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ORGANISATION EUROPÉENNE POUR LA RECHERCHE NUCLÉAIRE
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FINANCE COMMITTEE

Two-hundred-and-twenty-third Meeting

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EIGHTY-FIFTH SESSION OF COUNCIL

Geneva - 23/24 June 1988

CERN REVIEW COMMITTEE FINAL REPORT

Implementation of the recommendation concerning the study of the possibilities to improve the ways of calculating Member States' financial contributions.

The present report prepared by the Working Group on Contributions Calculations presents the outcome of the recommended study.

Finance Committee is invited to decide on the action now to be taken and to formulate its recommendations to Council. To this end, draft texts for a Council resolution are attached.

CERN REVIEW COMMITTEE FINAL REPORT

Report on a Study of the possibilities to improve the ways of calculating Member States' financial contributions

1. Introduction

1.1 The CERN Review Committee commented in Chapter III.2 of its final report on the scales for the contributions of Member States to the CERN budget in the following way:

"The intention behind the rules specified in the Convention for calculating contributions to the budget is clearly that each country should pay the same fraction of its net national income. The actual contributions do not respect this intention for two reasons:

a) the time lag, of on average five years, between the base period used to determine national incomes and the year in which payment is due;

b) fluctuations in exchange rates.

In practice, it appears that some countries have systematically paid larger percentages of their current national incomes than others, in a way which has not averaged to zero even over extended periods. The method of calculating contributions should if possible be changed so as to correct this defect. We believe that fairer ways of calculating contributions can be devised inside the terms of the CERN Convention.

The Committee recommends that the Finance Committee studies the possibilities to improve the ways of calculating Member States' financial contributions."

1.2 Document CERN/FC/3124 (and annexes containing basic data such as the relevant text of the CERN Convention) presented some information on the subject and was discussed by the Finance Committee on 3 and 4 February 1988.

1.3 Finance Committee decided at that meeting to establish a Working Group on Contribution Calculations to prepare the appropriate study which would tend to stay within the general framework of the rules specified in the Convention (CERN/FC/3117).

1.4 The Working Group met four times (on 14 and 30 March, 26 April and 20 May 1988). A list of those who attended the Group's meetings is given in Annex III.

1.5 A summary of the outcome of the study carried out by the Working Group was submitted to the Finance Committee on 27 April 1988 (CERN/FC/WG/CONCAL/11). The two procedures described in that interim Report were noted by the Finance Committee, which invited the Working Group to prepare the final report in time for decisions by Finance Committee and Council in June 1988.

2. Possibilities to improve the contribution calculations

Following the text of the relevant CRC comments and the guidelines received from Finance Committee and Committee of Council, the Working Group separated the various issues into two groups: a) those aiming at the reduction of the time lag between the statistical base period and the year in which payment is due, and b) those aiming at a reduction of the influence of exchange-rate fluctuations.

2.1 Time-lag problems: the "rolling" system using Net National Income (NNI)

According to the CERN Convention, contribution scales shall be based on the average net national income at factor cost of each Member State for the three latest preceding years for which statistics are available.

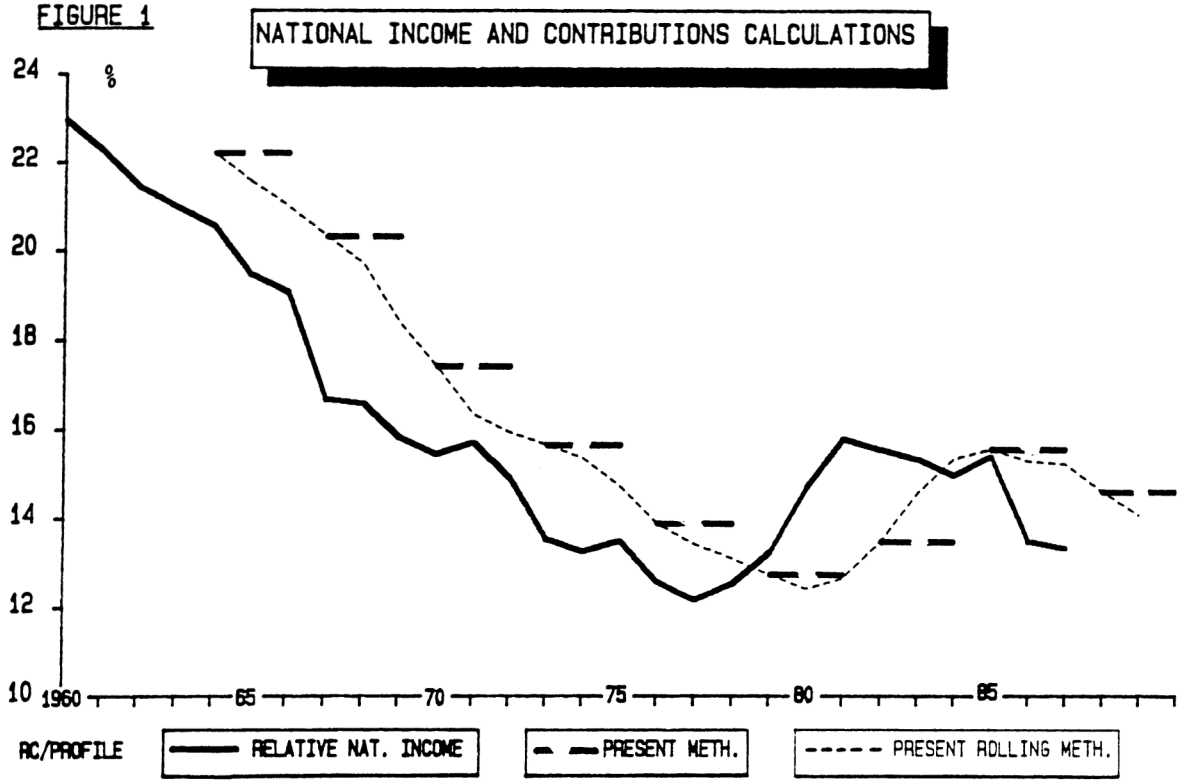
In order to reduce the time lag between the latest preceding years for which statistics are available and the effective use of the contribution scale, other aggregates were considered. Since the OECD is in a position to supply the NNI data for the year n-1 not later than November of year n, the Working Group considered that in this respect there was no need to revert to aggregates other than those cited in the basic texts. It acknowledges, however, that other possibilities do exist (e.g. GNP), which might allow a higher level of fairness; this issue was not pursued further by the Working Group, since the Convention prescribes the use of NNI.

If n is the year in which the contribution scale is decided (usually by mid-December), the necessary data will concern the years n-1, n-2 and n-3, the statistics for year n-1 having just become available.

The Working Group considers it advantageous to use effectively the most recent data and to have the contribution scale decided annually: in December of the following year n+1, the data to be considered would thus be those of n-2, n-1 and n (and so on). This would smooth out the, sometimes large, differences occurring when a new scale is established only once every three years. This smoothing effect is illustrated in Figure 1, in which some sample data for relative NNI (in % of the total of a complete set of NNIs after conversion into a common currency) are processed according to the present method of calculation, showing the difference between a three-year static approach and an annual rolling procedure using the three latest preceding years for which statistics are available.

With the aim of reducing the time-lag problems commented upon by the CRC, it is proposed that this way of proceeding using the most recent data on the basis of rolling periods of three years should be decided upon by Council.

FIGURE 1



2.2 Exchange rates: weighting systems

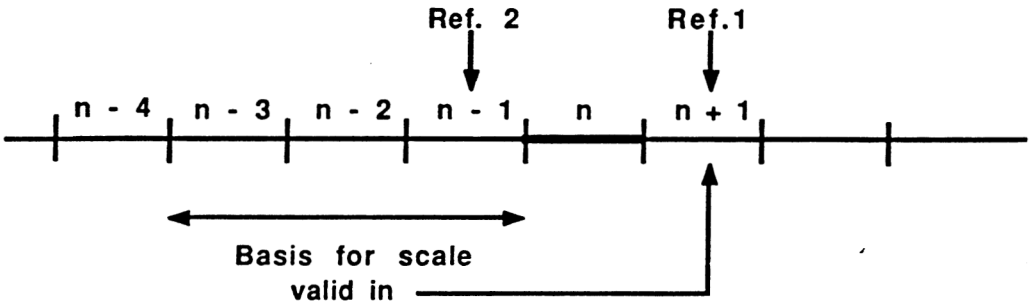
2.2.1 Reference systems

A reference scale of contributions can be defined as a scale which reflects the relative contributive capability of each Member State over a certain period. Depending on the period chosen, different scales can thus be used for reference purposes.

On the basis of the comments made by the CRC, first one and later an alternative reference scale were considered by the Working Group. During most of the discussions, a basic reference was defined and used for comparisons: the historical NNI data of a year of contribution and the exchange rate data of that same year provided the reference contribution scale; the results of new calculation methods were to be as close as possible to this reference scale, which gives - a posteriori - the relative NNIs of the Member States produced during the year in which payments are due. A majority of delegations in the Working Group consider that Reference 1 accurately embodies the ideas of the CRC.

Later on, a second reference was defined ("fiscal approach"): considering that payments should relate to NNIs already known at the time of deciding the scale (December of year n) and the latest being those of year n-1, this second reference scale is obtained from NNI and exchange-rate data for the year n-1; it gives the relative NNIs of Member States actually produced two years before the year in which payments are due. Two delegations consider this second reference

system to be the best. The references are illustrated in the diagram below.



2.2.2 Major Variants

A large number of variants were calculated with the relevant historical data. They were investigated in comparison with the Reference Systems.

Among those which would seem to satisfy the request to improve the present calculation method, the following two variants were chosen:

Variant A: application of the most recent and readily available exchange rates to a weighted average of the NNI data in national currencies according to a weighting formula proposed by C.H. Llewellyn Smith for consideration by the CRC (see below: "extrapolation").

In order to avoid the influences of erratic fluctuations in exchange rates (and also to avoid recalculations during the contribution year), one could adopt as the applicable exchange rates the averages of those valid over the last four full months preceding the publication of the Council document (i.e. July to October inclusive). In this way the time lag between the last contribution payment of the year and the oldest element entering into the exchange rate data would not exceed one year.

Variant B: application - as in the present method of calculation - of the three exchange rates (annual averages) to the NNI data in national currencies for each of the years n-1, n-2 and n-3, followed by the application of a weighting formula originally proposed by the I.M.F. for use in E.S.A (see below: "trend adjustment"). Within the context of this variant other weighting methods (including the arithmetic average) could be adopted.

2.2.3 The weighting systems

At present the data of all three years are treated equally (arithmetic average).

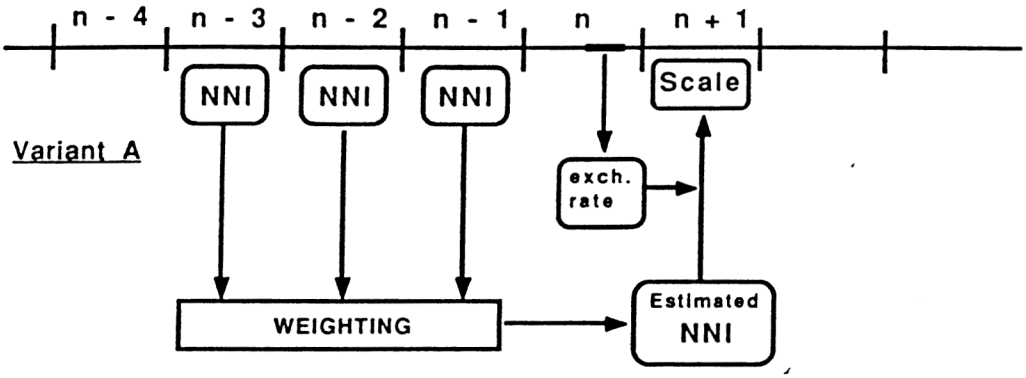
Variant A adopts a linear extrapolation method which attempts to estimate, as accurately as possible within the framework of the Convention, a value for the year n+1 on the basis of the NNI values of the three years n-3, n-2 and n-1; it has the following form:

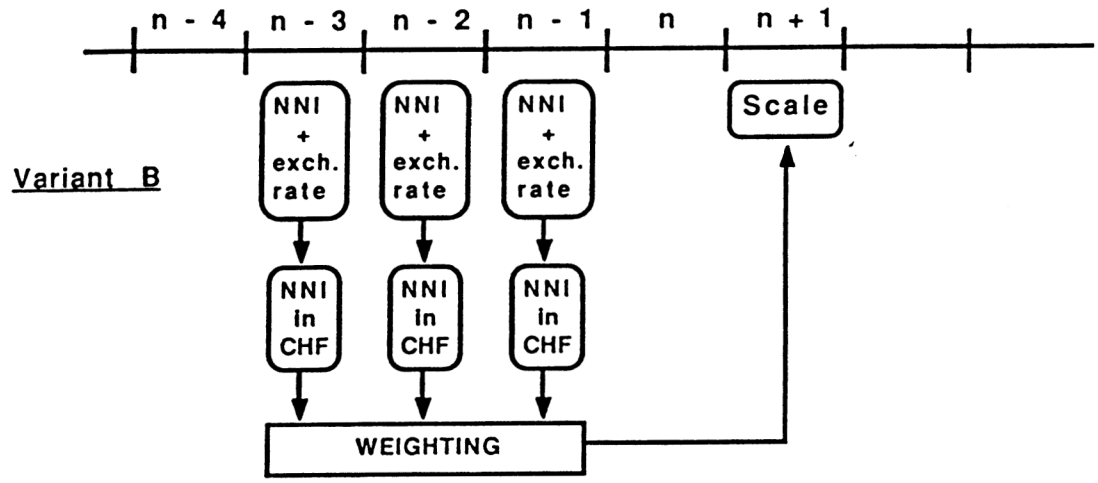
$$-7/6\ NNI(n-3) + 2/6\ NNI(n-2) + 11/6\ NNI(n-1).$$

Variant B uses trend adjustment, a method strongly favouring the year (n-1), which was proposed for the I.M.F. for use in E.S.A. For the weighting of the NNI values of three years, it has the following form:

$$-1/6\ NNI(n-3) + 2/6\ NNI(n-2) + 5/6\ NNI(n-1).$$

Each variant is illustrated below in a diagram.



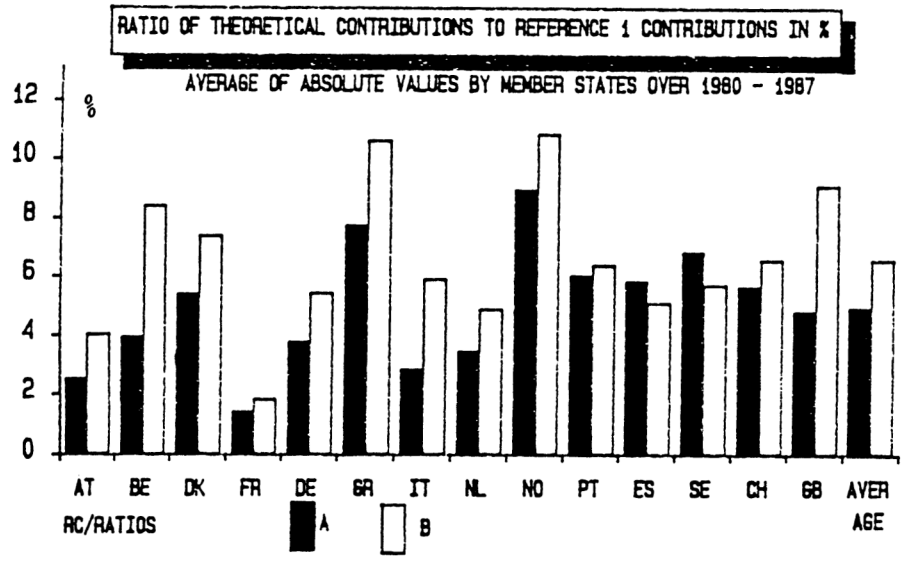


2.2.4 The main features of Variants A and B

Comparison with Reference 1

Deviation from Reference 1 in time is illustrated in the following bar chart (Figure 2). The ratio of theoretical* contributions, established on the basis of the two Variants, to the Reference 1 contributions were calculated for the period 1980-1987 inclusive and expressed as percentages; the average of the absolute values over the period were then plotted by Member State. Comparison between the two sets of data (Tables 1-A and 1-B in Annex II) shows that the outcome of Variant A is closer to Reference 1 than that of Variant B: the averages of absolute values over the period in question are generally lower for A than for B; for all Member States together this average is for A, 4.95%, and for B, 6.59% (the average root mean square deviations over all countries are 6.0% for A and 8.0% for B); moreover, the data of the last eight years show that both the mean deviations of contributions and the number of occasions when individual contributions have differed from this Reference 1 by more than 10% are twice as great for Variant B as for Variant A; finally, for individual countries such significant under- and over-contributions persist for periods of some years less often for Variant A than for Variant B.

FIGURE 2



* These contributions are theoretical since the various special clauses (maximum contribution percentage, transitory periods, etc.) have not been applied in order to maintain comparability.

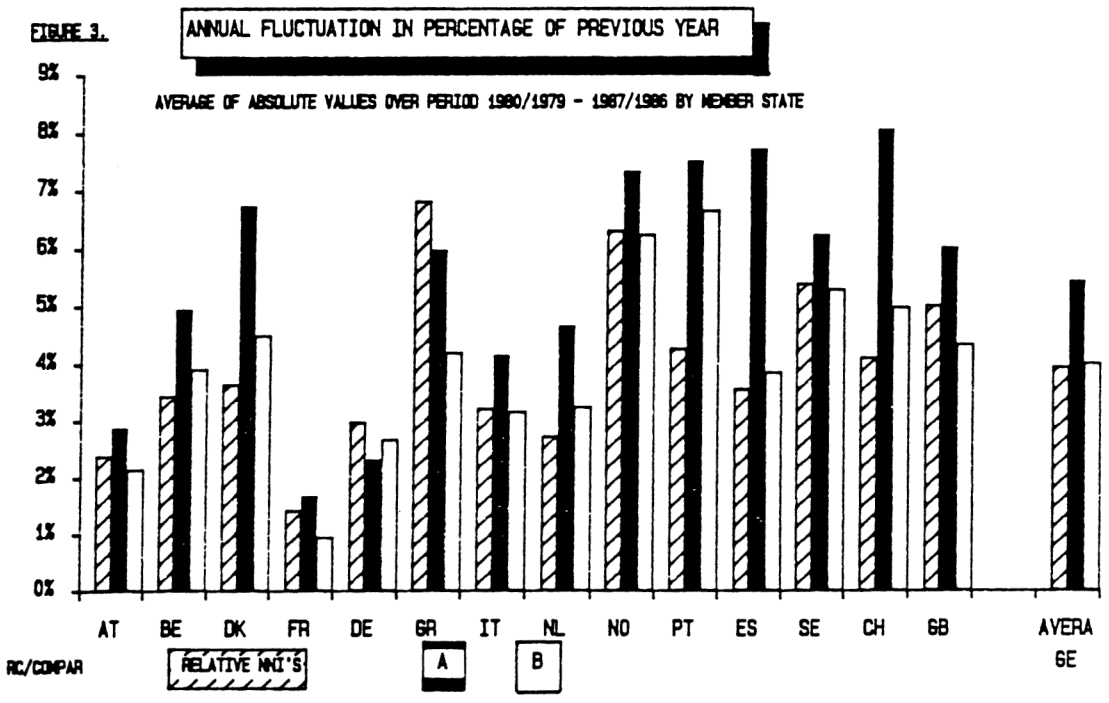
Comparison with Reference 2

Comparison of the deviations of the Variants from the Reference 2 values ((Tables 2-A and 2-B in Annex II) shows, of course, a closer fit for Variant B than for A (average of absolute values 0.78% and 5.26% respectively). This is not surprising since Variant B strongly favours the year (n-1), and Reference 2 is the theoretical contribution scale based on the relative NNIs in that same year (n-1), the most recent year for which statistics are available.

The second Reference can be used to obtain an impression of the magnitude of the effect of the trend adjustment method; the Variant B contribution scales depend on this method. Table 2-B in Annex II (percentage deviations of B values 1980-1987 from the Reference 2 values 1978-1985) shows that the average of the absolute values for all Member States over this period is 0.78%, the greatest deviation is 3.05% and deviations greater than 1% occur in only 29 per cent of all the cases. Application of Variant B thus comes close to using exclusively the data for the year (n-1) when establishing contribution scales to be valid for the year (n+1).

Annual Fluctuation (Volatility)

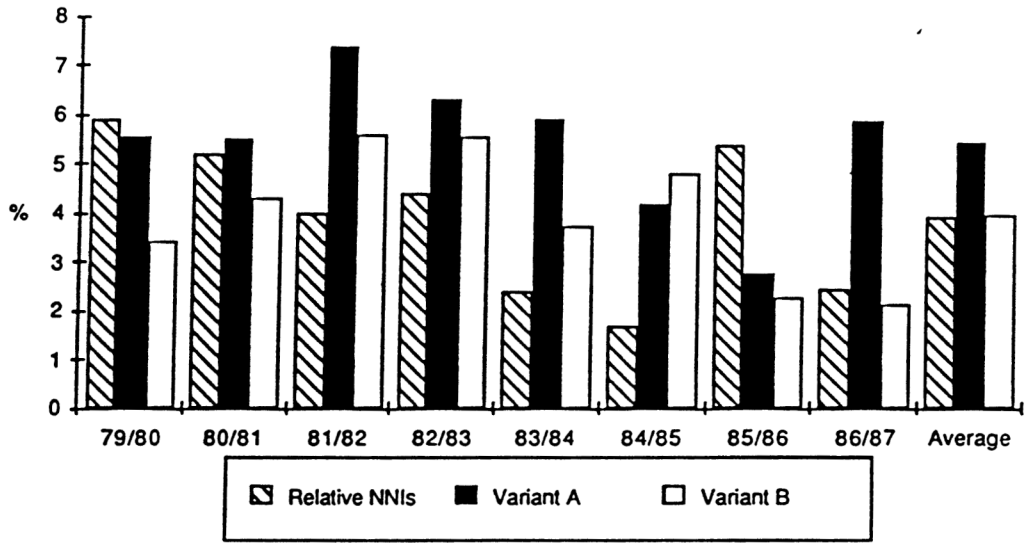
Year-to-year fluctuation in the contribution scales is an important aspect to be considered and should ideally be as small as possible. The basic fluctuations are those observed in the relative NNI values themselves. The introduction of an annual rolling calculation procedure will already go a long way in the direction of smoothing out the basic changes.



Annual changes in relative NNI values (expressed as a percentage of the value for the preceding year) were calculated for all Member States over the years 1979/1980 to 1986/1987 (Table 3 in Annex II). The annual changes in the theoretical contribution values for both variants were calculated in the same way (Table 3 A-B in Annex II). The averages over this period of the absolute percentage changes are shown per country in Figure 3 for the relative NNI values and the theoretical contributions according to Variants A and B. The averages over all Member States of these absolute values give a global indication of the intrinsic annual fluctuation: 4.0%, and those observed for Variant A, 5.4%, and Variant B, 4.0% (the use of the arithmetic average in B would give 2.6%).

For each interval of the period under consideration, the averages over all Member States of the absolute values are shown in Figure 4, both for the relative NNI values and for the Variants A and B. One can observe a certain system-induced volatility in the results for A and B; it is more pronounced in the results for A.

Figure 4:
Annual fluctuation as percentage of previous year:
averages of absolute values over Member States



Actual Results

To give an impression of the actual theoretical contribution scales (see footnote, page 6), which can be obtained with Variants A and B, Table 4 below shows the results for the year 1988 together with a theoretical scale based on the present calculation procedure but with a rolling system.

The basic statistics for the year 1987 have only been received in a very preliminary form; the first estimations based on these data, giving a very tentative 1989 scale, are therefore not yet available for proper consideration.

TABLE 4

THEORETICAL CONTRIBUTIONS OF MEMBER STATES FOR 1988 (%)

	PRESENT METHOD BUT ROLLING	VARIANT A	VARIANT B
Austria	2.24%	2.34%	2.29%
Belgium	2.98%	3.09%	3.04%
Denmark	1.89%	1.96%	1.94%
France	17.92%	17.93%	18.16%
Germany (Fed.Rep.of)	22.65%	23.27%	23.00%
Greece	1.18%	1.04%	1.07%
Italy	16.04%	16.90%	16.23%
Netherlands	4.71%	4.58%	4.69%
Norway	1.81%	1.54%	1.68%
Portugal	0.75%	0.79%	0.76%
Spain	5.97%	6.19%	5.99%
Sweden	3.34%	3.18%	3.28%
Switzerland	3.91%	4.05%	3.98%
United Kingdom	14.62%	13.13%	13.90%

3. Additional considerations

3.1 A majority of delegations in the Working Group consider that Reference 1 accurately embodies the ideal of the CRC (para. III.2, page 30) that a "fair" system of contributions (within the framework of the Convention) should be related to the relative net national incomes of Member States, compared at exchange rates ruling in the year during which payments have to be made. Variant A comes close to this ideal. On the other hand, Reference 2 and the associated Variant B does not eliminate the time lag between the base period used to determine NNIs and the year in which payment is due, which was explicitly criticized by the CRC, but only reduces it from 5 years to 2 years.

The calculations which have been undertaken demonstrate that Variant B would perpetuate the defects of the present system, albeit to a lesser extent. A majority of the members of the Working Group therefore considers that the evidence favours Variant A as a fair and practical system embodying the underlying intentions of the Convention and the CRC in regard to the contributions of Member States to the budget.*

3.2 Variant B is favoured by some delegations since it:

- avoids forecasting the Net National Income (NNI) which by their understanding encounters both legal and methodological barriers,

- takes into account the time link between the NNI and the exchange rate, using NNI and the exchange rate of the same year.

In their opinion:

a) The CERN Convention does not allow for an extrapolation and forecasting of the NNI.

b) Furthermore, the Convention bases the contribution on the NNI of the past years and not on that of future years or the year of contribution, thus reference being the years past.

c) Non-linear economic development in 14 different countries cannot be described by a linear extrapolation on the basis of only 3 data points using a uniform model for 14 different countries.

d) Irrespective of forecasting, the NNIs of different countries are only comparable when exchanged into Swiss francs with the exchange rate of the same year and not when exchanged with that of another year, e.g. the year of contribution.

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* For an additional comment by the United Kingdom Delegate, see Annex I.

4. Conclusions

The Working Group has tried to define variants for the contribution calculation procedure which globally stay within the framework of the relevant text in the Convention. In doing so, a certain level of flexibility and interpretation has been permitted.

The choice of a better procedure depends finally to a large extent on the goal being pursued when looking for "fair" contribution scales.

If the aim of Council is to have contribution scales reflect as closely as possible the relative contributive possibilities of Member States for the year of contribution payment, then the majority view in the Working Group is to opt for Variant A.

If, on the other hand, Council adopts a fiscal approach and thus limits consideration of data to only those which are de facto available at the time of deciding the scales (thus accepting a priori a two-year lag period), the Working Group is of the opinion that Variant B is to be preferred.

In general, the adoption of an annual rolling procedure is strongly recommended. This way of implementing the CERN system is of such importance that it will be necessary for Council to decide upon the matter unanimously.

On the basis of the above report, Finance Committee is invited to decide on the procedure to be recommended to Council for approval. Draft texts for two variants of a Council resolution are attached (Annex IV).

ANNEX I

ADDITIONAL COMMENT BY THE UNITED KINGDOM DELEGATION

Although belonging to the majority of the Working Group which supports Variant A, the United Kingdom Delegation wishes attention to be drawn to the advantages of the system originally proposed by the consultant to the CRC, Prof. C.H. Llewellyn Smith. His proposal was that contributions should be re-evaluated three times a year, using exchange rates ruling immediately before actual payments are due. This would have the advantage of virtually eliminating the residual lag averaging 7 months between the exchange rates at which NNIs are compared and those when payments are due, under Variant A. Although a Member State's contribution in Swiss francs would not be known before the end of the previous year, the amount to be paid in its national currency at each payment date could be much more accurately predicted than under Variant A. Moreover, as these payments would be almost equal in its national currency, the proposal provides in-year stability against currency fluctuations.

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TABLE 1 - A

RATIO OF THEORETICAL CONTRIBUTIONS TO REFERENCE 1 CONTRIBUTIONS

VARIANT A

	AT	BE	DK	FR	DE	GR	IT	NL	NO	PT	ES	SE	CH	GB
1980	-1,053%	3,297%	12,207%	0,515%	3,763%	1,662%	-8,118%	5,066%	-11,085%	-4,198%	16,693%	-4,153%	0,096%	-7,877%
1981	0,711%	4,952%	4,780%	1,052%	5,670%	-8,987%	-5,743%	4,485%	-18,225%	-6,680%	8,054%	-1,344%	-11,313%	-4,223%
1982	-4,313%	8,612%	-5,522%	0,319%	-1,404%	-7,361%	0,237%	-5,663%	-1,473%	9,487%	2,774%	12,584%	-12,586%	2,279%
1983	-5,471%	-3,562%	-12,996%	-1,552%	-4,331%	7,622%	0,196%	-1,143%	7,311%	6,376%	9,770%	8,518%	-5,072%	5,913%
1984	0,447%	-3,065%	0,685%	3,228%	-3,427%	10,229%	0,449%	-2,911%	-1,625%	-8,126%	-5,857%	-9,079%	6,137%	3,248%
1985	0,025%	-2,400%	2,264%	1,762%	-2,400%	3,342%	3,454%	-3,078%	-5,539%	-7,714%	1,519%	-0,136%	-2,137%	-0,957%
1986	-7,154%	-4,705%	-2,504%	0,623%	-6,331%	12,556%	-1,816%	0,856%	18,857%	1,488%	0,024%	6,551%	-6,960%	13,505%
1987	-0,985%	-0,873%	2,208%	2,525%	-2,874%	10,029%	2,771%	4,465%	7,389%	4,311%	-2,156%	-12,397%	1,047%	-0,628%
AVERAGE	-2,224%	0,282%	0,140%	1,059%	-1,417%	3,636%	-1,071%	0,260%	-0,549%	-0,632%	3,852%	0,068%	-3,849%	1,408%
AVERAGE |ABS|	2,520%	3,933%	5,396%	1,447%	3,775%	7,724%	2,848%	3,458%	8,938%	6,048%	5,856%	6,845%	5,668%	4,829%

AVERAGE |ABS|	4,95%

TABLE 1 - B

RATIO OF THEORETICAL CONTRIBUTIONS TO REFERENCE 1 CONTRIBUTIONS

VARIANT B

	AT	BE	DK	FR	DE	GR	IT	NL	NO	PT	ES	SE	CH	GB
1980	4,032%	11,200%	20,156%	0,179%	8,882%	6,728%	-10,235%	11,978%	-4,432%	1,208%	-2,985%	1,189%	10,079%	-15,630%
1981	3,425%	13,247%	16,682%	-0,346%	12,259%	-0,751%	-9,296%	11,598%	-20,634%	-15,784%	8,575%	-4,550%	2,407%	-16,494%
1982	-2,702%	17,373%	1,439%	2,003%	5,284%	-11,690%	-4,422%	2,412%	-14,802%	-6,466%	4,349%	6,054%	-13,027%	-6,503%
1983	-7,988%	12,353%	-7,630%	4,287%	-3,622%	0,932%	-6,378%	-2,801%	-3,559%	12,430%	11,219%	15,770%	-12,592%	3,005%
1984	-3,514%	2,949%	-4,022%	3,423%	-2,663%	11,133%	-8,225%	1,665%	-5,465%	11,471%	7,153%	1,651%	-2,877%	5,352%
1985	1,760%	-1,237%	-2,739%	-0,423%	3,190%	7,866%	-2,807%	5,833%	-7,383%	-1,188%	-2,738%	-7,574%	3,180%	-0,352%
1986	-3,889%	-4,265%	-4,899%	-2,922%	-2,412%	20,447%	-2,048%	1,603%	14,259%	-2,233%	-3,522%	1,717%	-2,815%	11,157%
1987	-4,852%	-4,604%	-1,462%	1,099%	-5,243%	25,440%	-4,010%	1,216%	16,082%	-0,492%	-0,319%	-7,371%	-5,730%	14,480%
AVERAGE	-1,716%	5,877%	2,191%	0,912%	1,959%	7,513%	-5,928%	4,188%	-3,242%	-0,132%	2,717%	0,861%	-2,672%	-0,623%
AVERAGE |ABS|	4,020%	8,403%	7,379%	1,835%	5,444%	10,623%	5,928%	4,888%	10,827%	6,409%	5,108%	5,734%	6,588%	9,122%

AVERAGE |ABS|	6,59%

TABLE 2 - A

RATIO OF THEORETICAL CONTRIBUTIONS TO REFERENCE 2 CONTRIBUTIONS

VARIANT A

	AT	BE	DK	FR	DE	GR	IT	NL	NO	PT	ES	SE	CH	GB
1980	-3,781%	-6,492%	-6,28%	0,12%	-4,47%	-3,93%	2,68%	-5,30%	-5,50%	-3,95%	20,29%	-4,69%	-11,74%	8,06%
1981	-2,686%	-6,747%	-10,11%	1,55%	-5,40%	-8,75%	3,20%	-5,94%	2,14%	9,48%	-1,75%	1,70%	-10,78%	14,35%
1982	-1,728%	-7,580%	-5,54%	-1,85%	-5,76%	6,00%	4,23%	-7,74%	13,23%	14,70%	0,67%	5,77%	0,52%	8,29%
1983	3,038%	-13,487%	-7,22%	-5,53%	-0,65%	4,61%	7,62%	1,88%	10,36%	-5,96%	-1,57%	-6,48%	6,54%	2,88%
1984	2,815%	-5,749%	4,01%	0,18%	-1,78%	-1,10%	9,47%	-5,82%	5,62%	-15,81%	-12,86%	-8,89%	8,94%	-0,60%
1985	-1,466%	-2,296%	4,92%	2,14%	-5,76%	-1,27%	5,85%	-7,95%	2,16%	-6,01%	6,91%	7,56%	-4,64%	-0,64%
1986	-2,685%	-0,776%	3,23%	3,50%	-3,36%	-8,00%	0,51%	-0,26%	3,18%	2,49%	0,91%	2,63%	-3,46%	2,28%
1987	3,937%	3,763%	3,10%	1,03%	2,67%	-11,82%	7,74%	3,12%	-6,95%	4,35%	-1,30%	-4,64%	7,19%	-13,88%
AVERAGE	-0,320%	-4,921%	-1,735%	0,143%	-3,065%	-3,034%	5,163%	-3,502%	3,031%	-0,088%	1,413%	-0,880%	-0,929%	2,592%
AVERAGE |ABS|	2,767%	5,861%	5,550%	1,987%	3,733%	5,687%	5,163%	4,752%	6,143%	7,843%	5,783%	5,298%	6,725%	6,373%

AVERAGE |ABS|	5,26%

TABLE 2 - B

RATIO OF THEORETICAL CONTRIBUTIONS TO REFERENCE 2 CONTRIBUTIONS

VARIANT B

	AT	BE	DK	FR	DE	GR	IT	NL	NO	PT	ES	SE	CH	GB
1980	1,164%	0,661%	0,356%	-0,211%	0,240%	0,856%	0,310%	0,929%	1,576%	1,474%	0,010%	0,620%	-2,937%	-1,033%
1981	-0,064%	0,623%	0,104%	0,142%	0,499%	-0,497%	-0,688%	0,462%	-0,870%	-1,202%	-1,276%	-1,601%	3,027%	-0,298%
1982	-0,073%	-0,124%	1,424%	-0,202%	0,634%	1,047%	-0,615%	0,155%	-2,085%	-2,014%	2,216%	-0,361%	0,011%	-1,007%
1983	0,295%	0,790%	-1,493%	0,077%	0,082%	-1,891%	0,562%	0,172%	-0,819%	-0,604%	-0,267%	-0,232%	-1,902%	0,054%
1984	-1,239%	0,099%	-0,855%	0,372%	-1,006%	-0,290%	0,018%	-1,377%	1,498%	2,152%	-0,818%	1,857%	-0,312%	1,424%
1985	0,243%	-1,131%	-0,209%	-0,051%	-0,367%	3,053%	-0,559%	0,512%	0,164%	0,635%	2,423%	-0,450%	0,543%	-0,034%
1986	0,737%	-0,318%	0,694%	-0,150%	0,684%	-1,555%	0,276%	0,476%	-0,811%	-1,265%	-2,667%	-2,024%	0,838%	0,161%
1987	-0,123%	-0,142%	-0,605%	-0,378%	0,164%	0,530%	0,634%	-0,090%	0,581%	-0,454%	0,549%	0,830%	-0,001%	-0,788%
AVERAGE	0,118%	0,057%	-0,073%	-0,050%	0,116%	0,157%	-0,008%	0,155%	-0,096%	-0,160%	0,021%	-0,170%	-0,092%	-0,190%
AVERAGE |ABS|	0,492%	0,486%	0,718%	0,198%	0,460%	1,215%	0,458%	0,521%	1,051%	1,225%	1,278%	0,997%	1,196%	0,600%

AVERAGE |ABS|	0,778%

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TABLE 3.

FLUCTUATION IN RELATIVE NMI'S

YEAR-TO-YEAR CHANGE IN PERCENTAGE OF PREVIOUS YEAR

	1980/1979	1981/1980	1982/1981	1983/1982	1984/1983	1985/1984	1986/1985	1987/1986
AUSTRIA	-1,00%	-2,40%	5,23%	3,59%	-1,19%	-0,31%	5,14%	-0,16%
BELGIUM	-4,05%	-7,40%	-8,11%	-2,37%	-0,40%	0,51%	3,59%	1,05%
DENMARK	-11,96%	-2,55%	2,60%	3,94%	-0,62%	3,24%	2,56%	-1,65%
FRANCE	0,52%	-0,03%	-2,13%	-1,94%	-1,03%	1,42%	1,42%	-2,84%
GERMANY(Fed. Rep. of)	-5,64%	-5,13%	0,75%	3,07%	-1,33%	-2,15%	5,43%	0,26%
GREECE	-5,78%	6,41%	7,53%	-9,60%	-0,75%	-3,74%	-15,09%	-5,62%
ITALY	7,24%	2,10%	1,85%	5,47%	3,33%	-0,99%	3,39%	1,40%
NETHERLANDS	-5,11%	-5,14%	3,09%	-0,03%	-2,96%	-2,13%	1,04%	-2,31%
NORWAY	10,75%	12,78%	1,91%	0,92%	6,39%	1,66%	-14,60%	1,46%
PORTUGAL	7,48%	9,15%	-4,02%	-7,89%	-0,51%	2,37%	-1,35%	1,40%
SPAIN	-5,84%	-3,43%	1,44%	-11,60%	4,70%	0,57%	0,31%	0,56%
SWEDEN	0,98%	2,09%	-7,97%	-6,36%	7,01%	0,65%	-4,30%	13,75%
SWITZERLAND	-5,64%	6,62%	7,85%	4,06%	-1,37%	-1,20%	5,02%	1,00%
UNITED KINGDOM	11,06%	7,50%	-1,51%	-1,38%	-2,38%	2,77%	-12,32%	-1,16%

TABLE 3 A - B

FLUCTUATION IN VARIANTS A AND B THEORETICAL CONTRIBUTIONS

YEAR-TO-YEAR CHANGE IN PERCENTAGE OF PREVIOUS YEAR

	AUSTRIA		BELGIUM		DENMARK		FRANCE		GERMANY (Rep. of)		GREECE		ITALY	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1980/1979	-5,288%	-0,560%	-7,793%	-0,802%	-7,846%	-4,385%	-1,025%	-0,089%	-2,360%	1,014%	-1,913%	-2,134%	-1,110%	0,551%
1981/1980	-0,659%	-2,969%	-5,915%	-5,694%	-9,000%	-5,367%	0,506%	-0,552%	-3,383%	-2,184%	-4,736%	-1,046%	4,738%	3,166%
1982/1981	-0,022%	-1,007%	-4,905%	-4,761%	-7,487%	-10,802%	-2,845%	0,172%	-5,995%	-5,512%	9,450%	-4,322%	8,307%	7,319%
1983/1982	2,334%	-2,039%	-13,317%	-6,550%	-4,281%	-5,352%	-3,771%	0,252%	0,012%	-5,647%	5,018%	3,317%	5,423%	3,307%
1984/1983	4,999%	3,617%	0,110%	-8,740%	15,011%	3,266%	3,778%	-1,847%	-0,397%	-0,347%	1,656%	9,283%	3,594%	1,295%
1985/1984	-0,726%	5,143%	1,202%	-3,574%	4,856%	4,617%	-0,025%	-2,356%	-1,106%	3,738%	-9,756%	-6,571%	1,974%	4,857%
1986/1985	-2,409%	-0,700%	1,146%	0,415%	-2,221%	0,283%	0,285%	-1,124%	1,188%	-0,288%	-7,519%	-5,187%	-1,073%	4,282%
1987/1986	6,476%	-1,158%	5,110%	0,690%	3,105%	1,906%	-1,004%	1,183%	3,950%	-2,651%	-7,735%	-1,703%	6,133%	-0,635%
AVERAGE	0,388%	0,041%	-3,336%	-2,305%	-1,481%	-1,246%	-0,329%	-0,778%	-1,247%	-1,713%	-1,946%	-1,845%	3,398%	3,008%
AVERAGE |ABS|	2,864%	2,149%	4,937%	3,903%	6,726%	4,497%	1,655%	0,947%	2,308%	2,673%	5,973%	4,195%	4,144%	3,167%

	NETHERLANDS		NORWAY		PORTUGAL		SPAIN		SWEDEN		SWITZERLAND		UNITED KINGDOM	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1980/1979	-7,807%	-0,898%	-1,577%	-6,819%	0,947%	-10,551%	20,511%	-0,488%	-0,443%	-10,788%	-10,400%	8,481%	8,833%	2,493%
1981/1980	-5,660%	-5,458%	3,723%	-6,342%	6,321%	-9,176%	-10,580%	0,875%	5,077%	-3,765%	-5,529%	-0,807%	11,765%	6,401%
1982/1981	-6,922%	-5,395%	22,781%	9,394%	12,606%	6,598%	-3,520%	-2,511%	5,026%	2,257%	6,299%	-8,407%	5,177%	10,274%
1983/1982	3,781%	-5,119%	9,916%	14,237%	-10,506%	10,719%	-5,580%	-5,778%	-9,743%	2,210%	13,010%	4,584%	2,120%	8,653%
1984/1983	0,943%	1,496%	-2,471%	4,285%	-14,074%	-1,359%	-10,201%	0,877%	-10,342%	-6,041%	10,279%	9,595%	-4,842%	-0,160%
1985/1984	-4,698%	1,885%	-2,389%	-0,407%	2,826%	-9,257%	8,453%	-8,709%	10,552%	-8,482%	-8,906%	4,957%	-1,415%	-2,794%
1986/1985	-2,295%	-2,998%	7,451%	5,352%	8,492%	-2,389%	-1,167%	-0,499%	2,106%	5,318%	-0,152%	-1,078%	0,481%	-2,194%
1987/1986	5,141%	-2,678%	-8,326%	3,082%	4,224%	3,208%	-1,633%	3,897%	-6,482%	3,584%	9,695%	-2,026%	-13,465%	1,797%
AVERAGE	-2,190%	-2,396%	3,638%	2,848%	1,354%	-1,526%	-0,465%	-0,642%	-0,531%	-1,955%	1,787%	1,912%	1,883%	3,859%
AVERAGE |ABS|	4,656%	3,241%	7,329%	6,240%	7,500%	6,657%	7,706%	3,854%	6,222%	5,299%	8,034%	4,992%	6,013%	4,346%

AVERAGE |ABS| A	5,433%
AVERAGE |ABS| B	4,011%

CERN/1699
CERN/FC/3167

ANNEX III

WORKING GROUP ON CONTRIBUTIONS CALCULATIONS

List of persons present

Mr. L. Pedersen (also representing Norway and Sweden)	Denmark
Dr. W. Leidig	Germany (Fed. Rep. of)
Mrs. A. Cukierman	France
Mr. H.H. Lejeune	"
Dr. U. Sessi	Italy
Dr. D.V. Thomas	United Kingdom
Mr. M. Bowthorpe	" "
Ms. J. Mills*	" "
Mr. H. Ith	Switzerland
Mr. R. Collomb	CERN
Dr. R.F. Heyn	"
Mr. G. Lindecker	"
Mr. H. Viegas	"

* First meeting only.

ANNEX IV

DRAFT RESOLUTION

EIGHTY-FIFTH SESSION OF COUNCIL

Geneva - 23/24 June 1988

CONTRIBUTIONS CALCULATIONS PROCEDURE

THE COUNCIL,

HAVING REGARD TO

The recommendations of the CERN Review Committee, according to which "some countries have systematically paid larger percentages of their current national incomes than others ...; (that therefore) the method of calculating contributions should if possible be changed so as to correct this defect ... (and that) fairer ways of calculating contributions can be devised inside the terms of the Convention" (Final Report, CERN/1675, 3 December 1987, p. 30);

Considering the outcome of the studies carried out by the ad hoc Finance Committee Working Group on contribution calculations (CERN/FC/3167);

The CERN Convention, dated 1 July 1953 as amended on 17 January 1971, hereafter called "the Convention", in particular Articles II.2 and VII, 1(b);

The CERN documents CERN/FC/2911 and CERN/FC/2804;

The recommendations made by the Finance Committee at its Two-hundred-and-twenty-third Meeting on 22 June 1988;

DECIDES

VARIANT A

1. In the framework of the three-year scale of contributions decided by Council according to Article VII, 1(b) of the Convention, an adaptation to this scale will be made each year to allow a better adjustment of the CERN Member States' contributions to the most recent official economic data.

   The decision by Council on this adaptation will take place each year in December. The procedure to prepare this decision will be the following.

2. For the purpose of this procedure, the following definitions are adopted:

   n = the year during which the decision shall be taken;

   n-x, n+x = years preceding or following the year n.

3. With the aim of preparing the Council decision relating to the adaptation of the scale of contributions for the year n+1, the net national income at factor cost (NNI) of each Member State for the years n-1, n-2, n-3 will be obtained from the Organization for Economic Cooperation and Development.

4. A weighted average of the data for each Member State, in its national currency, will be calculated by the application of the following formula:

   $$-7/6\ NNI(n-3) + 2/6\ NNI(n-2) + 11/6\ NNI(n-1).$$

5. The resulting data in national currency are converted into a common currency - the Swiss franc - by application of the appropriate exchange rates valid on average over the months July to October inclusive of year n.

6. The resulting normalized data will then be transformed into a scale of contribution expressed in percentages subject to the adjustments resulting from the implementation of Article VII, 1 (b) (i) and (ii) and decided by Council.

VARIANT B

1. In the framework of the three-year scale of contributions decided by Council according to Article VII, 1(b) of the Convention, an adaptation to this scale will be made each year to allow a better adjustment of the CERN Member States' contributions to the most recent official economic data.

   The decision by Council on this adaptation will take place each year in December. The procedure to prepare this decision will be the following.

2. For the purpose of this procedure, the following definitions are adopted:

   n = the year during which the decision shall be taken;

   n-x, n+x = years preceding or following the year n.

3. With the aim of preparing the Council decision relating to the adaptation of the scale of contributions for the year n+1, the net national income at factor cost (NNI) of each Member State for the years n-1, n-2, n-3 will be obtained from the Organization for Economic Cooperation and Development.

4. The NNI data of each Member State in national currency will be converted into a common currency - the Swiss franc - by application of the appropriate annual average exchange rates to the data of the corresponding year.

5. A weighted average of the normalized data for each Member State will be calculated by the application of the following formula:

   $$-1/6\ NNI(n-3) + 2/6\ (NNI(n-2) + 5/6\ NNI\ (n-1).$$

6. The resulting average data will then be transformed into a scale of contributions expressed in percentages subject to the adjustments resulting from the implementation of Article VII, 1 (b), (i) and (ii) and decided by Council.