METHOD OF FREEZING THE GAP BETWEEN THE VALUE OF
PRIVATE SECTOR AND CIVIL SERVICE TOTAL PACKAGES

In paragraph 38 of this report reference is made to
a method of freezing the gap between the value of the total
packages of pay and benefits in the private sector and civil
service. The objective is to determine what adjustment should
be made to the pay trend indicators to ensure that the
difference between the value of the private sector and civil
service total pay packages in dollar terms will not be changed
as a result of a civil service pay award based on those
indicators. This involves a series of calculations, details
of which are given below.

Stage One

The first step is to calculate the initial value
of both private sector and civil service total packages,
broken down into pay, those fringe benefits which are
directly pay-related and those fringe benefits which
are not pay-related. Pay-related benefits are those
whose value increases automatically in line with pay,
e.g. retirement and death benefits and leave, while
non pay-related benefits are those whose value changes
independently of pay, e.g. housing, travel and education
benefits; only the former are directly affected by a
pay adjustment.

Private sector pay and pay-related benefits for this
purpose relate to the position as at the end of the
survey period but before the awards recorded in the
survey are granted. That is to say, pay is taken to be
the salary band mid-point and pay-related benefits
are those which are appropriate to that mid-point. Non
pay-related benefits are as valued at the end of the
survey period. For the civil service all benefits are
valued at the end of the survey period, immediately
before the pay award.

By subtracting the private sector package from the
civil service package, the difference in dollar value
between the two packages is arrived at. This is the gap
which is to be frozen.

Stage Two

Re-calculate the private sector package to take
account of pay awards during the survey period (which
will also affect pay-related benefits). This is done
by increasing private sector pay and pay-related benefits
by the percentage of the pay trend survey indicators.
The non pay-related benefits remain unchanged.

Stage Three

Re-calculate the civil service total package so that the overall increase is the same in dollar terms as the private sector overall increase (i.e. so that the gap remains unchanged). Express the package increase as a percentage to find the appropriate civil service percentage pay increase.

2.   The following example illustrates the calculations involved. Using the information on fringe benefits collected by the Pay Investigation Unit during the 1981/82 pay trend survey, valuing those benefits in accordance with the methodology employed by our consultants, and supposing a pay trend indicator of 15%, the percentage pay adjustment indicated for civil servants in the middle pay band in 1982 may be calculated as follows :

Stage One

	Pay	Pay-related Benefits	Non pay-related Benefits	Total Package
	$	$	$	$
Private sector package before pay increase	6,750* +	750	+ 335	= 7,835
Civil service package before pay increase	6,750* +	2,174	+ 20	= 8,944

*1981/82 middle pay band mid-point

.˙. The total package gap to be frozen is
$8,944 - $7,835 = $1,109

Stage Two

Private sector package after pay increase of 15%	7,763 +	862	+ 335	= 8,960

To calculate the percentage pay increase for the civil service, the following steps are then taken :

(a) The gap of $1,109 is added to the post-increase private sector total package ($8,960) to produce an indicated post-increase civil service total package of $10,069, which represents an increase of $1,125 over the pre-increase civil service total package ($8,944).

(b) This increase is then expressed as a percentage of civil service pre-increase pay and pay-related benefits :

$$\frac{\$1,125}{\$6,750 + \$2,174} \times 100\% = 12.61\%$$

Stage Three

This percentage is then applied to the pre-increase levels of civil service pay and pay-related benefits to produce the post-increase civil service package i.e.

	Pay	Pay-related Benefits	Non pay-related Benefits	Total Package
	$	$	$	$
Civil service package after pay increase of 12.61%	7,601 +	2,448	+ 20	= 10,069

∴ The total package gap remains unchanged, i.e. $10,069 - $8,960 = $1,109

The Formula Approach

3.   The modification of the pay trend indicators necessary to freeze the difference in value between the civil service and private sector total packages at the end of the survey period can also be calculated by means of the following formula approach :

Let P_1 = the pre-increase pay element for the civil service

P_2 = the post-increase pay element for the civil service

B_1 = the pre-increase pay-related benefits for the civil service

B_2 = the post-increase pay-related benefits for the civil service

b = non pay-related benefits for the civil service (no change before and after the increase)

T_1 = the pre-increase private sector total package

T_2 = the post-increase private sector total package

G = the gap between the civil service and private sector total packages before the increase

The two basic equations are :

$$P_2 + B_2 + b = T_2 + G \quad \dots\dots\dots\dots\dots\dots\dots (1)$$

and

$$\frac{P_2}{P_1} = \frac{B_2}{B_1} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

After re-arranging, (2) becomes

$$B_2 = \frac{P_2}{P_1} \times B_1 \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (3)$$

Substituting (3) into (1), we have

$$P_2 + (\frac{P_2}{P_1} \times B_1) + b = T_2 + G \quad \dots\dots\dots\dots\dots (4)$$

Re-arranging (4), we have

$$P_2 + \frac{P_2 B_1}{P_1} = T_2 + G - b$$

or

$$\frac{P_2 P_1 + P_2 B_1}{P_1} = T_2 + G - b$$

or

$$\frac{P_2 (P_1 + B_1)}{P_1} = T_2 + G - b$$

or

$$P_2 = (T_2 + G - b)(\frac{P_1}{P_1 + B_1}) \quad \dots\dots\dots\dots\dots (5)$$

To derive the pay trend indicator for the civil service award, adjusted to ensure that the gap remains unchanged, the following calculations are used :

$$\frac{P_2 - P_1}{P_1} \times 100\% \quad \text{gives the net percentage increase for civil service}$$

$$\text{or} \quad (\frac{P_2}{P_1} - 1) \times 100\% \quad \dots\dots\dots\dots\dots\dots\dots(6)$$

4.   This formula approach can be illustrated by using the same example as in paragraph 2.

Stage One : Pre-increase

	Pay	Pay-related Benefits	Non pay-related Benefits	Total Package
	$	$	$	$
Private sector package	6,750* +	750	+ 335	= 7,835 (=T_1)
Civil service package	6,750* +	2,174	+ 20	= 8,944

$$\therefore \; G \; = \$1,109$$

*1981/82 middle pay band mid-point

Stage Two : Post-increase Private Sector Package

	Pay	Pay-related Benefits	Non pay-related Benefits	Total Package
	$	$	$	$
	7,763[#] +	862	+ 335 (unchanged)	= 8,960 (=T_2)

#Increased by 15% in accordance with the pay trend indicator

Stage Three : Post-increase Civil Service Package

$$P_2 + B_2 + b = T_2 + G \qquad \text{(Equation 1)}$$

$$\text{or} \quad P_2 + B_2 = T_2 + G - b$$

To find P_2, use Equation 5

i.e. $P_2 = (T_2 + G - b) \; (\dfrac{P_1}{P_1 + B_1})$

$\therefore \; P_2 = (\$8,960 + \$1,109 - \$20) \times (\dfrac{\$6,750}{\$6,750 + \$2,174}) = \$7,601$

and $B_2 = (T_2 + G - b) - P_2$

$\therefore \; B_2 = (\$8,960 + \$1,109 - \$20) - \$7,601$

$\qquad = \$10,049 - \$7,601 = \$2,448$

The indicated percentage increase for the civil service, which would have ensured that the gap between the civil service and private sector total packages remained unchanged in 1982, would therefore have been :

$(\dfrac{P_2}{P_1} - 1) \times 100\% = (\dfrac{\$7,601}{\$6,750} - 1) \times 100\% = 12.61\% \; \dots \text{(Equation 6)}$