A Study on the Formulation of an Assessments Scale Methodology: The United Nations Experience in Allocating Budget Expenditures Among Member States

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The article discusses the evolution and continued development of an assessment scale methodology that systematically apportions U.N. operating expenses equitably and transparently. It gives a historical perspective of the application of the basic elements:

a. Capacity to pay principle – The economic basis of assessment is the concept of ''capacity to pay'' which is measured by comparative estimates of income. Alternative measures as national wealth and socio-economic indicators, had also been considered but problems arising from data scarcity and incomparability precluded their use.
b. Low per capita income allowance (LPAF) – To prevent anomalous assessments resulting from the use of income levels, comparative income per head of population was factored into the methodology by applying LPAF. It is based on the premise that more developed countries contribute a bigger share towards defraying the expenses of the Organization. LPAF derives assessable income which reduces the assessable contribution of low per capita income countries by the distance between per capita income and an income threshold corresponding to the average per capita income of all members.
c. Maximum and minimum rates of assessment – In an organization having wide divergence in the range of income of members, maximum and minimum rates are imposed respectively, to lessen the financial dependence of the Organization on a single member and to ensure that the collective financial responsibility of an organization should be borne by all members, without seriously obscuring the relation between assessments and capacity to pay.
d. An allowance to ease the debt burden of heavily indebted Member States.
e. A cap of 0.01% in the assessment rates of the least developed countries.
f. A scheme of limits designed to mitigate extreme variations in assessments between two successive scales.

In summary, the history of U.N. assessments could be classified into three stages: a period from its inception to sometime in the early 1970s that was characterized by stability and infrequent changes in the methodology; the period between 1974–1994 that witnessed the introduction of a number of ''radical'' changes in the form of new elements such as the debt relief allowance, LDC ceiling and scheme of limits and parameter changes e.g., statistical

base period, low per capita income threshold and gradient of the LPAF; and, a third period starting with the 1995–1997 scale where a number of changes adopted previously were eliminated – the scheme of limits was phased out; GNP replaced national income as basic measure of capacity to pay; reducing the floor to bring the assessed rates of the smallest countries in line with capacity to pay – in effect restoring the simpler and more transparent thrust that defined the original framework of the methodology.

Key words: Collective financial responsibility; principle of capacity to pay; low per capita income allowance (LPAF); assessable income; income threshold; relief; ceiling and floor rates; least developed countries; debt burden; scheme of limits.

1.   Introduction

There is universal agreement that the task of formulating a scale of assessments for the purpose of allocating the expenses of an organization among Member States is not an easy one. Gaining unanimous acceptance from members is a seemingly unattainable objective that has often been referred to as ''squaring a circle.'' There are a myriad possible permutations in the choice of parameters that can be applied in the formula and which may be attractive to some but unacceptable to others, almost always depending on the outcome — the final scale that member countries will be assessed on to pay their share of contributions. As such, any formula that would meet the general acceptance of members could be considered the perfect formula since it would resolve forthwith every organization's recurrent problem: its source funding. The reality, however, is that the perfect formulation does not exist. Agreement by consensus materializes only after serious negotiations whereby compromises have been reached among members and certainly not before the constituent states have developed and sustained the political will to accept the responsibilities expected of everyone in a group bonded together by common aspirations and objectives.

   When the United Nations came into existence just after the Second World War, it instituted a mechanism that would systematically allocate the amount of contributions that Member States needed to pay in order to effectively finance the operations of the organization.[2] The scale of assessments was thus formulated and since then has been the basis on which the expenses are distributed among the membership. In its resolution 14A (I) dated 13 February 1946, the General Assembly established a Committee on Contributions to be composed of technical experts whose terms of reference included the formulation and allocation of a scale of assessments for the apportionment of the expenses of the organization. The committee's mandate then and now comprises not only the preparation of the scale but also advising the General Assembly on all aspects and elements of the scale methodology with a view to making it simple and transparent, stable and, most importantly, fair and equitable.

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[2] Article 17 of the United Nations Charter provides, *inter alia*, that the expenses of the Organization shall be borne by Member States as apportioned by the General Assembly.

2. Evolution and Legislative Bases of the United Nations Methodology of Assessments

The original terms of reference of the Committee on Contributions[3] were adopted at the first part of the first session of the General Assembly which met on 13 February 1946 (resolution 14 A, 3 (I)). The relevant paragraphs of the report of the Preparatory Commission incorporating the amendments of the Fifth Committee included the following:

''The apportionment of expenses

. . .The expenses of the United Nations should be apportioned broadly according to capacity to pay. It is, however, difficult to measure such capacity merely by statistical means, and impossible to arrive at any definite formula. Comparative estimates of national income would appear *prima facie* to be the fairest guide. The main factors which should be taken into account in order to prevent anomalous assessments resulting from the use of comparative estimates of national income include:

   a) Comparative income per head of population;
   b) Temporary dislocation of national economies arising out of the Second World War;
   c) The ability of members to secure foreign currency.

Two opposite tendencies should also be guarded against: some members may desire unduly to minimize their contributions, whereas others may desire to increase them unduly for reasons of prestige. If a ceiling is imposed on contributions the ceiling should not be such as seriously to obscure the relation between a nation's contributions and its capacity to pay. The committee should be given discretion to consider all data relevant to capacity to pay and all other pertinent factors in arriving at its recommendations. Once a scale has been fixed by the General Assembly it should not be subjected to a general revision for at least three years or unless it is clear that there have been substantial changes in relative capacities to pay.''

Those original guidelines helped define the underlying principle and the basic elements of the assessments methodology, namely: the principle of capacity to pay, the use of an income measure as the basic indicator of this capacity, a low per capita income allowance to reflect the relationship between income and size of population, a maximum (or ceiling) and minimum (or floor) rate of assessments. Additional factors that needed to be taken into consideration include the temporary dislocation of national economies as a result of World War II and the ability of members to secure foreign currency. Over the years, these have been supplemented by other elements that were deemed to affect the capacity of Member States to pay their contributions. These elements consist of an allowance for debt relief for heavily indebted countries, a ceiling that constrains increases in the assessment rates of least developing countries (LDCs), and a scheme of limits that seeks to avoid excessive variations of individual rates of assessment between two successive scales. A summary of the evolution of the elements in the methodology used to prepare the scale of assessments is shown in Annex I.

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[3] Contained in Chapter IX, Section 2, Paragraphs 13 and 14 of the report of the Preparatory Commission (PC/20) and in the report of the Fifth Committee (A/44).

3.   The Assessments Scale Methodology

3.1.   *Capacity to pay*

The concept of capacity to pay has not been explicitly defined although there is almost general agreement that its determination should be based principally on the ratio of Member States' income to total world income, taking into account the level of income per head of population. To this end, the committee as part of its mandate is tasked to ensure that the basic data on income measures are recent, reliable and comparable as a means of arriving at a fundamentally equitable scale. A number of other factors that may likewise affect capacity to pay, economic and otherwise, have been introduced in committee deliberations. Some, such as the need to take into account the plight of countries with a huge population base, those with a high level of indebtedness and the need to ease the burden of LDCs, have been accepted and incorporated as constituent elements of the methodology, while others, e.g., civil strife and natural disasters were considered to already have an effect on income levels and therefore on capacity to pay so that their incorporation would be tantamount to double counting.

Citing the consistently low levels of growth generated in less developed countries, the integration of socio-economic indicators in the methodology has also been explored, *inter alia*, per capita national wealth, percentage of literate population, per capita food consumption, and life expectancy, etc. In various previous sessions of the committee, a sustainable income concept that could be adjusted for different economic and social characteristics of countries had also been thoroughly discussed and considered as an alternative income measure. Such allowance for specific socio-economic deficiencies was thought to represent a reasonable replacement for the more general deduction based on low per capita income.

The feasibility of combining these indicators into one composite measure of the level or stage of development of a country or its socio-economic status was studied at length and there was a general feeling that ''. . .while it is theoretically possible to combine per capita national income with other economic and social indicators. . . it is extremely difficult to quantify the level of socio-economic development into a single valid and internationally acceptable measure for the purpose of comparison among countries and there is at present no satisfactory method of statistically developing a single comprehensive indicator.''[4] Furthermore, a United Nations Expert Group on Welfare-oriented Supplements to the National Accounts and Balances and Other Measures of Levels of Living also found that the standard of living was a complex phenomenon that at present is difficult to measure and quantify as a composite aggregate that could be internationally comparable. As such, it could not recommend the establishment of an international standard for compilation purposes, either in monetary unit or other unit of account.[5] The difficulties faced in integrating these factors into the formula plus the problems posed by the dearth of available comparable information for all Member States and the weights to be allotted to the indicator(s) in the formulation, among a number of limitations, precluded their acceptance by the committee and inclusion as part of the scale methodology.

[4] Committee on Contributions, 40th Session A/CN.2/R.423.
[5] Report of the Expert Group on Welfare-oriented Supplements to the National Accounts and Balances and Other Measures of Levels of Living (ESA/STAT/AC.4/5).

3.2. Measurement of capacity to pay

The basic concept of capacity to pay as defined in the current methodology is based primarily on an income aggregate, adjusted for other factors such as debt burden, low per capita income, consideration for least developed countries (LDCs), and maximum and minimum rates of assessments.

3.2.1. Income measure

Until recently, the basic income measure that has been used since the inception of the assessments scale methodology is net national income (NI). Beginning with the 1998-2000 scale of assessments, gross national product (GNP) or gross national income (GNI) as defined in the new System of National Accounts[6] replaced NI as the income measure that was deemed to best reflect the primary basis of the concept of capacity to pay in the methodology. The reason for the change is primarily that GNP is more readily available than NI inasmuch as the element of the consumption of fixed capital, or the obsolescence of capital goods (also called depreciation), is already part of GNP but needs to be imputed in order to arrive at NI. With the use of GNP, one step in the estimation process, i.e., making a notional adjustment for depreciation, is eliminated, making it a more reliable income aggregate. Conceptually, GNP measures the gross production of goods and services within a country, including the factor incomes produced by country residents outside of the country in the form of compensation of employees and property and entrepreneurial incomes generated abroad net of the accrued payments to nonresidents in the country. In this form, it is preferable to gross domestic product (GDP) which, although more readily available than GNP, measures the totality of productive output only within the territorial boundaries of a country. (The relations among the different income aggregates are illustrated in Table 1.)

3.2.2. Allowance for debt burden

The element of external debt relief as a means of ameliorating the burden of heavily indebted countries that seriously affects capacity to pay initially arose in the context of addressing Member States' ability, or lack thereof, to obtain foreign convertible currencies needed, *inter alia*, to pay contributions. Servicing and amortizing these debts are considered a form of government outlay that inhibits much-needed resources from being utilized in the implementation of national development programs, particularly in cases where large portions of foreign earnings are being channeled towards fulfilling a country's debt obligations.

The burden attributed to the accumulation of inordinate levels of external debt in some countries is often the result of contracting financial obligations during years of high-income productivity when expectations of continuing prosperity abounded. When times of affluence came to a halt, as diminished trade opportunities resulting from reductions in the export prices of agricultural and mineral products on which the primary export earnings of a number of developing countries greatly depended became the norm rather than

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[6] System of National Accounts 1993 — prepared under the auspices of the Inter-Secretariat Working Group on National Accounts (Commission of the European Communities — Eurostat, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations and the World Bank).

Table 1.   Relations among product, income, savings, and net lending aggregates

GROSS DOMESTIC PRODUCT

Plus: Compensation of employees from and to the rest of the world, net
   Plus: Compensation of employees from the rest of the world
   Less: Compensation of employees to the rest of the world
Plus: Property income from and to the rest of the world, net
   Plus: Property income from the rest of the world
   Less: Property income to the rest of the world
Plus: Taxes less subsidies on production and imports from and to the rest of the world,
  net
   Plus: Taxes less subsidies on production and imports from the rest of the world
   Less: Taxes less subsidies on production and imports to the rest of the world

Equals: GROSS NATIONAL INCOME (or PRODUCT)
Less: Consumption of fixed capital

Equals: NET NATIONAL INCOME (or PRODUCT)
Plus: Current transfers from and to the rest of the world, net
   Plus: Current transfers from the rest of the world
   Less: Current transfers to the rest of the world

Equals: NET NATIONAL DISPOSABLE INCOME
Less: Final consumption expenditure

Equals: SAVING, net
Plus: Capital transfers from and to the rest of the world, net
   Plus: Capital transfers from the rest of the world
   Less: Capital transfers to the rest of the world
Less: Gross capital formation
Less: Acquisitions less disposals of non-produced non-financial assets

Equals: NET LENDING (+) / NET BORROWING (-) OF THE NATION

Source: Extracted from Table 1.3 of the UN National Accounts questionnaire, 1993 SNA.

the exception, the servicing of debt suddenly proved to be a crushing burden on the financial coffers of those countries. In an increasing number of developing and least developed countries, contracting external debt represents the only viable alternative in the planning and implementation of serious development efforts. As repayment created enormous difficulties for some countries weighed down by mounting debt and declining export earnings, the concept of debt-adjusted income for the purpose of providing a form of relief was introduced into the assessments scale methodology.

There are currently two schools of thought on how debt relief could be applied more effectively in the formulation of the assessments scale — what have become known in the methodology as the ''debt stock'' and ''debt flow'' approaches. The debt stock method provides a reduction from the GNP level of 12.5 percent of total debt stock accumulated, representing the ratio of debt service repayment of the principal due from total foreign debt. This ratio is based on an assumption that normally, total external debt obligations are fully amortized within eight years, i.e., at a rate of 12.5 percent annually. The debt flow approach, on the other hand, is based on the principal repayments of debt

(amortization) that have been made by countries as reported by the World Bank. This method reduces the GNP of a Member State by the actual amounts of repayment that it dispenses annually towards the amortization of its debt. Apart from amortization, the other component of debt, interest payments, is already incorporated in the measurement of GNP and so the full effect of the debt burden on countries is taken into account as one of the determinants of capacity to pay. The concept of debt-adjusted income (GNP*) is derived thus:

(debt stock approach) $GNP^* = GNP - (0.125\% * D)$ (1)

(debt flow approach) $GNP^* = GNP - R$ (2)

where: D = total debt stock
       R = principal repayment of debt

Both approaches for debt relief have proponents and detractors. Those in favor of the debt stock method argue that total debt constitutes the overall obligations of a country that will have to be paid eventually and therefore represents a realistic indicator of the actual debt burden on countries. Detractors point out that total debt stock continues piling up as some countries keep renegotiating and refinancing their debt and, because of the resultant new and higher debt levels, these countries become entitled to a higher amount of debt relief under the scale methodology, even when no repayments are actually being made by them. According to this view, the use of the debt stock approach only assumes repayment of debt, while in practice such debt payment is not made or, if it is, made according to quite different debt repayment schedules than the one assumed in the formula (12.5 percent annually). As such, the capacity to pay of countries that are in arrears on debt repayment is not in a real sense as seriously impacted as that of those other members who faithfully adhere to the terms of their obligations by regularly amortizing their debt. This suggests that debt burden affects the capacity to pay contributions only when efforts are expended to institute debt repayments because the resulting cash outflow restricts the amounts of resources that governments need for other productive endeavors.

The lack of clear preference for either of the approaches as the more effective means of relieving the debt burden of countries is apparent from the mixed applications of this element in the methodology that were decided upon during the past two scale periods of United Nations assessments. In the scale of 1998-2000, each of the approaches was applied in turn while in the current scale for 2001-2003 the debt stock option has been integrated into the formulation.

3.2.3. Low per capita income allowance

When measuring the relative capacity to pay among Member States, another factor taken into account is the ''comparative income per head of population,'' commonly referred to as per capita income, as a means of providing relief to countries having low per capita incomes because of large populations. This element was introduced in order to arrive at a common yardstick called ''assessable income'' that is used to determine relative capacity to pay. Assessable income is defined as income after adjustment due to a relief factor obtained or absorbed as a result of the application of the low per capita income

allowance formula (LPAF). The LPAF reduces GNP adjusted for debt relief of Member States on the basis of two parameters: a per capita income limit or THRESHOLD[7] and a percentage modifier called the relief gradient. (The gradient is a policy parameter that measures the maximum allowable percentage reduction from GNP due to the application of LPAF.) Countries having per capita GNP adjusted for debt relief below the average per capita GNP of all the Member States (THRESHOLD) are identified. LPAF reduces the GNP of these ''below the threshold'' countries by the difference between the THRESHOLD and a country's per capita GNP expressed as a percentage of the THRESHOLD and modified by the gradient. The further per capita GNP is situated below the THRESHOLD, the larger the percentage reduction from GNP and,thus, the smaller the assessable income.

To illustrate, let us assume that country X has a per capita debt-adjusted GNP of 500 USD and the per capita income threshold (or average per capita GNP of all members) is 1,000 USD with a gradient of 80 percent. The relief percentage under the LPAF is calculated as follows:

$$r = \frac{L_0 - PcY^*}{L_0} \; g = \frac{1,000 - 500}{1,000} 0.80 = 0.40 \tag{3}$$

where: r = relief percentage

L_o = low per capita income threshold (THRESHOLD)

PcY^* = per capita debt-adjusted GNP = Y^*/N (where N is population)

g = relief gradient

As a result of applying the low per capita allowance formula, instead of having to pay on the basis of its total GNP after adjustment for debt, country X would be entitled to a 40 percent discount from its original aggregate level, and its assessable income would be reduced to 60 percent of its debt-adjusted GNP as a result of having a per-capita debt-adjusted GNP of one-half the amount of the THRESHOLD, with an 80 percent maximum reduction from the gradient. The derivation of assessable income under the LPAF can be represented in symbols as follows:

$$Y^a = Y^*(1 - r) \tag{4}$$

where: Y^a = assessable income

Y^* = debt adjusted GNP

where: r = relief percentage

The above clearly demonstrates that LPAF works in a very progressive fashion. For countries with per-capita debt-adjusted GNP (PcY^*) below the THRESHOLD, total GNP adjusted for debt (Y^*) is taxed progressively lower as PcY^* decreases while conversely higher as PcY^* approaches the THRESHOLD. For example, in the illustrative Table 2 below, given the same threshold of 1,000 USD and relief gradient of 80 percent, a Member State

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[7] The per capita income threshold or THRESHOLD is measured by the average per capita GNP of the entire membership, derived by dividing the aggregate GNP into the total population. Theoretically, it represents a minimum level of income needed for an acceptable standard of living. In this scenario, countries with per capita GNP above the THRESHOLD could be considered as enjoying relatively more advanced levels of development than those with a per-capita GNP situated below the THRESHOLD and therefore more easily able to discharge their membership obligations. The underlying assumption is that the latter group of countries would require more resources to attain an accepted standard of living and a reduction in assessable income would allow them the extra resources that could be channeled towards efforts to achieve this end.

Table 2.   *Tax progression built into the low per capita income allowance formula*

Per capita GNP (United States dollars)	Relief as a percentage of GNP*
200	64.0
400	48.0
600	32.0
800	16.0

*Based on a 1000 USD per-capita income THRESHOLD and 80 percent gradient.

with per-capita debt-adjusted GNP of 800 USD would be entitled to a relief percentage equivalent to 16 percent, or an assessment on its income of 84 percent of GNP while one with a much lower per-capita debt-adjusted GNP of 200 USD would benefit by a 64 percent deduction, or an assessable income equal to only 36 percent of its total GNP after allowance for debt burden.

On the opposite side of the income threshold, countries with a per-capita debt-adjusted GNP equal to or larger than the THRESHOLD, known as the ''absorber countries,'' would not be entitled to an income reduction from LPAF and instead would be required to absorb the relief enjoyed by the beneficiary countries. As such, their assessable income would be equal to the debt-adjusted GNP plus the *pro rata* distribution of the total relief granted. This results in an upward adjustment in the assessable incomes of these countries by a factor equal to their proportionate share in the total income (or debt-adjusted GNP) of all absorber countries as a percentage of total relief granted to beneficiary countries (R_a = total relief / total GNP of the absorber countries), i.e., assessable income equals debt-adjusted GNP plus an adjustment factor. Thus,

$$Ya = Y^*(1 + R_a)$$

The size of (R_a) will depend on the amount of relief to be absorbed from the application of LPAF and which corresponds to the difference between the GNP and assessable incomes of countries with per capita income below the THRESHOLD.

3.2.4.   Maximum and minimum rates of assessment

The imposition of maximum (or ceiling) and minimum (or floor) rates of assessment is aimed at guaranteeing equal representation for all members as provided for in the Charter, i.e., regardless of size, each Member State is entitled to one vote in the General Assembly. The original rationale for a ceiling rate was to place a cap on the rate that any one Member State could be assessed at in order to ensure that no one Member would be able to claim undue prestige or exert excessive influence in the organization. In 1946, the Committee on Contributions recommended that the largest income-producing Member State (the United States) be assessed at 49.89 percent. Raising objections, this member nevertheless voluntarily assumed a rate of 39.89 percent with the reservation ''. . .. that under no circumstances do we consent that under normal conditions any one nation should pay more than 33 1/3 per cent in an organization of 'sovereign equals'.''[8] Since then, the concern

[8] ''Scale of Assessment of the U.N. Budget for 1946 and 1947 and Working Capital Fund,'' Report of the Fifth Committee, 13 December 1946 (A/274).

about over-assessment has proven to be unfounded as there has been constant clamor through the years from the sole ceiling country for a reduction in the maximum rate, from the original ceiling of 39.89 percent, to 31.52 percent in 1971 and then to 25 percent in the 1974–1976 scale, which was enabled primarily by the admittance of two new Member States, the Federal Republic of Germany and the then German Democratic Republic. This rate lasted until 2001 when the ceiling was further lowered to 22 percent in the establishment of the current scale of assessments.

On the other hand, maintaining a minimum rate is based on the premise that the collective financial responsibility of the organization should be borne by the entire membership and that members pay at least a minimum contribution in order to belong. The minimum dues could easily be justified when assessed against the political, economic, and social benefits derived from membership in the organization. The floor rate started at the level of 0.04 percent and was maintained at that level until the 1974–1976 scale when the General Assembly, in resolution 2961 D (XXVII), requested ''the Committee on Contributions, in formulating the coming scale of assessments, to lower the floor from 0.04 per cent to 0.02 per cent to allow the adjustments necessary for the developing countries, in particular those with the lowest *per-capita* income[9].'' It was further reduced to 0.01 percent in the 1978–1979 scale and to the present floor rate of 0.001 per cent for the 2001-2003 scale of assessments (see Annex I). In the scale for 2001, there are 44 Member States that are assessed at the floor level.

With the lowering of both the ceiling and floor rates, it was emphasized that caution needed to be exercised in order to ensure that the imposition of both the ceiling and floor principles as part of the methodology does not in any way obscure the link between assessed contributions and capacity to pay.

3.2.5.   Other adjustments

a.   *Least developed countries*

In consideration of the particular circumstances attributed to the worsening socio-economic plight of the least developed among the developing countries, the General Assembly, at its thirty-sixth session, directed that ''. . .in view of the extremely serious economic situation of the least developed countries, their individual rates of assessments should not in any way exceed the present level.''[10] This decision effectively placed a ceiling of 0.01 percent on the assessment rates of the least developed countries with the aim of easing their financial burden.

b.   *Scheme of limits*

As the assessments scale methodology has evolved, changes in the parameters of the formula have produced, in a number of instances, anomalous increases and decreases in the assessment rates of particular countries. For example, when the statistical base period of average income was changed from an average of 10 years to a shorter period, inordinate changes in some assessments of member countries ensued as the higher-growth years of some economies acquired more weight in the calculation of basic income averages. Therefore, in order to avoid abrupt changes in the scale, a mechanism was established in order to

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[9] Official Records of the General Assembly, Twenty-eighth Session, Supplement No. 11 (A/9011), para. 36.
[10] General Assembly resolution 36/231 A (para. 4 d).

Table 3.   *The scheme of limits*
(based on a combination of percentage limits and index point limits with eight rate brackets)

If the present official scale is	Percentage change in the new machine scale should not be more than the lesser of:	
	Percentage limits	Index point limits
Above 5.00 per cent	5.0	75 points
2.50 - 4.99 ''	7.5	30 ''
1.00 - 2.49 ''	10.0	20 ''
0.76 - 0.99 ''	12.5	11 '
0.51 - 0.75 ''	15.0	10 ''
0.25 - 0.50 ''	17.5	6 ''
0.05 - 0.24 ''	20.0	2 ''
0.01 - 0.04 ''	-	1 ''

consider ''. . ..the possibility of mitigating extreme variations in assessments between two successive scales, without departing essentially from the principle of capacity to pay. . ...'' (GA res. 31/95 A).

As a means of properly addressing this concern, a scheme of limits was introduced as part of the scale methodology, consisting of two constraints[11] that are distributed over eight assessment rate brackets, for the purpose of restricting upward and downward movements in assessment rates to be applied to the new machine scale or to the scale resulting from the application of all the elements and parameters of the methodology, when compared to the present assessments scale.

The scheme of limits as devised and applied in the United Nations scale methodology is fashioned according to the guidelines shown in Table 3. To illustrate, Country A with a present assessment rate of 10 percent is allowed under the scheme of limits, an increase in assessment either by a percentage limit of 5 percent to 10.5 percent or an index point limit of 0.75 percentage points up to 10.75 percent or a rate reduction to 9.5 or 9.25 percent, respectively. Under the scheme's stipulation of applying the more restrictive type of limit whereby the change in the new assessment rate should not be more than the smaller of the increase or decrease accruing from the percentage and index point limits, this country would be assessed at 10.5 percent for an upward change and 9.5 percent for a downward movement, both restrictions based on the percentage type limit.

c.   Mitigation

In the past, the committee, as a last review of the final scale, engaged in the examination of other relevant factors, such as the temporary dislocation of national economies arising out of the Second World War and civil strife as well, problems and limitations for some countries with regard to securing foreign convertible currencies, and catastrophes and natural disasters. This has become known as the mitigation stage. As part of this process, the machine scale resulting from the methodology is carefully reviewed by the Committee on Contributions and at its discretion, final adjustments

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[11] The scheme of limits as applied in the UN methodology is a combination of two types of restrictions — percentage and percentage point limits — where the more restrictive limit type is imposed.

are made, where necessary, on the basis of relevant supplemental information submitted by members. It is basically a process with a political bent whereby the assessed rates of a limited number of countries are adjusted downwards if the committee is convinced that any of the factors mentioned above has had an adverse effect on countries' capacity to pay and only on the condition that there are other countries willing to absorb the points to be deducted.

The mitigation process, however, was subjected to criticism, ranging from its lack of transparency to the availability of points involved, the resulting distortion of capacity to pay and not the least its political flavor. It was further argued that other adjustments that have been instituted as part of the assessments methodology previously — for example, the extension of the statistical base period from 3 to 7 and then 10 years, the application of LPAF, the allowance for debt relief and the scheme of limits — provided sufficient mitigation. As a result, this type of mitigation has been left out of the process continuing to the present.

3.3. Statistical elements in the methodology

Sections 3.1 and 3.2 above elaborated on the basic elements applied in the formulation of the assessments scale and have also provided a brief historical background as part of the evolving methodology. These elements comprise the theoretical and conceptual bases of capacity to pay and include as well the algorithms involved in the calculation of the scale. Other elements that affect the basic data used as input in the scale formulation consist of a time period element such as the statistical base period and the processes involved in the conversion of national currency data into a common unit of account, in this case the United States dollar.

3.3.1. Statistical base period

The statistical base period used to derive averages of GNP, population and external debt information that form the basic input in the calculations has ranged from a single year during the early years of the scale up to an average of ten years (see Annex I). The current view in the committee is that the base period should be a multiple of the scale period, which is normally three years, and therefore comprise either a three-, six- or nine-year average. This would prevent, over a number of scale periods, the use of data for some years more frequently than data for other years and also provide some stability in the length of the base periods for the assessments scale.

The effect of the length of the base period on the scale is twofold: a shorter base period would more accurately reflect the current economic situation of countries and therefore their capacity to pay, while a longer one would provide a more stabilizing effect on assessment rates as it would tend to average out and lessen the effects of severe short-term economic fluctuations on capacity to pay. Under current data collection practices, there exists a three-year lag between the first year of a triennial scale and the last year of the average base period, e.g., for the scale of 1998-2000 in which data for the average six-year base period 1990–1995 were used as the basis for calculations, the oldest data in the average series (1990) is eight years old by the time the first scale year (1998) takes effect and ten years old by the third and last year of the scale. Had a three-year statistical

base period (1993–1995) been used, the corresponding gaps in years between the first and last years of the scale and the first year of the data series would have been shorter, i.e., five and seven years, respectively.

3.3.2. Conversion rates

The other factor affecting basic data used in the calculation of the scale is the type of conversion factor used to translate local currency statistics into United States dollars. In this context, the committee has been guided by General Assembly resolution 55/5 B to apply ''conversion rates based on market exchange rates, except where that would cause excessive fluctuations and distortions in the income of some Member States, when price-adjusted rates of exchange or other appropriate conversion rates should be employed, ...''The Ad Hoc Intergovernmental Working Group on the Implementation of the Principle of Capacity to Pay emphasized how vital the use of ''correct'' conversion rates is in the formulation of assessments when it stated in its report[12] that ''the choice of exchange rate for converting national income figures to a common currency is a crucial element in the calculation of the scale of assessments. Fluctuations and distortions in exchange rates can be a much greater source of variation and of error than income data.'' It proceeded to conduct a thorough examination of conversion practices used in the methodology and the feasibility of applying alternative exchange rates.

a. Market exchange rates

For the majority of Member States, the exchange rates primarily used to convert incomes expressed in national currencies into United States dollars are annual averages of market exchange rates as communicated to the International Monetary Fund (IMF) by the monetary authority of each member country and which have been agreed to by IMF. These rates are published in the International Financial Statistics and generally include three types of rates:

- (a) Market rates, determined largely by market forces;
- (b) Official rates, determined by government authorities;
- (c) Principal rates, for countries maintaining multiple exchange-rate arrangements.

For non-members of the IMF, use is made of the averages of United Nations operational rates of exchange which were primarily established for accounting purposes and are applied to all official transactions of the United Nations with countries where seats of United Nations agencies or official activities are located, including payments of local salaries and pensions. These rates may take the form of official, commercial or tourist rates of exchange.

In past scale formulations, there arose practical constraints in the exclusive application of market exchange rates (MER) for conversion of national currency data into a common unit, particularly for countries with multiple exchange rates, high inflation, and misalignments caused by sharp market fluctuations. There had been rising concern over the distorting effects of MER on the levels of national income in United States

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[12] ''Scale of Assessments for the Apportionment of the Expenses of the United Nations,'' Report of the Ad Hoc Intergovernmental Working Group on the Implementation of the Principle of Capacity to Pay (A/49/897).

Table 4.   *Step-by-step application of the UN assessments scale methodology*

			Statistical base period 1990–1995						
				GNP adjusted for					
					Low per capita income $4318**/80%				
						Floor = .001%, LDCs = .01%, Ceiling = 25%			
	Country	Previously adopted scale	Gross national product	Debt flow	Debt and low per capita income	Debt, low per capita income, and floor	Debt, low per capita income, floor and LDC	Debt, low per capita income, floor, LDC and ceiling	Debt, low per capita income, floor, LDC, ceiling and scheme of limits
*LDC		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
*	Number 5	0.01	0.038	0.038	0.014	0.014	0.010	0.010	0.010
	Number 6	0.01	0.002	0.001	0.002	0.002	0.002	0.002	0.002
	Number 7	0.48	0.965	0.956	1.052	1.052	1.052	1.116	0.540
	Number 8	0.05	0.015	0.015	0.006	0.006	0.006	0.006	0.040
	Number 9	1.48	1.246	1.252	1.378	1.377	1.378	1.461	1.468
	Number 10	0.87	0.791	0.795	0.874	0.874	0.875	0.928	0.933
*	Number 14	0.01	0.113	0.111	0.027	0.027	0.010	0.010	0.010
*	Number 20	0.01	0.001	0.001	0.000	0.001	0.001	0.001	0.001
	Number 24	1.62	1.979	1.958	1.477	1.477	1.478	1.503	1.511
	Number 31	3.11	2.295	2.306	2.537	2.536	2.537	2.691	2.891
*	Number 55	0.01	0.001	0.001	0.000	0.001	0.001	0.001	0.001
*	Number 56	0.01	0.002	0.002	0.000	0.001	0.001	0.001	0.001
	Number 61	6.42	5.500	5.525	6.078	6.077	6.079	6.447	6.480
	Number 135	0.82	1.255	1.261	1.387	1.387	1.387	1.471	0.923
	Number 138	4.27	1.618	1.608	1.077	1.077	1.077	1.096	3.990

	Number 161	1.23	0.907	0.911	1.002	1.002	1.003	1.063	1.113
	Number 170	0.03	0.016	0.016	0.006	0.006	0.006	0.006	0.020
*	Number 171	0.01	0.017	0.017	0.004	0.004	0.004	0.004	0.004
	Number 172	1.09	0.364	0.365	0.185	0.185	0.185	0.188	0.986
	Number 173	0.19	0.150	0.150	0.165	0.165	0.165	0.175	0.176
	Number 174	5.32	4.279	4.298	4.729	4.728	4.730	5.016	5.080
*	Number 175	0.01	0.017	0.016	0.004	0.004	0.004	0.004	0.004
	Number 176	25.00	26.156	26.273	28.906	28.902	28.911	25.000	25.000
	Number 181	0.01	0.044	0.043	0.010	0.010	0.010	0.010	0.010
*	Number 182	0.01	0.057	0.057	0.022	0.022	0.010	0.010	0.010

** The average world per capita gross national product for the base period 1990-1995 is $4,318

dollars of some countries, where domestic inflation is not adequately reflected in the movements of exchange rates. This resulted in either an under- or over-valuation in their assessable incomes that, if left uncorrected, could produce anomalous assessments. Likewise, in other cases, the use of market exchange rates has produced excessive fluctuations or distortions in the dollar income levels of countries where monetary authorities have fixed the exchange rates for long periods of time in line with government policy. For these countries, alternative conversion factors have been examined by the committee as possible replacements for market exchange rates, e.g., price-adjusted rates of exchange (PARE), purchasing power parity (PPP) and the World Bank Atlas rates. (A discussion on these alternative conversion rates is incorporated in Annex II.)

3.4. A practical illustration of the workings of the assessments scale methodology

Using specific examples from a previous modeling of the scale formulation for illustrative purposes, Table 4 below demonstrates the step-by-step application of each element in the methodology. The first step is the derivation of total and per capita GNP data for each Member State expressed in United States dollars for an average statistical base period that has been decided for a particular scale review (the six-year average for 1990–1995 is used in this exercise). This is first obtained by converting GNP in national currencies to United States dollars for each year of the statistical base period, principally with the use of market exchange rates provided by the IMF (see Section 3.3.2.a above) or, if the application of MER produces unacceptable levels of income as expressed in dollars, other conversion rates decided by the Committee on Contributions (see Annex II). The average GNP for the base period is then derived as:

$$Y = \frac{1}{6}\left(\frac{Y_t}{e_t} + \frac{Y_{t-1}}{e_{t-1}} + \frac{Y_{t-2}}{e_{t-2}} + \cdots + \frac{Y_{t-5}}{e_{t-5}}\right) \tag{6}$$

where: Y = average GNP in United States dollars
   Y_t = individual country GNP in national currency at year t
   e_t = conversion rate for each year

Column 2 of Table 4 lists the individual country's percentage ratio of average GNP to total world average GNP (world here refers to the total United Nations membership, which currently stands at 189 countries) and is obtained by:

$$S = 100^* Y / \sum_1^{189} Y \tag{7}$$

where $\sum_1^{189} Y$ = total world GNP in United States dollars.
The GNP per capita of each member is derived by dividing GNP expressed in United States dollars into the corresponding population estimate (N), or Y/N for each year of the base period. The average GNP per capita for the six-year statistical base period is calculated thus:

$$PcY = \frac{1}{6}\left[\frac{Y_t}{N_t} + \frac{Y_{t-1}}{N_{t-1}} + \frac{Y_{t-2}}{N_{t-2}} + \cdots + \frac{Y_{t-5}}{N_{t-5}}\right] \tag{8}$$

The per capita income THRESHOLD ($\overline{PcY}$) used in the low per capita allowance formula (LPAF) that determines which countries would benefit from its application and which corresponds to the average per capita GNP of all Member States is calculated by dividing the total average GNP into the total average population of the entire membership.[13]

$$\overline{PcY} = \frac{\sum_{1}^{189} Y}{\sum_{1}^{189} N} \tag{9}$$

The next step in the methodology is the application of the adjustment for debt burden in which the annual estimates of GNP in dollars are adjusted for debt allowance by applying either the debt stock approach or the debt flow approach. In the illustrative table, using the debt flow option, actual repayments of external debt principal or debt amortization made by countries for each of the years of the statistical base period are deducted from GNP to arrive at the concept of total (Y^*) and per capita debt adjusted GNP (PcY^*),

$$Y^* = GNP - Df \tag{10}$$

where: Y^* = debt-adjusted GNP

Df = debt burden adjustment using the debt flow approach.

The resulting debt-adjusted GNPs are averaged according to the number of years selected as statistical base period as in Equation (6) above and the percentage share of debt-adjusted GNP for each Member State is obtained as in Equation (7) above and shown in Column 3 of Table 4.

The low per capita income allowance formula (LPAF) is the next element applied in the methodology, involving the provision of relief to assessable incomes of countries with per capita debt adjusted GNP (PcY^*) levels situated below the average per capita GNP (THRESHOLD) of all members for the base period 1990–1995 equal to 4,318 USD. Thus, the average debt-adjusted GNP (Y^*) of Member States with PcY^* below 4,318 USD is reduced by 80 percent (gradient) of the percentage by which the PcY^* is lower than the THRESHOLD.

One such country is Number 24 in Table 4, whose debt-adjusted GNP per capita of 2,983 USD is below the THRESHOLD and whose rate after the application of LPAF in Column 4 of the table shows a decrease. Charting through the different steps in the methodology thus far, this particular country's share of GNP of total world GNP is 1.979 percent (Col. 2) and, after obtaining a relief allowance for debt burden equivalent to .021 percent, has its rate lowered to 1.958 percent in Col. 3. With the application of LPAF, it is given a further reduction in its rate of assessment to 1.477 percent, a diminution of 0.481 percent or almost a 25 percent decrease, representing the relative distance of its per capita debt-adjusted GNP (PcY^*) to the THRESHOLD with a maximum gradient of 80 percent applied

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[13] The average population is calculated as the average of the population within the statistical base period with a formula similar to Equation (8).

to the difference. The percentage of low per capita relief (r) given to this country is computed as follows:

$$r = \left[\frac{(4,318 - 2,983)}{4,318} \times 80\% \right] = 24.73\% \tag{11}$$

As a result, the assessable income of this "below the threshold" country would amount to approximately 75 percent of its debt adjusted GNP (Y^*) computed as $(1 - R_a)$.

$$1 - r = 75.27\%$$

At this stage, the total amount of relief granted by the LPAF to all countries with PcY^* lower than 4,318 USD is absorbed by Member States with PcY^* equal to or greater than this amount. The points are reallocated in proportion to each member of the absorber group's share to the total Y^* of the group in the following manner:

$$Y_a^* = \frac{Y^*}{\sum_{absorbers} Y^*(TR + Y^*)} \tag{13}$$

where: TR = total relief given to countries below the THRESHOLD.

For "above the threshold" countries, there is no progression in the amount of absorbing the adjustment from the LPAF. The first part of the equation results in a fixed percentage addition to their Y^* in arriving at their assessable income no matter how far away or close to the THRESHOLD their PcY^* is situated. In Table 4, Countries 7, 9, 31, 161, 174 and the rest of the absorber countries have their Y^* increased by some ten percent as a result of the application of the LPAF. The effect of the relief absorption from the LPAF can be measured by the difference between Columns 4 and 3 of the table. The resulting redistribution of points ensures that total world average assessable GNP remains equal to average GNP in US dollars ($\sum_1^{189} Y^*$) and since it is a zero sum process, the scale adds up to 100 percent.

A maximum rate of assessment of 0.01 percent is then applied to Members States that have been recommended for inclusion in the list of least developed countries by the Economic and Social Council (see Annex VI for the list of LDCs and basis for classification). LDCs whose assessment rates at this point exceeded 0.01 percent had their rates reduced to this level with the extra points being redistributed *pro rata* to other members. Three countries benefit from the LDC ceiling in the illustrative table, namely numbers 5, 14, and 182.

The next stages in the methodology deal with the imposition of the minimum and maximum rates (floor and ceiling) that in the exercise have been pegged at 0.001 and 25 percent, respectively. The application of the floor rate pulls up the assessment rates of Member States below 0.001 percent, i.e., countries 20, 55, and 56. As a result, points are released for redistribution and the accrued points are deducted from the assessment rates of the rest of the members, except the LDCs whose rates have already been fixed at this point. On the other hand, the effect of the ceiling principle limits the rate of a single member (Country number 176) to 25 percent of total assessments. This generates percentage points that need to be absorbed by the rest of the membership, causing the assessments of all others, except the assessments already delimited in accordance with the LDC and floor principles, to increase.

The last step involved in producing the final machine scale in the methodology is the

application of the scheme of limits as elaborated in Section 3.2.5.b. above. Two examples that clearly illustrate the operation of the scheme in limiting upward and downward movements between successive assessment scales are the cases of countries 135 and 138. In one instance, country 135's previously adopted assessment rate of 0.82 percent (Col. 1) is bound to increase to 1.471 percent (Col. 7) from the initial application of the methodology through the ceiling principle, a jump of better than 79 percent. As a result of the constraints imposed by the scheme of limits, however, this country's rate (subject to the 4th of the eight rate brackets from the highest as shown in Table 3) can go up only by either a 12.5 percent growth to 0.923 percent or eleven index points to 0.930 (0.82 × 1.125 and 0.82 + .11). By virtue of one of the conditions specified in applying the scheme, that the lower of the two alternative increments takes precedence, the maximum increase allowed in this member's assessment could only be equal to the percentage limit of 12.5 or from 0.82 to 0.923 percent as its final assessment rate.

On the other hand, country 138 shows a drastic reduction from its present assessment rate of 4.27 percent through the workings of the methodology up to the ceiling application in Column 7 where, in the absence of a scheme of limits, its assessed rate would plummet by almost three times, down to 1.096 percent. It is precisely to prevent such excessive reduction (and acceleration) in assessments that the scheme of limits was introduced into the methodology. Under the scheme, this country's rate, which is covered by the second highest of the eight rate brackets, would be allowed to decrease only by 7.5 percent or 30 index points, whichever is the lesser constraint. Thus, from 4.27 percent, the assessed new rate for this Member State could only go down by a maximum of 30 index points to 3.97 percent, representing the less restrictive limit between the percentage limit (4.27 x .925 = 3.95 percent) and index point limit (4.27 - 0.30 = 3.97 percent) applicable to it.

Once the calculation of the total increases and decreases resulting from the application of the scheme of limits[14] is tallied, the net points derived are redistributed *pro rata* to all other Member States except the ones already constrained by the limit and those that have already been fixed at this stage according to the ceiling, floor and least developed country principles in order to arrive at a final scale in Column 8 equal to 100 percent.

4.   Alternative Method of Scale Formulation

The United Nations methodology just described is one of two principal methods by which the formulation of a scale of assessments is being applied in different international organizations. It is defined as a *continuous* approach whereby each Member State is assessed according to individual capacity to pay in relation to the capacity to pay of the other members. The rate adjudged to each member is a function of relative capacity to pay. Thus, an increase in assessments indicates that a country's economic growth during a given period is relatively higher than that of other states or, conversely, if all countries are experiencing negative growth, this country's decline is relatively smaller than that of most of the other members.

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[14] In resolution 48/223 B, the General Assembly requested the Committee on Contributions to formulate a scale for 1995-1997 that would include a 50 percent phasing out of the effects of the scheme of limits, with a view to a complete phasing out for the ensuing 1998-2000 scale of assessments as mandated by GA resolution 52/215 A. As a result, the scheme of limits has been completely phased out from the methodology at the conclusion of the scale for 2000 and has not been applied in the calculations for the 2001-2003 scale of assessments.

An alternative approach to scale calculations being used in other international organizations is what could be called the *discrete* method of assessments in which members are assessed by group shares. ''Members are divided into groups and are assessed on the basis of a range or combination of factors including social and economic, political, institutional, etc. Normally, this type of approach classifies countries by dividing them into groups while maintaining political, social and economic homogeneity within each group, for instance, relatively developed countries (e.g., the OECD states), transition economies and the rest of the membership which would include most developing countries. Each group is then assessed a percentage according to relative capacity to pay.''[15]

Some organizations prefer this type of methodology largely due to a perception that it is a comparatively uncomplicated one. ''Groups are classified on the basis of economic factors that define its concept of capacity to pay e.g., total income (GDP or GNP) levels. Group assessment rates are then derived according to group shares of the total that are uniformly distributed among members of the group. However, by classifying countries solely on the basis of their GDP or GNP without regard to standard of living measures such as per capita income, diversely heterogeneous countries are lumped together within specific groups,''[16] unlike the continuous method where each member is assessed according to its individual capacity to pay.

Some of the other features of the continuous approach used in the formulation of the United Nations assessments scale include:

(a) Conceptual coherence;
    (i) The income measure used as principal input in the calculations is based on economic concepts that are within an established framework, i.e., the System of National Accounts that sets the guidelines for national accounting practices;
    (ii) Statistical data used are based on verifiable, consistent and timely information reflecting the relative capacity to pay of members;
(b) Transparency: changes and movements in assessment rates can be explained through the workings of the formula;
(c) Flexibility: it is flexible in the way that the parameters could be changed when circumstances warranted, for example the methodology could quite easily incorporate - or exclude, for that matter - other factors as desired;
(d) Equity and fairness: because of the above features and also because the governing principles apply to all countries based on a set of parameters previously agreed upon.

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[15] From ''An Evaluation of the ACP Assessment Methodology'' prepared by F. B. Suzara for the African, Caribbean, and Pacific Group of States, November 1999.
[16] Ibid.

Annex I. Summary of the evolution of the elements in the methodology used to prepare the scale of assessments[17]

Scale of Assessments	Statistical base period	Low per capita income allowance				No increase for least developed countries	Debt relief	Scheme of limits
		Per capita income limit (US dollars)	Gradient (%)	Ceiling (%)	Floor (%)			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1946–1947	1938–1940	Individual allowances made on the basis of per capita income levels		39.89	0.04			
1948	1945, 1946 or 1947 - single year statistics	1 000	40	39.89	0.04			
1949	``	``	``	39.89	0.04			
1950 (same as 1949 except for minor adjustment)				39.79	0.04			
1951	``	``	``	38.92	0.04			
1952	``	``	``	36.90	0.04			
1953	Average of 1950–1951	``	50	35.12	0.04			
1954	Average of 1950–1952	``	``	33.33	0.04			
1955	Average of 1951–1953	``	``	33.33	0.04			
1956–1957a	Average of 1952–1954	``	``	33.33	0.04			
1958	``	``	``	32.51	0.04			
1959–1961	Average of 1955–1957	``	``	32.51	0.04			
1962–1964	Average of 1957–1959	``	``	32.02	0.04			
1965–1967	Average of 1960–1962	``	``	31.91	0.04			
1968–1970	Average of 1963–1965	``	``	31.57	0.04			
1971–1973	Average of 1966–1968	``	``	31.52	0.04			
1974–1976	Average of 1969–1971	1 500	60	25.00	0.02			
1977a	Average of 1972–1974	1 800	70	25.00	0.02			
1978–1979	Average of 1969–1975	1 800	70	25.00	0.01			
1980–1982	Average of 1971–1977	1 800	75	25.00	0.01			
1983–1985	Average of 1971–1980	2 100	85	25.00	0.01	x		
1986–1988	Average of 1974–1983	2 200	85	25.00	0.01	x	x	x
1989–1991	Average of 1977–1986	2 200	85	25.00	0.01	x	x	x
1992–1994	Average of 1980–1989	2 600	85	25.00	0.01	x	x	x
1995–1997	Average of the average of 1985–1992 and 1986–1992	world average (3 055 and 3 198)	85	25.00	0.01	x	x	50 per cent phase out

| 1998-2000c | Average of 1990–1995 | world average (4 318) | 80 | 25.00 | 0.001 | d | xe | Full phase out b |
| 2001-2003 | Average of the average of 1993–1998 and 1996–1998 | world average (4 797 and 4 957) | 80 | 22.00 | 0.001 | x | xf | |

a A ceiling on per capita assessments, set at the level of the per capita assessment of the Member State with the highest assessment, was applied to scales of assessment between 1956 and 1976. On the recommendation of the Committee on Contributions, it was abolished, by the General Assembly in its resolution 3228 (XXIX) of 12 November 1974.

b Subject to a limitation of 15 per cent on the allocation of additional points to developing countries benefiting from the application of the scheme of limits.

c Income measure changed from national income to gross national product.

d Not a specific part of the methodology, but since the least developed countries ceiling was applied there were no increases for least developed countries in the 1998-2000 scale; with the reduction in the floor to 0.001 per cent, however, there could be some increases in future scales, albeit subject to the least developed countries ceiling of 0.010 per cent.

e Calculated using ''debt flow'' data for 1998 and ''debt stock'' data for 1999-2000.

f Calculated using ''debt stock'' data for 2001-2003.

Annex II - Alternative rates of exchange for conversion of income data to US dollars

1. Price-adjusted rates of exchange (PARE)

The PARE methodology was developed in the Statistics Division for the specific purpose of adjusting exchange rate movements over time, where these did not adequately reflect the internal movement of domestic prices in specific countries. This situation produced levels of total and per capita gross national product (GNP) in United States dollars that were difficult to justify in light of current economic realities and which were either too high or too low in comparison to most learned observations. PARE supports temporary adjustments to the exchange rates of these countries, not merely by incorporating price changes that are not reflected by movements of exchange rates but likewise, by smoothing out exchange rate movements that are not supported by price changes.

An elaboration of the PARE methodology is shown in the footnote below with excerpts from a previous note[18] prepared by the UN Statistics Division and submitted for consideration to the Committee on Contributions for further study.

''. . . 5.   The present PARE is calculated by using a price index for each country to extrapolate the Market Exchange Rate (MER) corresponding to the PARE base period to the present period. The price index is based on the Gross Domestic Product (GDP) implicit price deflator, which is obtained by dividing the current price GDP by GDP in

[17] Source: Official Records of the General Assembly, Fifty-fifth Session, Supplement No.11 (A/55/11).

[18] Price-Adjusted Rates of Exchange — (PARE) A Revised Methodology — note prepared by the UN Statistics Division and incorporated in the series ''Review of the elements of the methodology for the preparation of future scales of assessments'' (A/CN.2/R.638/Add.1) submitted to the fifty-ninth session of the Committee on Contributions. The PARE methodology was originally developed by Jan van Tongeren, Interregional Adviser on Macro Accounting for Policy Analysis, UNSD and has since been revised and updated to meet the requirements of the Committee on Contributions regarding its effective application as part of the scale methodology. While questions have been raised regarding its practical technical application to all Member States, it nevertheless has been used as part of the committee's work in the past as a valuable tool for adjusting the conversion rates of specific countries where the use of MER clearly produces unacceptable levels of GNP when expressed in US dollars.

constant prices for each country. The GDP deflator obtained in this manner uses 1990 as the national accounts base year for the majority of countries, but a different year may be used for some countries. The selection of the national accounts base year is generally less important, as the price deflators are used in terms of growth rates over time and not in terms of absolute price levels. The PARE base period covers the entire period of national accounts data available in the UNSD database, i.e., at present 1970–96. The exchange rate for each country in the PARE base period is calculated as the average of exchange rates weighted with the GNI for each year of that period. The implication is that the average PARE and MER rates are equal for the PARE base period as a whole, but not for each individual year. Or stated in other words, it is assumed that the average exchange rate for the entire PARE base period adequately reflects the average price relatives during that period.

6.   The relation between PARE and MER and the underlying methodology used by the Committee have been summarized in the chart below. It includes illustrative figures only. The MER values have been methodology is that the solid line, at which MER and PARE values are equal in the long run, is the one to which distorted values of MER should be adjusted. This assumption will be examined in the revision of PARE below.

'' . . . 9.   The nature of the exchange rate series differs between countries. An increasing majority of countries has MER which change in value over time due to market forces. A limited number of countries have fixed rates for selected periods, which are generally set by the government for economic policy purposes. A third group of newly independent countries has a limited scope of its exchange rate series, as before independence they had no exchange rate separate from that of the parent country. The opposite phenomenon is found in countries, which have joined into political or economic unions; as a result, the joint exchange rate replaces the separate exchange rates before independence''.

'' . . . 11.   By comparing the PARE conversion rates with the actual MER, the Committee is able to identify the countries with large distortions in their rates of exchange, that is to say, those having the largest discrepancies between the PARE and the MER. In those instances, the Committee generally substitutes the PARE rates for the actual market rates . . . ''
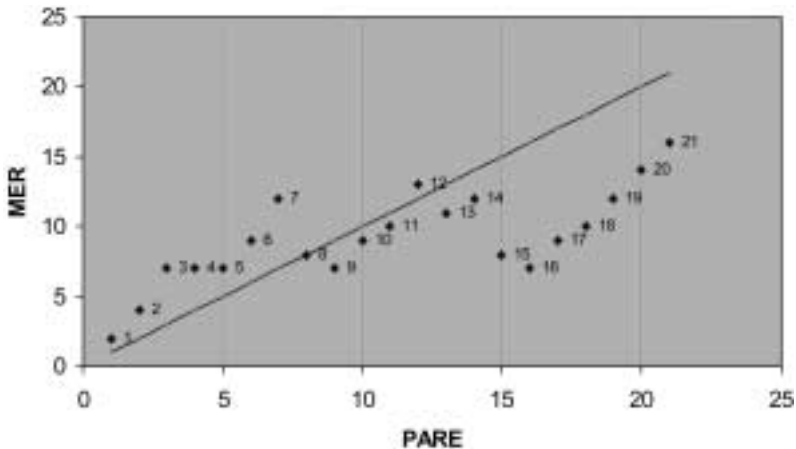
2. Purchasing Power Parities (PPP)

PPP coefficients have been developed within the scope of the International Comparison Programme (ICP) in which the United Nations Statistics Division, in cooperation with other international organizations such as the World Bank, IMF, OECD, and the European Union are major participants. It was designed ''..to provide purchasing power parity (PPP) statistics that allow cross-country comparisons of gross domestic product (GDP) and its subaggregates in real terms. By establishing purchasing power equivalence, PPP conversions allow cross-country comparisons of economic aggregates on the basis of volume, free of price and exchange rate distortions''[19]. PPP are derived from price relatives of common baskets of goods and services expressed in the currencies of each of the participating countries. The average PPP applied to GDP is obtained as weighted averages of the price relatives of individual baskets of goods and services, using as weights, the total expenditures on those goods and services in GDP. Unlike other conversion rates like PARE and the World Atlas rates, PPP are not derived from actual exchange rates, but are obtained as independent measures based on information from price surveys covering prices of a detailed basket of goods and services and reflect purchasing power parity in the given year. The use of PPP as conversion rates provides estimates of gross product measured in ''international dollars'' as distinguished from the conventional United States dollars obtained through the exchange rate method. GDP converted by PPP is expressed at the same set of international prices, eliminating differences in price levels between countries and reflecting only differences in the volume of goods and services.

Detailed direct benchmark estimates of PPP conversion rates have been obtained through the ICP for a sample of countries for the years 1970 (16 countries), 1975 (34 countries), 1980 (60 countries), 1985 (64 countries), 1990 (30 countries) and 1993 (118 countries representing all regions of the world for the first time). As the number of direct PPP estimates is limited in terms of countries and years, the Penn World tables (PWT)[20] data bank developed at the University of Pennsylvania has extended the ICP results with data estimated on the basis of less comprehensive price and expenditure surveys to allow comparative results from countries with direct PPP measurements to a number of nonparticipating countries. Annual inter-temporal interpolations and extensions to nonbenchmark years were applied in PWT on the basis of price indices for GDP components of individual countries relative to the corresponding price indices of the comparator country, the United States.

The limited availability of PPP ''in terms not only of participating countries and those for which estimates could be constructed but, as well, of the comprehensiveness of the number of years entailed in the calculation of the scale''[21] was one of the main restrictions cited by the Working Group on the Implementation of the Principle of Capacity to Pay concerning its possible use in assessments calculations. However, it did recognize the PPP's potential in at least identifying anomalous rates of exchange that produce distortions

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[19] Report of the World Bank on measures to improve the effectiveness of the International Comparison Programme submitted to the UN Statistical Commission's 31st Session (E/CN.3/2000/7).
[20] Robert Summers and Allan Heston, ''A New Set of International Comparisons of Real Products and Prices, Estimates for 130 Countries'', Journal of the International Association for Research in Income and Wealth, the Review of Income and Wealth.
[21] Official Records of the General Assembly, Fiftieth Session, Supplement No. 11 (A/50/11) Annex III.

in income levels when expressed in US dollars and its suitability to replace MER in those instances. It stated: ''There appeared to be a strong correlation (and a strong rank correlation) between per capita income figures estimated on the basis of PPP and on the basis of MER. (It) thought there would be value in making efforts to improve PPP data collection and methodology and that further consideration of the theory should also be encouraged''.[22]

3. World Bank Atlas rate

This type of conversion is applied by the World Bank to calculate GNP of different countries and published in the Atlas series. It is basically similar in orientation to the present PARE method that also adjusts MER with movements in prices. The difference lies in the base year applied in each method. Whereas PARE uses the entire historical series available in the database (1970-latest year), the Atlas rate applies a three-year moving average i.e., the average of the MER rate for the current year and PARE-type rates based on the two preceding years.

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The World Bank Atlas conversion method

In calculating GNP in U.S. dollars and GNP per capita for certain operational purposes, the World Bank uses a synthetic exchange rate commonly called the Atlas conversion factor. The purpose of the Atlas conversion factor is to reduce the impact of exchange rate fluctuations in the cross-country comparison of national incomes.

The Atlas conversion factor for any year is the average of a country's exchange rate (or alternative conversion factor) for that year and its exchange rates for the two preceding years, after adjusting for differences between the rate of inflation in the country and the G-5 countries (France, Germany, Japan, the United Kingdom, and the United States). A country's inflation rate is measured by its GNP deflator. The inflation rate for G-5 countries is measured by changes in the SDR deflator. (Special drawing rights, or SDRs, are the International Monetary Fund's unit of account.) The SDR deflator is calculated as a weighted average of the G-5 countries' GDP deflators in SDR terms. The weights are determined by the amount of each currency included in one SDR unit. Weights vary over time because the IMF changes the composition of both the SDR and the SDR exchange rate for each currency changes. The SDR deflator is first calculated in SDR terms and then converted to U.S. dollars using the SDR to dollar Atlas conversion factor.

This three-year averaging smoothes annual fluctuations in prices and exchange rates for each country. The Atlas conversion factor is then applied to a country's GNP. The resulting GNP in U.S. dollars is divided by the midyear population for the latest of the three years to derive GNP per capita. When official exchange rates are deemed to be unreliable or unrepresentative of the effective exchange rate during a period, an alternative estimate of the exchange rate is used in the Atlas formula.

The following formulas describe the computation of the Atlas conversion factor

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[22] Ibid. A/49/897 para. 97.

for year t:

$$e_t^* = \frac{1}{3}\left|e_{t-2}\left(\frac{p_t}{p_{t-2}}\bigg/\frac{p_t^{\$S}}{p_{t-2}^{\$S}}\right) + e_{t-1}\left(\frac{p_t}{p_{t-1}}\bigg/\frac{p_t^{\$S}}{p_{t-1}^{\$S}}\right) + e_t\right|$$

and for calculating GNP per capita in U.S. dollars for year t: $Y_{t\$} = (Y_t/N_t)/e_t^*$, where e_t^* is the Atlas conversion factor (national currency to the U.S. dollar) for year t, e_t is the average annual exchange rate (national currency to the U.S. dollar) for year t, p_t is the GNP deflator for year t, $p_t^{\$S}$ is the SDR deflator in U.S. dollar terms for year t, $Y_{t\$}$ is the Atlas GNP in U.S. dollars in year t, Y_t is current GNP (local currency) for year t, and N_t is midyear population for year t.

Source: Excerpts from various issues of the World Bank publications *World Development Report* and *World Development Indicators*.

Annex III - Source of statistical information

1. Data on gross national product are primarily obtained through the national accounts questionnaire sent annually to the national statistical offices or national accounts reporting agencies of all Member and non-Member States of the United Nations. These are compiled according to the concepts and guidelines of the 1993 System of National Accounts. In the absence of official information, the United Nations Statistics Division prepares estimates based on related economic statistics from other sources that include national publications; regional development banks reports; economic surveys prepared by the United Nations regional economic commissions; studies prepared by experts under the United Nations technical cooperation programmes, indicators and estimates obtained from other international organizations such as the World Bank, International Monetary Fund, etc. and regional affiliate organizations such as the Organization of Petroleum Exporting Countries, Commonwealth of Independent States, and others. (For a general description of how UNSD estimates GNP and other national accounts aggregates, see Annex IV.)

2. The GNP estimates are converted to a common currency unit, i.e., United States dollar, with the use of the average market exchange rates provided by the IMF and published in the International Financial Statistics. These rates are usually in the form of principal, official or secondary rates and are averages based on market rates that are communicated to the IMF by the monetary authorities of each member of IMF or an average of daily or end-of-the-month quotations in the market of the country or in New York. For non-IMF members, use is made of United Nations operational rates of exchange that are applied on most commercial transactions between individual member countries and the United Nations. (For a limited number of countries where the use of the above rates produces distorted levels of income when expressed in United States dollars, alternative conversion factors such as PARE described in Annex II are applied.)

3. Statistics on debt stock and principal repayment of debt are provided by the World Bank and are communicated through the relevant monetary authorities of the countries as part of the Bank's Debt Reporting System (DRS).

4. Population figures used in converting aggregate GNP to per capita levels are mid-year

estimates prepared by the United Nations Population Division and published in the annual series World Development Prospects.

Annex IV - Processing and estimation of income data used as input in the United Nations methodology of assessments

1. Estimation of missing data by the United Nations Statistics Division (UNSD)

If a reply to the national accounts questionnaire is not received or if the information supplied on gross national product/gross domestic product data is incomplete, UNSD prepares estimates for the years for which data are missing. The methodology used in estimating GNP and other income aggregates such as GDP for derivation of the implicit price deflators depends on the nature of the available data.

Where estimates of GNP are derived from available related economic aggregates (gross domestic product, etc.), the method used is to estimate the relevant missing components, e.g., indirect taxes, subsidies or net factor income from abroad, either from information available from publications of other international organizations, such as the World Bank and the International Monetary Fund (IMF), or by the use of proportions or percentages that establish a prior relationship between these components and the main economic aggregates.

Where data for one or more years of the period under review are lacking, estimates are prepared on the basis of growth rates implicit in economic and financial statistics or indicators extracted from various sources, e.g., national publications, regional economic surveys prepared by the regional commissions and reports of statistical experts provided under the technical co-operation programme.

Where absolute figures of national product are not available but distributive shares of each of the primary, secondary and tertiary sectors of the economy can be established for any year with sufficient reliability, sectoral estimates are weighted and extrapolated by relevant production indicators. For example, national indexes of the quantum of production are employed for agriculture, total industrial activity, and in some cases, construction. Where such national indexes are not available for agriculture, indexes compiled by the Food and Agricultural Organization of the United Nations (FAO) are utilized. In the absence of official series for total industrial activity, use is made of indicators officially provided and utilized in compiling the world index of industrial production of the United Nations Statistics Division. These are then converted to estimates at current market prices by adjusting both sectoral growth indicators with the use of suitable price indexes. For the utilities and services sector, extrapolations are generally made using current government expenditures in the production of government services. By adding up the resulting sectoral estimates, a rough approximation of total gross domestic product (GDP) is obtained, which is then adjusted to gross national product basis, using the method described earlier.

2. Conversion of national income data into a uniform period coverage

Once incomparability arising from differences in concepts and methods has been resolved, variations in the period coverage are made consistent by converting all estimates to calendar years in order to ensure comparability in the basic data used to measure capacity to pay. In cases where data have been based on divergent fiscal year compilations, UNSD makes adjustments in accordance with a decision by the Committee on Contributions to base the formulation on a consistent series of data.

The approximate conversion from fiscal year to calendar year estimates is based on one of the following cases:

a) fiscal year beginning 1 April or 21 March — estimates are proportionately adjusted on the basis of the percentage of the number of days covered during the last quarter of the previous fiscal year to the total number of days in the year plus the same percentage corresponding to the first three quarters of the current fiscal year;

b) fiscal year beginning 1 July - estimates are proportionately adjusted on the basis of the percentage of the number of days covered during the last half of the previous fiscal year to the total number of days in the year plus the same percentage corresponding to the first half of the current fiscal year;

c) fiscal year ending 30 June, 7 July and 15 July - estimates are proportionately adjusted on the basis of the percentage of the number of days covered during the last half of the current fiscal year to the total number of days in the year plus the same percentage corresponding to the first half of the following fiscal year;

d) fiscal year ending 30 September - estimates are proportionately adjusted on the basis of the percentage of the number of days covered during the last three quarters of the current fiscal year to the total number of days in the year plus the same percentage corresponding to the first quarter of the following fiscal year.

Annex V. Summary of method of assessments of other organizations of the United Nations system*

ILO   On the basis of the UN scale of assessments, adjusted to take into account differences in membership between UN and ILO. The Government members of the Programme, Financial and Administrative Committee: examine and recommend to the Governing body the scale for adoption by the Conference.

FAO   Established on the basis of procedure of UN and adjusted to different membership, with the exception of contributions from Associate Members, for which calculations are made on the same basis as contributions for member Nations, but reduced by four tenths. The Conference adopts the scale of assessments to be apportioned to member nations.

UNESCO The scale of assessments is fixed on the basis of the UN scale of contributions adopted by the General Assembly, and adjusted to different membership of UNESCO.

ICAO   The scale of assessment is fixed by the General Assembly: UN scale weighted 75%, aviation importance 25%, which is measured by international air service (75%) and domestic (25%) based on the tonnage kilometers.

WHO   The scale of assessments is fixed on the basis of the UN scale of assessments adopted by the General Assembly, as adjusted for the difference in membership.

UPU   Member countries may choose the class in the scale that they wish to pay when admitted as members. They cannot request to be ''declassified'' by one level more than once, except in exceptional circumstances.

ITU   Member states and entities and organizations authorized to participate in the activities of the Union choose freely, after the Plenipotentiary Conference, the

number of units they wish to contribute from the classes of contribution decided by that conference. The annual contribution is based on the number of units chosen. Once chosen, the reduction of units is possible only in very exceptional and specified cases, subject to approval by the Council.

WMO   The scale of assessments is fixed as follows- 50% on the basis of the WMO scale for 1990-1991 and 50% of the UN scale of assessment for the years 1989-1991.

IMO   The scale of assessments is fixed by the General Assembly- 2.94% minimum assessment divided equally (50% for Associate Members). Balance divided 12.5% on UN scale and 87.5% on the gross registered merchant shipping tonnage of the country.

WIPO   There are 14 classes in WIPO's ''class and unit'' unitary contribution system. The highest class has 25 units and the lowest 1/32 unit. Least developed countries automatically belong to the lowest (1/32 unit) class; other developing countries whose UN assessment is 0.01% belong to the next lowest (1/16 unit) class; developing countries whose UN assessment is between 0.02% and 0.10% belong to the next lowest (1/8 unit) class. Other countries choose a contribution class having between 15 units and 1/4 units (except that states that are members of WIPO and not of any of the Unions administered by it may choose only classes having between 1 unit and 1/4 unit). The rights of each country are the same, irrespective of the contribution class to which it belongs.

UNIDO   The General Conference decides on a scale of assessments for the regular budget expenditure for the fiscal period in conformity with the United Nations scale of assessment approved by the General Assembly and further adjusted for differences in the membership between the United Nations and UNIDO.

IAEA   Based on the UN scale of assessments of the preceding year adjusted for different membership (used for WCF and Technical Cooperation). For regular budget the final scale takes into account the safeguards financing formula, which shields developing countries in respect of safeguards costs. The scale is fixed yearly by the General Conference.

*Extracted from a note prepared for the subsidiary machinery of the ACC in December 1995.

Annex VI. Least-developed countries (LDCs)

Forty-nine countries(*) are currently designated by the United Nations as ''least developed countries'' (LDCs). The list is reviewed every three years by the Economic and Social Council (ECOSOC).

The criteria underlying the current list of LDCs are:
a. a low income, as measured by the gross domestic product (GDP) per capita;
b. weak human resources, as measured by a composite index (Augmented Physical Quality of Life Index) based on indicators of life expectancy at birth, per capita calorie intake, combined primary and secondary school enrollment, and adult literacy;

Afghanistan	Madagascar
Angola	Malawi
Bangladesh	Maldives
Benin	Mali
Bhutan	Mauritania
Burkina Faso	Mozambique
Burundi	Myanmar
Cambodia	Nepal

c. a low level of economic diversification, as measured by a composite index (Economic Diversification Index) based on the share of manufacturing in GDP, the share of the labour force in industry, annual per capita commercial energy consumption, and UNCTAD's merchandise export concentration index.	Cape Verde	Niger
	Central African Rep.	Rwanda
	Chad	Samoa
	Comoros	Sao Tome & Principe
Different thresholds are used for inclusion in, and graduation from, the list. A country qualifies to be added to the list of LDCs if it meets inclusion thresholds on all three criteria. A country qualifies for graduation from the list if it meets graduation thresholds on two of the three criteria. For the low-income criterion, the threshold on which inclusion in the current list is based has been a GDP per capita of $800, and the threshold for graduation has been a GDP per capita of $900. In its July 2000 review, in the light of recommendations by the Committee for Development Policy, ECOSOC declared the eligibility of Senegal for designation as an LDC (subject to the government so desiring) and decided to postpone until 2001 its consideration of Maldives' graduation.	Dem. Rep. of the Congo	Senegal
	Djibouti	Sierra Leone
	Eq.Guinea	Solomon Islands
	Eritrea	Somalia
	Ethiopia	Sudan
	Gambia	Togo
	Guinea	Tuvalu
	Guinea Bissau	Uganda
The criteria for determining the list of LDCs are under review. The Committee for Development Policy has recommended that the Economic Diversification Index be replaced by an Economic Vulnerability Index reflecting the main external shocks to which many low-income countries are subject, and incorporating the main structural elements of the countries' exposure to the shocks, including their smallness and lack of diversification.	Haiti	United Rep. Tanzania
	Kiribati	Vanuatu
	Lao People's Dem. Rep.	Yemen
	Lesotho Liberia	Zambia

Source: United Nations Conference on Trade and Development.