments regarding owner-occupied housing apply here as well.)

Unlike other sources of money income, it is not unreasonable to attribute all of housing related imputed income to any one individual occupying that house. One might argue that this income should be attributed to those holding legal title to the dwelling. However, this is a classic case of income sharing. Everyone in the dwelling consumes the housing services provided by the dwelling and so everyone in the dwelling should be included among those receiving the imputed income.

In terms of statistical units the implication is that the household is probably the most suitable unit for measuring the income from owner occupied housing.

Individual fringe benefits:

Some fringe benefits extend to more than the employee whose job generates those benefits. For example, supplementary medical benefits and dental plans generally provide benefits to both the employee and his/her family. However, almost all of these plans cover only the so-called nuclear family, i.e., parent(s) and "dependent children".

How such fringe benefits should be valued in terms of their contribution to family income is by no means clear. Presumably, the amounts paid out by the plans in claims by each family represents the plan's contribution to income. Whether such statistics are available from the plan managers remains to be seen. But at least in theoretical terms, the amount of income to be attributed is clear.

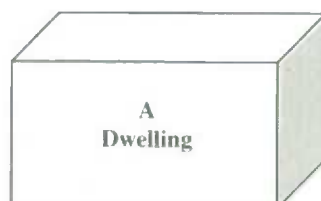
In terms of the choice of statistical units, it is clear that no one definition of family or spending unit will be appropriate when adding to income the imputed value of these fringe benefits. In fact no single analytical unit will provide a comprehensive solution. That having been said, the following section provides a proposal for a set of hierarchical units of analysis that the Canberra group members might want to work towards considering as a standard for the proposes of collecting and presenting income data.

A Proposed Approach to

Unit of Analysis

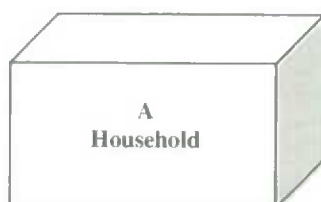
Characteristics

Level 1



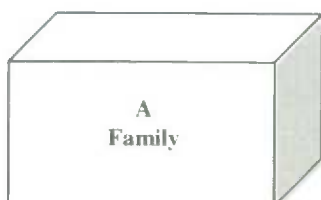
A structurally separate set of living premises with a private entrance from outside the building or from a common hallway or stairway inside

Level 2



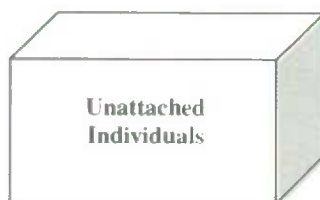
A person or group of people who reside together in the same dwelling

Level 3



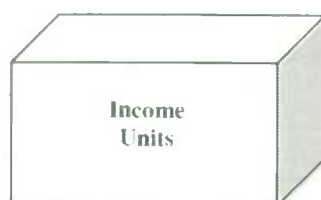
Two or more people sharing a common dwelling unit and related by blood, marriage (including same sex couples and de facto or Common Law relationships) or adoption. The proposal here is that all relatives living together at time of the data collection should be considered to comprise a single family regardless of the nature of kinship.

Level 4



An unattached individual is a person living alone or in a household where he/she is not related to other household members.

Level 5



One person or group of related persons, within a household, whose command over income is shared.

The five levels of statistical units described above have the desirable characteristics of being derived from most countries existing income data sources. In fact a quick review of existing variables at the L.I.S. website would indicate that the production of these analytical units as defined above would not be a problem for most countries. There may be some variance between the various countries demographic variables and the definitions that appear above, but for the most part these units either exist or could be derived.

The discussion of relationship between these “building” blocks for units of analysis and the actual production of income estimates at the 2nd meeting of the Canberra Group focused towards use of households as the basic unit of analysis. The preference was driven by to a high degree by the relationship of households to micro (survey) and macro (SNA) data uses.

The 1993 System of National Accounts (SNA) definitive of the institutional sectors of the economy (page 3 Section C) indicates what are the main sectors of the economy for which it is possible to compile the full sequence of accounts. Two main kinds of institutional units or transactions are distinguished in the system. The two are households and legal entities. In the SNA institutional units that are resident in the economy are grouped together into five broad mutually exclusive sectors composed of the following types units:

- i) Non-Financial Corporations
- ii) Financial Corporations
- iii) Government Units
- iv) Non-Profit Institutions (NPI's)
- v) Households

Clearly the Accounts use of the household as a unit in the macro sense relies on the notion of the income associated with that unit. However the definition of household in the accounts is very loose and is one of several subsets of the institutional units and sectors. Households are defined as (SNA 1993, page 19-20):

Households: all physical persons in the economy, with the institutional unit in the household sector consisting of one individual or a group of individuals. According to the criteria given for defining the institutional unit, the household of the owner of an unincorporated enterprise in general includes this enterprise, which is not considered an institutional unit (except under certain conditions). The principal functions of households are the supply of labour, final consumption and, as entrepreneurs, the production of market goods and non-financial (possibly financial) services.

Non-profit institutions serving households (NPISHs): legal entities which are principally engaged in the production of non-market services for households and whose main resources are voluntary contributions by households.

Generally speaking, the SNA is not especially particular about the methodology of how the “household” is defined and constructed in the microdata world, but rather now it functions as a production or consumption unit. It is worth noting that “Australian” household units are treated in the SNA frameworks the same as “Canadian” or “USA (American)” household units despite the fact each is defined quite differently.

No doubt, these differences in what constitutes a “household” unit will vary across countries and hence within the account frame work. The basic definition of “household” as proposed in this paper is probably acceptable for comparison and data analysis activities since the only major difference in most countries microdata collection definition of households relates to “the eating together”. This slight variant would not seem to create large differences in either the number or size of households for most microdata survey based estimates for most countries.

References

1. Income Distribution by Size in Canada, 1995, Statistics Canada, Catalogue No. 13-207-XPB.
2. A Provisional Framework for Household Income, Consumption, Saving and Wealth, 1995, Australian Bureau of Statistics, Catalogue No. 6549.0.
3. Household Facilities and Equipment, 1997, Statistics Canada, Catalogue No. 64-202XPB.
4. Measuring Poverty – A New Approach, 1995, National Research Council , National Academy Press.
5. Canberra Group Papers, 1996, Canberra First Meeting on Household Income Statistics.
6. Income of Spending Units and Economic Facilities: A Study of Concepts and Relationship 1980, Statistics Canada, Catalogue No. 8-3301-518.
7. System of National Accounts 1993.



Discussion of Canberra Group Session
at the next IARIW

10

Canberra Group

SESSION 10: DISCUSSION OF CANBERRA GROUP SESSION AT THE NEXT IARIW

- Chair:** Ian Macredie, Statistics Canada
- Focus paper:** Paul van der Laan, Statistics Netherlands
- Discussant:** Tim Smeeding, Luxembourg Income Study
- Rapporteur:** Statistics Canada

Mr. van der Laan reported that the International Association for Research on Income and Wealth (IARIW) had accepted the proposal for a session on income distribution statistics at the Cracow Conference, to be held in August 2000, providing the group with a unique opportunity to address a select group of professionals from government, academia and the private sector.

It was agreed that over the next year, the group will concentrate on preparing a comprehensive report on its deliberations and recommendations. The group will finalize this report at next year's meeting, to be held in May 2000, as well as develop a strategy for making it available and obtaining feedback from the widest audience possible.

Discussant:

Mr. Smeeding proposed the following themes, in order to launch the discussion on the contents of the report:

- History of the Canberra Group
- Balancing the conceptual and the practical
- Comparability
- Harmonization
- Data availability
- Data quality assessment reports
- Impact of the group's work in various countries
- Future developments

Selected summary papers would be prepared for the IARIW conference in August 2000. Mr. Smeeding suggested the following themes:

- Conceptual overview
- Status report on where we are in practical terms and indications on future developments
- Linkages and gaps between micro and macro income statistics
- Data quality assessment reports

Beyond those four themes, Mr. Smeeding provided a list of more specific items that should be embedded in the main report as well as, for some items, in the IARIW papers:

- Units and classifications
- Equivalence scales
- Linkages of income to other surveys such as consumption or time-use surveys

- Data presentation
- Topics that are more country-specific and affect international comparisons
- Pensions
- Self-employment
- Imputed rent
- Capital gains
- Real comparisons and inflation

Concrete applications, such as poverty assessment, should be included as often as possible, in order to demonstrate the relevance of the group's work and recommendations.

Discussion:

In the general discussion, it was observed that the comprehensive report should suggest implementation milestones, similar to how the UN formulates its recommendations.

It was also noted that recommendations on data quality assessment reports would be welcomed by the UN Statistical Commission.

At IARIW, it would be important to discuss bridging the gap between income surveys and national accounts, because of the composition and topics addressed by this organization. The IARIW conference should also be viewed as an opportunity to educate users, as well as to obtain their feedback, namely on directions the Canberra Group should take in the upcoming years. Concrete proposals for collaborative work should be presented in order to benefit from the momentum of the conference.

THE SESSION ON INTERNATIONAL STANDARDS FOR INCOME DISTRIBUTION STATISTICS AT THE 2000 IARIW CONFERENCE

By Paul van der Laan

Remark:

The views expressed in this paper are those of the author and do not necessarily reflect the policies of Statistics Netherlands.

*Project
number:*

SIP-99/17

Date:

12 May 1999

Summary: The scientific programme of the 26th General Conference of the International Association for Research in Income and Wealth - to be held in Cracow, Poland from 27 August to 2 September 2000 - includes a plenary session on International Standards for Income Distribution Statistics. This note presents the topics that could be subject of papers for this session.

1. Introduction

At the Second Meeting in March 1998 the Canberra Group decided to propose to the International Association for Research in Income and Wealth (IARIW) to organise a session on international standards for income distribution statistics at its 2000 General Conference.¹ At the 50th Anniversary Conference of the IARIW held in Cambridge, UK in August 1998, the IARIW members discussed the proposals for session topics at the next General Conference. After this the Council of the IARIW took a decision about the scientific programme for the 26th General Conference in 2000. This programme includes a plenary session on International Standards for Income Distribution Statistics. Paul van der Laan of Statistics Netherlands is appointed as session organiser.

The 26th General Conference of the IARIW will be held in Cracow, Poland from 27 August to 2 September 2000. The Session on International Standards for Income Distribution Statistics is scheduled for Tuesday 29 August 2000.²

2. Main conclusion of the 1996 IARIW Session

The 24th General Conference of the IARIW at Lillehammer, Norway in August 1996 contained a session on International Standards on Income and Wealth Distribution, organised by Tim Smeeding (Smeeding 1996). This session mainly focussed on the efforts to revise the 1977 'Provisional Guidelines on Statistics of the Distribution of Income, Consumption and Accumulation of Households' (United Nations 1977). The session had two keynote papers:

- 'Towards a Revision of the UN Guidelines on Statistics of the Distribution of Income, Consumption and Accumulation of Households', actually consisting of three separate contributions by Lidia Barreiros and Deo Ramprakash (Barreiros and Ramprakash 1996), Alfred Franz (Franz 1996a) and John Walton (Walton 1996) respectively;³
- 'A Provisional Framework for Household Income, Consumption, Saving and Wealth', published in June 1995 by the Australian Bureau of Statistics and presented by Harry Kroon and Maureen McDonald (Australian Bureau of Statistics 1995).

One of the main conclusions from the discussions during this session was that the top down macro-to-micro approach was not sufficient from the perspective of micro-data users. Both micro-to-micro and micro-to-macro viewpoints are valuable and the new international guidelines should address these issues.

¹ Expert Group on Household Income Statistics 1998, Session 6: Future activities.

² The complete programme of the 26th General Conference can be found in the December 1998 issue of *The Review of Income and Wealth*, the official journal of the IARIW.

2. Proposed contents of the 2000 IARIW Session

Since the 1996 conference of the IARIW at Lillehammer substantial progress has been made with respect to the development of international guidelines and standards for income distribution statistics, especially within the Canberra Group. As the IARIW membership covers both official statisticians and prominent statistics users, like academic researchers and staff members of international organisations, the IARIW General Conference is an excellent opportunity for the Group to present its work on international standards for income distribution statistics and to receive feedback from expert producers and users of income data.

The session should cover papers on standards for household income statistics. On the one hand these standards should be about both conceptual and practical issues related to the production of income distribution statistics. On the other hand implementation of these standards should improve international comparability of household income data. Papers for this session could cover the following topics:

- Framework issues: Theory and concepts
 - Lessons from the past
 - overview of previous attempts
 - success and failure of income distribution guidelines
 - Current proposals
 - scope and structure
 - units of analysis
 - concepts of income
 - classifications
 - reconciliation with established international guidelines, in particular with the System of National Accounts
- Tricky issues
 - Measurement of entrepreneurial income
 - Measurement of income dynamics
 - Delineation and valuation of incomes in kind
 - Measurement of capital gains
 - Adjusting for differences in household composition across time and across regions and countries: use of equivalence scales
 - Adjusting for differences in prices: the measurement of real income and the use of price indices and purchasing power parities
 - Definition of poverty lines
- Practical issues
 - Sources and methods
 - household surveys and administrative registers
 - cross sections and panels
 - matching micro-data sets; micro-to-micro linkage
 - statistical matching and integration; micro-to-macro linkage and macro-to-micro linkage

³ Revisions of these papers were discussed at the January 1997 meeting of the Advisory Income Steering Group set up by Eurostat, the Statistical Office of the European Communities (Franz 1996b and 1997, Ramprakash 1997 and Walton 1997). At the Voorburg meeting of the Canberra Group in March 1998 a preliminary version of the report on 'Statistics on the Distribution of Income, Consumption and Accumulation of Households (DICAH)' was presented by Eurostat consultants Alfred Franz and John Walton. The final version of the DICAH report was presented to Eurostat in August 1998 (Franz et al. 1998).

Canberra Group

- Harmonisation of income data
 - creating meta-data: robustness assessment reports; questionnaires on data collection practices and data quality
 - creating harmonised surveys (input harmonisation, like the European Community Household Panel)
- Extensions of the conceptual framework for household income statistics
 - Concepts of consumption
 - Concepts of household saving and wealth
 - Significance of social security wealth, pension rights and intergenerational transfers for concepts of household wealth
 - Links with Social Accounting Matrices and Labour accounting systems
 - Links with measures of poverty and social exclusion
 - Links with measures of economic well-being and human development
- Users' view: What sort of income data do we need?
 - Conditions from a national perspective
 - Conditions from an international perspective

At the Ottawa meeting next June, the Canberra Group should express how it wishes to present its work at the next IARIW Conference and what kind of papers would be useful. Canberra Group members are explicitly invited to write papers for the session on international standards for income distribution statistics.

References

- Australian Bureau of Statistics (ABS). 1995. *A Provisional Framework for Household Income, Consumption, Saving and Wealth*. Canberra, ACT: ABS. June 1995.
- Barreiros, M. Lidia Conde de Artiaga and Deo Ramprakash. 1996. 'Revision of the UN Guidelines on Statistics of the Distribution of Income, Consumption and Accumulation of Households'. Paper prepared for the Twenty-fourth General Conference of the International Association for Research in Income and Wealth. Lillehammer, Norway, 19-23 August 1996.
- Expert Group on Household Income Statistics ('Canberra Group'). 1998. *Papers and Final Report of the Second Meeting on Household Income Statistics, Voorburg, The Netherlands, 9-11 March 1998*. Voorburg and Heerlen: Statistics Netherlands. May 1998.
- Franz, Alfred. 1996a. 'Revision of the UN Guidelines on Statistics of the Distribution of Income, Consumption and Accumulation of Households'. Paper prepared for the Twenty-fourth General Conference of the International Association for Research in Income and Wealth. Lillehammer, Norway, 19-23 August 1996.
- . 1996b. 'Manual on the Distribution of Income, Consumption and Accumulation of Households'. Report prepared for the Advisory Income Steering Group. Statistical Office of the European Communities, Directorate of Social and Regional Statistics and Structural Plans. Luxembourg, 13-14 January 1997. *Document AISG/3/1997*.
- . 1997. 'The Household Economy'. Report prepared for the Advisory Income Steering Group. Statistical Office of the European Communities, Directorate of Social and Regional Statistics and Structural Plans. Luxembourg, 13-14 January 1997. *Document AISG/2/1997*.
- , Deo Ramprakash and John W.S. Walton. 1998. 'Statistics on the Distribution of Income, Consumption and Accumulation of Households (DICAH)'. Report to Eurostat. Vienna, London and Luxembourg. August 1998. *Mimeographed*.
- Ramprakash, Deo. 1997. 'Revision of the UN Guidelines on Statistics of the Distribution of Income, Consumption and Accumulation of Households: Framework Issues'. Report prepared for the Advisory Income Steering Group. Statistical Office of the European Communities, Directorate of Social and Regional Statistics and Structural Plans. Luxembourg, 13-14 January 1997. *Document AISG/4/1997*.
- Smeeding, Timothy M. 1996. 'The IARIW Session on International Standards on Income and Wealth Distribution: A Summary'. Paper prepared for the First meeting of the Expert Group on Household Income Statistics. Canberra, ACT, 2-4 December 1996.
- United Nations, Department of Economic and Social Affairs, Statistical Office. 1977. *Provisional Guidelines on Statistics of the Distribution of Income, Consumption and Accumulation of Households*. Studies in Methods, Series M, No. 61. New York, NY: United Nations.
- Walton, John W.S. 1996. 'Towards a Revision of the UN Guidelines on Statistics of the Distribution of Income, Consumption and Accumulation of Households'. Paper prepared for the Twenty-fourth General Conference of the International Association for Research in Income and Wealth. Lillehammer, Norway, 19-23 August 1996.
- . 1997. 'Links between Micro-Level Concepts of Income and the National Accounts'. Report prepared for the Advisory Income Steering Group. Statistical Office of the European Communities, Directorate of Social and Regional Statistics and Structural Plans. Luxembourg, 13-14 January 1997. *Document AISG/1/1997*.



Concluding Session



Canberra Group

CONCLUDING SESSION

Chair: Mike Sheridan, Statistics Canada

Rapporteur: Statistics Canada

Mike Sheridan introduced the session by indicating that the group's Bureau now included Maureen McDonald, Paul van der Laan, Pedro Sainz, Tim Smeeding as host of next year's conference, and himself.

After consultations during lunchtime, the Bureau proposed the following chapters and potential authors for the group's report at the IARIW. All participants were invited to actively participate in the preparation of this document. Members who could not attend the Ottawa conference will also be given the opportunity to make a contribution.

1. **Executive summary**
2. **Conceptual overview**
Maureen McDonald, Pieter Everaers, Paul van der Laan
3. **Current status of countries**
Daniel Weinberg, Pieter Everaers, Pedro Sainz
4. **Reconciliation of micro/macro concepts and terminology**
Anne Harrison, John Scott, Tim Harris
5. **Units of classifications and analysis**
Mike Sheridan and Ian Macredie, Lars Orsberg
6. **Quality Assessment Reports (RAR) for micro and macro**
Gordon Harris
7. **Longitudinal data**
Gert Wagner, Veli-Matti Tormälehto, Jon Epland
8. **Cross-country comparisons**
Tim Smeeding, Michael Ward, Ian Castles, Haeduck Lee
9. **Data presentation**
Jon Epland, Kjell Jansson
10. **Data trends and time series**
Tim Smeeding, Paul van der Laan, Tony Atkinson, Andrea Brandolini
11. **Issues and concerns for economic development**
Pedro Sainz and Sylvester Young
12. **Future issues**
Thesia Garner – Expenditure and wealth surveys
Tim Smeeding – Intra-household income transfers
Haeduck Lee – Inter-household income transfers
Duncan Ironmonger, Sylvester Young – Household production and time-use surveys
13. **Next steps**
Members of the Bureau



Authors should prepare abstracts of their chapter(s) for early September and provide manuscripts by April 1, 2000. Mr. Smeeding will integrate the documents and make them available on the LIS Web site, prior to next year's conference. An editor will subsequently be required to polish the final version.

The following content highlights were agreed upon during the general discussion.

Conceptual overview

- Should cover the theoretical underpinnings of both micro and macro levels and, for example, articulate the assumptions about what income means.
- Should include a limited bibliography.

Current status of countries

- Summarize current status on terminology and instructions.
- Will require review by all participants.
- Will not provide recommendations.

Reconciliation of micro/macro concepts and terminology

- Update to 1999 paper
- Expand on difficult topics – pensions, capital gains, imputed rent, self-employment
- Reconciling macro and micro from macro figures – mutual learning
- Consumption of public goods

Units of classifications and analysis

- Will seek closure.
- Distinguish between units used for classification, aggregation and analysis.
- Populations typically excluded from household surveys.
- Describes, suggests useful characteristics of units rather than prescribes use.

Quality assessment reports for micro and macro

- Description and objectives
- Examples from selected countries
- External benchmarks – both micro and macro have strengths and weaknesses

Longitudinal data

- Reference to all other chapters
- Value added
- Limitations
- Unique analytical methods

Cross-country comparisons

- Inequality data from LIS
- Purchasing power parities
- Equivalence scales – avoiding the mines
- Challenges of international comparisons
- Update to OECD report

Data presentation

- Relate to units of classification and analysis
- Useful ways of presenting data – strengths and weaknesses
- Graphical representations
- Include examples and comparisons from various countries
- Warnings about using various measures
- Income and poverty

Data trends and time series

- Breaks in historical series
- Presentation issue of scales
- Choice of starting and ending periods
- Historical revisions of classifications

Issues and concerns for economic development

- Economic development and changes in types of income
- Challenges in measuring changes in income components and distribution
- Surveys of informal production by sector

Future issues

- Expenditure and wealth surveys
- Inter-household income transfers
- Intra-household income transfers
- Household production – Duncan Ironmonger and Sylvester Young

Next steps

- Where do we go from here?
- Obtaining feedback from widest audience possible

Proceedings of the Ottawa conference, as well as final versions of papers, will be published in early Fall. Abstracts of the report's chapters should also be made available at that time. Statistics Canada will act as secretariat up to and including this phase and will ensure that all participants are provided with these materials.

The next meeting of the Canberra Group will be hosted by the Luxembourg Income Study as the prime sponsor, with help from the U.S. Bureau of the Census and Eurostat. The conference will take place on May 15, 16 and 17, 2000. On-site accommodations will be provided. An opening reception will be held on Sunday night, as well as dinners on Monday and Tuesday nights.

Mike Sheridan thanked all participants for attending the meeting, despite busy schedules, and noted the quality of the discussions at this conference. It was a pleasure to welcome all at Statistics Canada.

On behalf of all participants, Tim Smeeding thanked Mike Sheridan, as well as Louis Rouillard and Anita Choquette for their work in organizing this very successful conference.

List

of Participants

Ian Castles
Cathy Cotton
Jon Epland
Pieter Everaers
Juan Carlos Feres
Thesia I. Garner
Ben Grubben
Gordon Harris
Tim Harris
Anne Harrison
Abdul Rahman Hasan
Saidah Hashim
Duncan Ironmonger
Kjell Jansson
Leif Johansson
Yoshiyuki Kobayashi
Paul van der Laan
Haeduck Lee

Ian Macredie
Michael C. McCracken
Maureen K. McDonald
Patricia Mendez
D. Bruce Petrie
Pedro Sainz
John Scott
Mike Sheridan
Timothy Smeeding
Veli-Matti Törmälehto
Gert Wagner
Michael Ward
Maryanne Webber
Daniel Weinberg
Stew Wells
Saim Woo
A. Sylvester Young

[illegible]

STATISTICS CANADA LIBRARY
BIBLIOTHEQUE STATISTIQUE CANADA



1010464355

STATISTICS CANADA
BIBLIOTHEQUE STATISTIQUE CANADA