



WORLD HEALTH ORGANIZATION

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Meeting on Fairness of Financial Contribution  
Geneva, Switzerland, 4-5 October 2001

HFS/FAR/FFC/00.1

**REPORT ON WHO TECHNICAL CONSULTATION  
ON FAIRNESS OF FINANCIAL CONTRIBUTION**

## **Background**

This report is a summary of the major conclusions and recommendations of the technical consultation on fairness in financial contribution organized by WHO and held in Geneva, Switzerland on 4-5 October, 2001. In addition to WHO headquarter and regional staff, the participants included international experts on the measurement of inequality and health financing from each of the WHO regions. None had been involved in the preparation of the World Health Report 2000. A list of participants and their affiliations, as well as details of the agenda, can be found in the Annex. The meeting covered 9 sessions over two days and ranged from broad conceptual issues to specific technical problems of measurement. Different participants were invited to chair each session.

## **Objectives and agenda**

There were two objectives of the meeting. The first was to exchange views on the different conceptual approaches to measuring the fairness in financial contribution. The second was to obtain their advice and suggestions on ways that the WHO work in this area could be developed in the future.

## **Introduction**

The meeting started with an overview by Dr. Christopher Murray of recent developments in the WHO concept and measurement of fairness in financial contribution. The focus was on the rationale for the construction of the conceptual framework and the improvement of the methodology. The presentation followed the topics outlined in the background paper that was delivered to the participants in advance.

### *The FFC concept*

The WHO's concept of the fairness in financial contribution is based on the principle of equal burden. Given a society that raises  $x$  % of GDP for its health system, the burden of each household should be equal. The burden is measured as the ratio of the household's total payments to the health system to its capacity to pay. This constitutes the household's financial contribution (HFC). The distribution of household financial contributions across households is summarized in the index of Fairness in Financial Contribution (FFC).

### *Development of the FFC concept and data collection since WHR 2000*

After the publication of the World Health Report 2000, it was argued that actual food expenditure might not capture subsistence income of a household, as certain non-subsistence food items are inevitably included in food expenditure. To response the argument, the international absolute poverty line (food poverty line) was adopted as a proxy of subsistence expenditure. This change improved the international comparability of the results.

To assess the consistency of distributional rankings, alternative summary measures of the HFC distribution were explored. These included the Theil's index, the Atkinson's index, the mean logarithmic deviation and different variants of the FFC index. There seemed to be a high rank order correlation between these summary measures.

A decomposing analysis of the FFC index was undertaken. Three components were distinguished: catastrophic expenditure (extreme horizontal inequality), moderate horizontal inequality and vertical inequality. Empirical results where the vertical effect was separated from the FFC index indicated that this component seemed to have a rather small impact on overall inequality. Separating the effect of extreme horizontal inequality showed that catastrophic health care payments (over 40% of capacity to pay) explained the main part of variations in FFC indices in lower FFC countries and moderate horizontal inequality was the main reason for unfairness in higher FFC countries.

Surveys are currently available for 74 countries. In addition, for some countries time series data are available, providing a total of 98 data points. The database will be expanded as relevant micro-data from countries that undertake periodic household income and expenditure surveys becomes available.

## Main issues highlighted at the meeting

### 1) Defining household financial contribution (HFC):

Issues concerning the household financial contribution were discussed separately for the numerator and the denominator.

#### *The numerator*

##### a) The definition of health expenditure

The general concern that health expenditure should be made as comparable as possible across countries was raised by several participants. Certain items, such as cosmetic products and plastic surgery should not be included in health expenditure, whereas expenditure for medical treatment in long-term care facilities should be taken into account.

**Conclusions and recommendations:** No consensus was reached on this issue. On the one hand, it was felt that only that part of health care expenditure that goes to finance basic services should be taken into account in the comparisons. On the other hand, no uniform definition of basic services exists and information on expenditure for the institutionalised population is rarely available. The information contents of the datasets have to be analysed case by case trying to arrive at as uniform definitions as possible. The WHO National Health Accounts classifications have been used for this purpose.

##### b) Government non-tax revenue

Questions were raised by some member states about how to assign government non-tax revenue, such as oil revenue, diamond revenue or donations, to households. Three approaches were proposed in the meeting. The first one would be to assign the same absolute amount of money to each household. This approach raised the issue of varying impact on rich versus poor households of the same absolute amount of money. The second proposal was to assign the same proportion of each household's capacity to pay, and to add it in both the numerator and the denominator. The third alternative would be to assign the same proportion of capacity to pay to each household, but only add this proportion in the numerator.

**Conclusions and recommendations:** There was some preference towards the second approach. The arguments against the third approach were that adding non-tax revenue only to the numerator would increase the proportion of health spending to capacity to pay and this would increase the number of household facing catastrophic payments although the FFC score will maintain the same. It was agreed that analyses using different approaches would be performed to see the distributional effects of each incidence assumption.

##### c) The medical saving account

The participants also discussed how to treat medical saving accounts in the calculation of HFC. There was a suggestion that it could be treated in the same way as social security contributions. However, it was noted that whereas social security contributions are normally fully spent in the current year, only a small portion of the medical savings account is used in a given year.

**Conclusions and recommendations:** It was felt that without knowing the details on the specific financing system, it was difficult to provide advice and recommendations.

#### *The denominator*

Discussions on the denominator focused on three main issues: the choice of using income or expenditure to measure capacity to pay, the definition of subsistence expenditure and the application of the international poverty line.

**d) Income vs. expenditure**

The argument for using income instead of expenditure to proxy effective income came from OECD countries where the household income data were obtained from a registration system, which was more reliable than the survey expenditure data. It was also observed that the purchase of certain consumer durables could generate large variations in expenditure. This same argument applied to discussions on the treatment of household savings and borrowing.

**Conclusions and recommendations:** It was concluded that there is a trade-off between using income or expenditure in the denominator. Basically it is a matter of choosing between two approaches and each has its pros and cons. The pros are that expenditures are generally considered to be less prone to short-term variation than transitory income and more reflective of longer-term economic status. Another advantage is that collecting these data is more straightforward and reliable, particularly in developing countries. The cons are as stated above. As data have to be collected from both developed and developing countries on a comparable basis, WHO prefers to continue using expenditure data for all countries. Nevertheless, various alternatives will be explored as possible proxies when data are of poor quality or not available.

**e) The definition of subsistence income and the poverty line**

In his presentation Dr. van Doorslaer demonstrated formally the distributional impact of deductions from capacity to pay. Along the lines proposed by WHO deducting subsistence expenditure from total household expenditure will have a progressive impact if the deduction is income inelastic. In this sense the distribution of capacity to pay will comprise an element of progressivity and the hypothetical distribution of equal HFCs would be progressive with respect to the pre-payment income/expenditure distribution. This formulation also helps to discern that when the food poverty line is used instead of actual food expenditure more progressivity will be introduced into the measure.

However, he expressed his concern about the ability of the summary FFC measure to distinguish between these two progressivity components. As these effects are combined into one composite measure one cannot say whether the vertical effect comes from the health payment or the subsistence deduction.

At a more specific level, different views were expressed as to what should be included in household subsistence expenditure. Some participants argued that the poverty line should also include the basic spending on medical service, while others suggested it should only include basic food if it is adjusted using food purchasing power parities. In addition to discussions on the definition of subsistence expenditure, operational issues on applying the food poverty line in HFC calculation were discussed. The first question was how to measure household capacity to pay if actual food expenditure or total expenditure is under the poverty line. The participants agreed that part of the reason for this problem might come from data error. Households may have under-reported their actual food expenditure for various reasons. However, apart from the data error, 1.3 billion people in the world are still living under the absolute international poverty line. This means that some households under the poverty line actually have these low expenditures.

**Conclusions and recommendations:** There seemed to be agreement that in general the switch from using actual food expenditure to the poverty line was well justified. However, this will increase the number of observations with negative non-subsistence expenditure. The present approach to deal with these cases is to substitute household capacity to pay by actual household non-food expenditure.

**2) Summarizing the HFC distribution****a) Distributional characteristics of the FFC index**

A concern over the ability of the FFC index to address vertical equity and progressivity was raised during the meeting. In this context it was suggested that the measure could gain from an explicit demonstration of who is affected by the deviations from the norm. This would involve the inclusion of a socio-economic dimension to the notion of fairness in the burden of payments. It was also

mentioned that, because of its sensitivity to the right hand tail of the distribution, the current FFC measure combines both the distributional dimension and threshold dimension of inequality into one composite index. It was suggested that these two components could be analysed separately – one analysis addressing the number of households facing catastrophic payments and the other measuring the deviations of the HFC's from the norm of proportionality. However, it was also argued that the summary measure should capture the tail in the distribution if catastrophic expenditure is a concern.

Dr. Murray proposed that the concept of the distribution of health system contributions could roughly be divided into two approaches: one examining the effect of health system payments on the distribution of income and levels of poverty, and one examining health system payments in terms of the burden on households and catastrophic payments (Table 1).

Table 1. The dimensions of health system contributions

| Space  | Distribution                         | Threshold   |
|--------|--------------------------------------|---|
| Income | Change of income distribution        | Poverty impact: the difference in headcount before and after health payment |
| Burden | Distribution of the financing burden | Percentage of households facing catastrophic spending                       |

The income space approach focuses on the income distribution changes, and examines how many households are pushed under the poverty line because of the health payment. The burden space approach is to discover the distribution of health payment burden across the population, and to examine the extent of households facing catastrophic health spending. Both approaches begin by examining the distribution of direct and indirect contributions to the health system in isolation of the distribution of the benefits of the health system. The various views that were expressed in this section will be described in more detail below, where the discussions and conclusions associated with each topic will be presented separately.

**b) Decomposing the FFC index**

The decomposition analysis demonstrated that the FFC index is rather sensitive to horizontal inequalities and it captures the impact of extreme (catastrophic) health spending. While it was argued that particularly in the OECD countries vertical inequities are perhaps a more pressing policy concern than catastrophic payments it was acknowledged that in all countries the economic consequences of extreme health care payments also are of primary concern.

**Conclusions and recommendations:** No consensus was reached over what represents the best available approach to measure the distribution of health payments in a health financing system. However, there was agreement that each approach emphasizes different important aspects of the distribution of the financial burden to households and each should be considered. The discussions were helpful in offering a better understanding of the differences and similarities of the various approaches that have been recently used to measure the distribution of payments in health financing systems.

**c) Understanding the macro determinants of FFC**

In order to better understand the macro determinants of FFC and to link the analysis to policy making, determinants of the variation in FFC scores across countries were explored. These included government size, the Gini coefficient, out-of-pocket payment, the share of total health expenditure and the risk sharing properties of the financing system. Participants argued that risk sharing has already been built into FFC and should not be included in the regressions. It was suggested that other factors such as epidemiological transition, poverty incidence, system reform, historical variables and supply side variables might be worth exploring.

**Conclusions and recommendations:** Several useful suggestions on how to further improve the analysis were presented. These concerned both model design and estimation techniques

### 3. Other issues discussed

#### a) Country case analyses

Three participants were invited to make presentations on results based on their own data analysis. They came from Mexico, South Korea and Australia. First, Dr. Knaul made a presentation on a policy application of the FFC measure in Mexico. The FFC and catastrophic payments have been used in the context of the Seguro Popular Project to assess the potential benefits of extending the coverage of universal health insurance in the population. The analysis showed that the greatest benefits could be achieved by insuring the poorest households, small cities and rural areas as well as nominally small expenditures, such as medications and ambulatory care (doctor visits). Next, Dr. Yang presented FFC results for South Korea in the period 1996-2000. There seemed to be an improvement in FFC scores after 1998 despite the worsened economic situation. This could at least partly be explained by the government's efforts to decrease the share of private financing in overall health financing. Finally, Dr. Goss from Australia showed some ways the health financing burden and the FFC index could be partitioned into components showing the effects of different services, and the contribution to the FFC index at different income levels.

The country exercises were rather illustrative and participants made further constructive suggestions on how to make the whole analysis more useful for policy makers.

#### b) Time frame of the survey

The recall period of the surveys was of concern to the participants. The participants discussed the advantages and disadvantages of long vs. short recall period concerning the measurement of catastrophic expenditure. To better link the policy process in developing countries, a short recall period might be better than a long recall period. However, in developed countries a long recall period may capture catastrophic spending better. Apart from that, a short recall period will have smaller memory bias than a long recall period, while a long recall period may capture impoverishment better than a short recall period. Questions on the comparison of different recall period data were also raised. However, no clear suggestions were made on this issue. Dr. Knaul kindly agreed to explore various empirical strategies to see the sensitivity of different recall periods.

#### c) Time lag problems

Negative out-of-pocket payments could occur in some households because of the time lag of insurance reimbursements. For the same reason, negative direct tax might be expected from income registration data. However, with register data there is usually sufficiently time between the execution of the survey and its release to bring the registers up to date. The participants suggested two solutions: one was to delete the observations with negative values and the other was to set the negative value at zero. However, there was no discernible preference for either option.

**ANNEX**

Technical Consultation Meeting on  
Fairness of Financial Contribution (FFC)  
4-5 October 2001, Geneva

Programme

Thursday, 4 October, 2001

**09:30-10:00**

Introductions and general information about the meeting  
K. Kawabata, Coordinator, EIP/WHO

**10:00-11:00**

Overview on FFC measurement  
Dr. C. Murray, Executive Director, EIP/WHO, Dr. K. Xu, EIP/WHO

**11:00-11:30**

*Coffee/Tea Break*

**11:30-12:45**

Alternative rationales for the construction and definition of fairness in financial contribution  
**Chair:** Dr. Andrew Jones

**12:45-14:00**

*Lunch*

**14:00-15:30**

Policy oriented in-depth analysis and capacity-building for member states

1. In-depth analysis on catastrophic expenditure (example, Lebanon)
2. The sub-national analysis
3. The time series analysis
4. Local capacity building

Case studies: Mexico (Felicia Knaul), South Korea (Bong-Min Yang), Australia (John Goss)

**Chair:** Dr. Rozita Halina Tun Hussein

**15:30-15:45**

*Coffee/Tea break*

**15:45-17:00**

Defining household financial contribution (HFC)

1. The numerator of HFC
2. The denominator of HFC
3. The estimation of food purchasing parities (food PPP) for all member states

**Chair:** Mr. John Goss

**17:00-18:00**

Summarizing the HFC distribution

1. Distribution of HFC
2. Alternative summary measures

**Chair:** Dr. Supasit Pannarunothai

Friday, 5 October, 2001

**8:30-10:00**

Decomposition of the FFC index –  
vertical equity and horizontal inequality

1. Impact of health system contribution on income redistribution
2. Separation of vertical effect from the FFC index
3. Separation of extreme horizontal effect from the FFC index

**Chair:** Dr. Eddy van Doorslaer

**10:00-10:15**

*Coffee/Tea break*

**10:15-11:30**

Further steps and challenges

Refining the methodology

1. Distribution of government non-tax revenue, oil, etc.
2. Distribution of employers' contribution to private health insurance.
3. Medical saving account

**Chair:** Dr. Zilvinas Padaiga

**11:30-12:45**

Data issues

1. Low cost survey data
2. Techniques of FFC estimation from incomplete data sets
3. Understanding the macro determinants of FFC

**Chair:** Dr. Jürgen John

**12:45-14:00**

*Lunch*

**14:00-15:00**

Wrap up

## Participants list

| Region | Country      | Name                               | Institute  |
|--------|--------------|------------------------------------|--|
| AFRO   | Comores      | Mr Zainal Andidine Massonde        | Ministry of Planning, Moroni, Comores                                      |
|        | Uganda       | Dr. Kadama                         | World Bank Health Project<br>Ministry of Health, Entebbe                   |
|        | Botswana     | Dr Derek J. Hudson                 | Phaleng Consultancies (Pty) Ltd  |
| AMRO   |              |                                    |  |
|        | Mexico       | Dr Felicia Knaul                   | FUNSAALUD, Fundacion Mexicana para la Salud                                |
| EMRO   |              |                                    |  |
|        | Morocco      | Mr Zine Eddine El Idrissi<br>Moula | Royaume du Maroc, Ministere de la Sante                                    |
|        | Iran         | Dr Hossein Salehi                  | c/o WHO Tehran , Iran  |
| EURO   |              |                                    |  |
|        | Germany      | Dr John Jurgen Heimo               | Institute of Health Economics and Health Care                              |
|        | Lithuania    | Prof Zilvinas Padaiga              | Kaunas University of Medicine,<br>Lithuania                                |
|        | Belgium      | Dr Eddy Van Doorslaer              | University of ERASMUS, Rotterdam,<br>Netherlands                           |
|        | UK           | Prof Andrew Jones                  | University of York, UK   |
|        | UK           | Prof Sudhir Anand                  | St Catherine's College, Oxford   |
| SEARO  | Thailand     | Dr Supasit Pannarunothai           | Asociated Institute: Centre for Health<br>University of Naresuan, Thailand |
|        | India        | Dr Htwe Myint                      | Regional Office - SEARO  |
|        | India        | Mr Sunil Nandraj                   | c/o WR India   |
| WPRO   |              |                                    |  |
|        | Australia    | Mr. John Goss                      | Australian Institute of Health & Welfare                                   |
|        | Rep of Korea | Prof Bong-Min Yang                 | Seoul National University, Rep of Korea                                    |
|        | Malaysia     | Dr Rozita Halina Tun Hussein       | Institute of Public Health, MOH,<br>Malaysia                               |