

Office of the Superintendent of Financial Institutions Canada  
Bureau du surintendant des institutions financières Canada

JUN 4 1991

OTTAWA

CANADA PENSION PLAN #1  
ACTUARIAL REPORT  
AS AT DECEMBER 31, 1969

Department of Insurance,  
Ottawa 8, Canada.

La version française de  
ce Rapport peut être  
obtenue sur demande.

CANADA PENSION PLAN

ACTUARIAL REPORT AS AT DECEMBER 31, 1969

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## CANADA PENSION PLAN

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### I. INTRODUCTION

In accordance with instructions this report has been prepared as at December 31, 1969. It is the first report pursuant to subsection (1) of section 116 of the Canada Pension Plan which provides that "the Chief Actuary of the Department of Insurance shall at least once in every 5 years prepare a report based on an actuarial examination of the operation of this Act and the state of the Canada Pension Plan Account ...".

Experience under the Plan since its inception on January 1, 1966, made it clear that because of unexpectedly high increases in general levels of remuneration, high participation rates and other less significant factors, the Canada Pension Plan Account was increasing at a substantially greater rate than could reasonably have been anticipated when the Plan was being developed in 1963 and 1964. It appeared desirable, therefore, to prepare projections which would make allowance for actual experience and significant trends that had become apparent over the last few years without waiting until after the completion of the first five years of operation.

Another reason for undertaking an early actuarial examination of the Plan was the intention of the Government to propose certain amendments to the Plan. The proposed amendments have been published in the White Paper entitled "Income Security for Canadians". Although a report on the probable effect of any amendments is required pursuant to subsection (2) of section 116 of the Canada Pension Plan only after a Bill is introduced in the House of Commons, it seemed appropriate to expand the current report to cover an examination of the probable financial effects of implementing the proposals contained in the White Paper.

The remainder of this report is divided as follows. Section II contains a summary of the main provisions of the Canada Pension Plan, section III presents a summary of the White Paper proposals, section IV outlines the principal assumptions underlying the financial estimates, sections V and VI contain estimates for the existing and proposed plans, respectively, and section VII presents comparative tables for the existing and proposed plans. Section VIII contains certain observations and conclusions, and is followed by an Appendix which sets out in more detail the bases of the population projections appearing in section IV.

Financial estimates have been prepared on two sets of economic assumptions which are referred to as "reasonable stability" and "moderate inflation" and are described in section IV.

Projections are shown for each year from 1970 to 1980, inclusive, and for each fifth year thereafter to the year 2000, inclusive, as provided in subsection (1) of section 116 of the Canada Pension Plan. The three types of projections shown in sections V, VI and VII are

- (a) amounts of benefits and expenses,
- (b) benefits and expenses expressed as percentages of contributory earnings, and
- (c) fund projections (including amounts of contributions and expenditures).

## II. MAIN PROVISIONS OF THE CANADA PENSION PLAN

### 1. Coverage

In general, the Canada Pension Plan which came into force on January 1, 1966, applies to virtually all paid members of the labour force in Canada (both employees and self-employed persons) between the ages of 18 and 70, other than persons in the province of Quebec who are covered by the Quebec Pension Plan. Persons with annual earnings less than the "basic exemption" are the main exception.

### 2. Definition of Terms Relating to Earnings

Four terms relating to the earnings of contributors that are used frequently in the remainder of this report are defined and described below.

#### Year's Maximum Pensionable Earnings (Y.M.P.E.)

"Year's Maximum Pensionable Earnings" for any year means the upper limit above which annual earnings are not subject to contributions.

For 1966 and 1967, the Y.M.P.E. was \$5,000. For the period 1968 to 1975, it is adjusted upward in steps of integral hundreds of dollars in accordance with increases in the "Pension Index". After 1975, the Y.M.P.E. will be adjusted (upward or downward) in steps of integral hundreds of dollars in accordance with changes in the "Earnings Index".

#### Year's Basic Exemption (Y.B.E.)

"Year's Basic Exemption" for any year means the amount of annual earnings below which earnings are not subject to contributions in that year. It is calculated as 12% of the Y.M.P.E. (rounded if necessary to the nearest lower multiple of \$100).

A person with salary and wages in any year greater than the Y.B.E. is required to contribute under the Plan on all earnings between the Y.B.E. and the Y.M.P.E.

A person with salary and wages lower than the Y.B.E. is required to contribute under the Plan, provided that the total of his self-employed earnings and salary and wages are about one-third (or more) greater than the Y.B.E. For example, for 1966, when the Y.B.E. was \$600 and the Y.M.P.E. was \$5,000, a person with salary and wages below \$600 was required to contribute on earnings between \$600 and \$5,000 provided that his total earnings were \$800 or more; if such a person had total earnings of less than \$800 he was not eligible to contribute under the Plan.

The Y.B.E. is subject to automatic adjustment in future years in the same way as the Y.M.P.E.

#### Contributory Earnings

"Contributory earnings" for any year means the earnings of a contributor falling between the contributory earnings limits, i.e., between the Y.B.E. and the Y.M.P.E. for that year. (These are the earnings on which contributions are based.)

#### Pensionable Earnings

"Pensionable earnings" for any year means all earnings of a contributor up to the Y.M.P.E., provided that required contributions have been made in that year, multiplied by the ratio that the average Y.M.P.E. for the year when a retirement pension becomes payable under the Act and for the two preceding years bears to the Y.M.P.E. for the year in which the contributions were made. (These are the earnings on which earnings-related benefits are based.)

### 3. Automatic Adjustment Features

Several elements of the Plan are subject to automatic adjustment in accordance with changes in a specified index. These elements include

- (a) the Year's Maximum Pensionable Earnings and, dependent thereon, pensionable earnings upon which all earnings-related benefits going into payment are based and the upper limit on the amount of death benefit,

- (b) the Year's Basic Exemption and, dependent thereon, the minimum amount of total earnings (including earnings from self-employment) necessary for a person with salary and wages below the Y.B.E. to contribute under the Plan,
- (c) the flat-rate component of a disability pension,
- (d) the flat-rate component of a widow's (or a disabled widower's) pension,
- (e) the flat-rate benefit for orphans and children of disabled contributors,
- (f) all monthly benefits in payment.

Annual adjustment of all elements subject to automatic adjustment, except the contributory earnings limits after 1975, depend on changes in the Pension Index constructed as described in the next following paragraph. Annual adjustment of the contributory earnings limits after 1975 will depend on changes in an Earnings Index constructed as described in the second following paragraph.

For 1967, the Pension Index was computed as the average of the Consumer Price Indexes for Canada for the twelve months ending with June, 1966. For 1968 and each following year, the Pension Index is computed as the average of the Consumer Price Indexes for the twelve months ending with June of the preceding year or 1.02 times the Pension Index for the preceding year, whichever is the lesser, except that the Pension Index for the preceding year is retained for the current year if the calculated increase is less than 1%. (It will be noted from the foregoing description that, for the Pension Index and, consequently, for all elements that depend for adjustment on that index, there can never be any downward adjustment; moreover, there cannot be any annual upward adjustment of less than 1% or more than 2%, except in the case of the contributory earnings limits before 1976 and elements dependent thereon, as a result of the rounding to the nearest lower multiple of \$100.)

The Earnings Index is computed as the average of employees' average annual earnings, determined by the Department of National Revenue,

for the eight consecutive years ending with the year two years prior to the year for which the Earnings Index is to apply, divided by the corresponding average for the first eight years of operation of the Plan.

#### 4. Earnings Test

Any retirement pension that commences at an age less than 70 is subject to the operation of an earnings test until age 70 is reached. The earnings test is such that the annual retirement pension of a contributor is reduced by \$1 for each \$2 of earnings in excess of approximately 18% of the Y.M.P.E. and is reduced further by \$1 for each \$2 of earnings in excess of approximately 30% of that limit.

#### 5. Retirement Pensions

A contributor may become entitled to a retirement pension at any age from 65 to 70. (A contributor in receipt of a disability pension on attainment of age 65 becomes entitled immediately to a retirement pension.) After a retirement pension becomes payable or, in any event, after age 70, a contributor is not eligible to contribute under the Plan. Thus, except for the operation of the "earnings test" and adjustment of the amount of pension in payment in accordance with changes in the Pension Index, the amount of pension is fixed at the time the pension first becomes payable.

In general, the initial amount of retirement pension payable to a contributor is based on the whole history of his Pensionable Earnings from January 1, 1966, or from age 18, if that age is attained after January 1, 1966, until the year in which his pension commences. Subject to the operation of the earnings test, "full" pensions will be available after December 31, 1975, when the transitional ten years end.

Retirement pensions in payment are subject to automatic adjustment in accordance with changes in the Pension Index.

A convenient formula for determining the initial amount of retirement pension involves the use of an "average earnings ratio", as follows:



Formula for Retirement Pension

Initial Amount of Annual Pension

This amount is equal to 25% of the average of the Y.M.P.E. for the three years ending with the year in which pension commences, multiplied by the "average earnings ratio" which is determined as follows:

<u>Date Pension Commences</u>	<u>Years in Contributory Period</u>	<u>Formula for Average Earnings Ratio</u>
Before 1976	irrelevant	Total of recorded "annual earnings ratios" divided by 10 less the number of years when disability pension payable
1976 & later		Average of a number of the highest "annual earnings ratios", such number being the <u>greater of</u>
	less than 10	(a) the number of years in the contributory period or (b) 10 less the number of years when disability pension payable
	10 or more	(a) 10 or (b) 85% of the years in the contributory period

The "annual earnings ratio" referred to above is the ratio of "unescalated pensionable earnings" to the Y.M.P.E. in a calendar year. Unescalated pensionable earnings for a year are the actual earnings of a contributor up to the Y.M.P.E., provided that required contributions have been made. (It should be noted that if no contributions are made during a calendar year, the "annual earnings ratio" for that year is zero; and for any year in which a contributor's earnings exceed the Y.M.P.E., the ratio is one.)

The "contributory period" for purposes of retirement pensions is the number of years from January 1, 1966, (or from attainment of age 18, if later), to age 65, less the number of years, if any, during which a disability pension is payable.

Examination of the above formula will make it clear that, in addition to the exclusion from the benefit calculations of the whole period during which a disability pension is payable, certain lowest recorded annual earnings ratios will normally be excluded from the benefit calculations by reason of contributions made after age 65 and by reason of the 15% "drop-out" provision; however, the drop-out must not reduce the total number of years to less than ten.

The following four examples are given to illustrate the operation of the benefit formula. For all examples, it is assumed that the Y.M.P.E., which was \$5,000 in 1966 and 1967 and has increased by \$100 for each subsequent year to 1970, will continue to increase in accordance with the "reasonable stability" assumptions described in section IV of this report.

- (a) Suppose that a person aged exactly 60 on January 1, 1966, has annual earnings of \$5,000 for each of the first five years and that he elects to have his pension commence immediately thereafter, that is, at age 65.

Initial amount of annual pension

= Average earnings ratio x average of the Y.M.P.E. for the three years ending with the year in which pension commences x 25 per cent,

$$= \frac{1}{10} \left( 2 \times \frac{5,000}{5,000} + \frac{5,000}{5,100} + \frac{5,000}{5,200} + \frac{5,000}{5,300} \right) \times$$

$$\frac{1}{3} (5,200 + 5,300 + 5,400) \times 0.25$$

$$= 0.4885 \times 5,300 \times 0.25$$

$$= \$647.26$$

- (b) Suppose that a person aged exactly 60 on January 1, 1966, has earnings of \$4,800 for each of the first three years, \$5,400 for each of the next three years and \$5,700 for each of the following four years and that he elects to have his pension commence at age 70.

Initial amount of annual pension

$$= \frac{1}{10} \left( 2 \times \frac{4,800}{5,000} + \frac{4,800}{5,100} + \frac{5,200}{5,200} + \frac{5,300}{5,300} + \frac{5,400}{5,400} + \frac{5,500}{5,500} + \right.$$

$$\left. \frac{5,600}{5,600} + \frac{5,700}{5,700} + \frac{5,700}{5,800} \right) \times \frac{1}{3} (5,700 + 5,800 + 6,100) \times 0.25$$

$$= 0.9844 \times 5,866.67 \times 0.25$$

$$= \$1,443.79$$

(c) Suppose that a person aged exactly 45 on January 1, 1966, had earnings of \$3,000 in 1966, that his earnings increased by \$240 each year after 1966 and will continue to do so up to and including the year in which he attains age 69, and that he elects to have his pension commence at age 70. The pertinent details relating to the calculation of his pension are shown in the schedule below.

<u>Year</u>	<u>Year's Maximum Pensionable Earnings</u> \$	<u>Age of Contributor</u>	<u>Unescalated Pensionable Earnings</u>	<u>Annual Earnings Ratio</u>
1966	5,000	45	3,000	0.6000
1967	5,000	46	3,240	0.6480
1968	5,100	47	3,480	0.6824
1969	5,200	48	3,720	0.7154
1970	5,300	49	3,960	0.7472
1971	5,400	50	4,200	0.7778
1972	5,500	51	4,440	0.8073
1973	5,600	52	4,680	0.8357
1974	5,700	53	4,920	0.8632
1975	5,800	54	5,160	0.8897
1976	6,100	55	5,400	0.8852
1977	6,400	56	5,640	0.8813
1978	6,700	57	5,880	0.8776
1979	7,000	58	6,120	0.8743
1980	7,300	59	6,360	0.8712
1981	7,600	60	6,600	0.8684
1982	7,900	61	6,840	0.8658
1983	8,200	62	7,080	0.8634
1984	8,500	63	7,320	0.8612
1985	8,800	64	7,560	0.8591
1986	9,100	65	7,800	0.8571
1987	9,400	66	8,040	0.8553
1988	9,700	67	8,280	0.8536
1989	10,100	68	8,520	0.8436
1990	10,400	69	8,760	0.8423
1991	10,800	70		

For this employee, the number of "highest" annual earnings ratios to be taken into account in calculating the average earnings ratio is 17 (that is, 85% of the number of years from age 45 to age 65).

Average earnings ratio

$$= \frac{14.7123}{17}$$

$$= 0.8654$$

Initial amount of annual pension

$$= 0.8654 \times \frac{1}{3} (10,100 + 10,400 + 10,800) \times 0.25$$

$$= \$2,257.25$$

- (d) Suppose that an immigrant who arrives in Canada in 1975 and commences work on January 1, 1976, is of exactly the same age and has exactly the same earnings history for the period from 1976 to 1986, inclusive, as the person described in (c) above, and that he elects to have his pension commence at age 66. For this contributor, the number of "highest" annual earnings ratios to be taken into account in calculating the average earnings ratio is also 17, but six of these annual earnings ratios must be zero since there is a record of pensionable earnings for only 11 years.

Average earnings ratio

$$= \frac{9.5646}{17}$$

$$= 0.5626$$

Initial amount of annual pension

$$= 0.5626 \times \frac{1}{3} (8,800 + 9,100 + 9,400) \times 0.25$$

$$= \$1,279.92$$

#### 6. Disability Pensions

A contributor aged less than 65, who becomes disabled within the meaning of the disability provisions of the Plan, is entitled to a disability pension, under the following conditions:

<u>Number of calendar years in contributory period</u>	<u>Number of calendar years for which contributions must have been made</u>
Less than 10	5
10 to 30	5 of last 10, and in total at least 1/3 of the number of calendar years in the contributory period
30 or more	5 of last 10, and in total at least 10

The "contributory period" for purposes of disability pensions is the number of years from January 1, 1966, (or from attainment of age 18, if later) to the date of commencement of the disability pension, except for any calendar years during the whole of which a disability pension was previously payable.

Disability pensions commence in the fourth month after the month of disablement and are payable until age 65 or until death or recovery from disability at an earlier age. Unlike retirement pensions, disability pensions are not subject to a gradual build-up to "full" benefits during the ten years ending December 31, 1975.

Disability pensions in payment like retirement pensions are subject to automatic adjustment in accordance with changes in the Pension Index.

The amount of pension payable is composed of two parts, namely, a flat-rate part depending initially only on the year in which the disability pension commences, and an earnings-related part depending initially only on the pensionable earnings record of the contributor to the date of commencement of the disability pension. The initial flat-rate part is determined as \$25 per month adjusted in accordance with changes in the Pension Index from 1967 to the year in which the disability pension commences. (For example, the initial flat-rate is \$26.53 for pensions commencing in 1970, which is the first year in which disability pensions are payable.) The initial earnings-related part is equal to 75% of an earnings-related pension calculated in the manner described earlier for retirement pensions, except that the contributory period ends at the date of commencement of the disability pension and that, both before and after December 31, 1975, the number of years to be taken into account in determining the "average earnings ratio" is as follows:

<u>Years in Contributory Period</u>	<u>Number of highest "annual earnings ratios" used in calculating average earnings ratio</u>
Less than 10	years in contributory period
10 or more	greater of 10 or 85% of the number of years in contributory period

The following three examples are given to illustrate the determination of the initial amount of a disability pension. For all examples, it is assumed that the Y.M.P.E., which was fixed at \$5,000 for 1966 and 1967 and increased by \$100 for each subsequent year to 1970, will continue to increase in accordance with the "reasonable stability" assumptions described in section IV of this report, and that the flat-rate component of the disability pension which has increased from \$25.00 by 2% for each year after 1967, will also continue to increase after 1970 in accordance with the "reasonable stability" assumptions.

- (a) Suppose that a person aged exactly 55 on January 1, 1966, has annual earnings of \$5,000 for each year from 1966 to 1972, inclusive, and that a disability pension becomes payable to him in January, 1973.

Initial amount of annual pension

$$\begin{aligned} &= 28.15 \times 12 + 0.75 \left\{ \frac{1}{7} \left( 2 \times \frac{5,000}{5,000} + \frac{5,000}{5,100} + \frac{5,000}{5,200} + \frac{5,000}{5,300} + \right. \right. \\ &\quad \left. \left. \frac{5,000}{5,400} + \frac{5,000}{5,500} \right) \times \frac{1}{3} (5,400 + 5,500 + 5,600) \times 0.25 \right\} \\ &= 337.80 + 990.00 \\ &= \$1,327.80 \end{aligned}$$

- (b) Suppose that a person aged exactly 45 on January 1, 1966, has the same history of earnings from 1966 to 1980, inclusive, and, consequently, the same annual earnings ratios for those years, as the person described in example (c) for retirement pensions above and that a disability pension becomes payable to him in January, 1981. For this contributor, the number of "highest" annual earnings ratios to be taken into account in calculating the average earnings ratio for the earnings-related part of his pension is 12.75 (that is, 85% of the number of years from age 45 to age 60).

Average earnings ratio

$$\begin{aligned} &= \frac{10.5377}{12.75} \\ &= 0.8265 \end{aligned}$$

Initial amount of annual pension

$$\begin{aligned} &= 33.00 \times 12 + 0.75 \left( 0.8265 \times \frac{1}{3} (7,000 + 7,300 + 7,600) \times 0.25 \right) \\ &= 396.00 + 1,131.27 \\ &= \$1,527.27 \end{aligned}$$

- (c) Suppose that a person aged exactly 18 on January 1, 1976, has annual earnings of \$3,000 in 1976 increasing by \$300 each year to 1980, inclusive, and that a disability pension becomes payable to him in January, 1981.

Initial amount of annual pension

$$\begin{aligned} &= 33.00 \times 12 + 0.75 \left\{ \frac{1}{5} \left( \frac{3,000}{6,100} + \frac{3,300}{6,400} + \frac{3,600}{6,700} + \frac{3,900}{7,000} + \right. \right. \\ &\quad \left. \left. \frac{4,200}{7,300} \right) \times \frac{1}{3} (7,000 + 7,300 + 7,600) \times 0.25 \right\} \\ &= 396.00 + 732.83 \\ &= \$1,128.83 \end{aligned}$$

In addition to the normal disability pension described above, benefits may be payable to the children of disabled contributors.

#### 7. Benefits to Children of Disabled Contributors

An unmarried child of a disabled male contributor or a disabled female contributor who wholly or substantially maintained the child at the time she became disabled is entitled to a benefit provided the child

- (i) is under age 18, or
- (ii) is aged 18 or over but under age 25 and has been attending school substantially without interruption since attainment of age 18 or the time of the contributor's disability, whichever occurred later.

The initial amount of pension payable in respect of each of the first four children is equal to the initial flat-rate benefit payable to the disabled contributor (i.e., \$25 per month adjusted in accordance with changes in the Pension Index from 1967 to the year in which the disability pension commences); one-half that amount is payable in respect of each child in excess of four. However, only one child's benefit is payable in respect of each child, even if both parents are disabled contributors.

8. Survivors' Benefits

(a) General

A widow, a "dependent" disabled widower or an orphan may become entitled to a survivor's pension. For entitlement to such a pension, the deceased contributor must have made contributions during the lesser of

- (i) ten calendar years, or
- (ii) one-third of the number of calendar years in which contributions could have been made, but not less than three years.

By the expression "calendar years in which contributions could have been made" is meant all calendar years after 1965 or from age 18, if that age is attained after 1965, to the date of death if death occurs before age 65 or, otherwise, to the later of attainment of age 65 or cessation of contributions, except for any calendar years during the whole of which a disability pension was payable.

A widow aged less than 65 may become entitled to a widow's pension by reason of having dependent children, being disabled or simply being over age 35 at widowhood. The amount of pension payable to a widow who becomes entitled to a widow's pension for more than one reason is the largest to which she is entitled for any one of such reasons.

A widow (or a disabled widower) may become entitled to both a survivor's pension and either a disability pension or a retirement pension. However, the total annual amount of the two pensions cannot initially exceed an amount equal to 25% of the average of the Y.M.P.E. for the three years ending with the year in which the later of the two pensions commences (that is, except in the transitional period ending December 31, 1975, an amount equal to the maximum retirement pension applicable for that year).

A widow's (or a disabled widower's) pension is suspended during any period of remarriage.



Like disability pensions and unlike retirement pensions, survivors' pensions are not subject to a gradual build-up to "full" benefits during the ten years ending December 31, 1975.

Survivors' benefits in payment like retirement and disability pensions are subject to automatic adjustment in accordance with changes in the Pension Index.

(b) Widows' Pensions

(i) Definition of "widow with dependent children"

A "widow with dependent children" means a widow who wholly or substantially maintains an unmarried child of the deceased contributor, where the child is

- A. under age 18,
- B. aged 18 or over but under age 25 and has been attending school substantially without interruption since attainment of age 18 or the time of the contributor's death, whichever occurred later, or
- C. aged 18 or over and is disabled, having been disabled without interruption since attainment of age 18 or the time of the contributor's death, whichever occurred later.

(ii) Widows aged between 45 and 65 at widowhood

A widow aged between 45 and 65 at the death of her "contributor" husband is entitled to a widow's pension, whether or not she has dependent children or is disabled.

The amount of pension payable is composed of two parts, namely, a flat-rate part depending initially only on the year of death of the contributor and an earnings-related part depending initially only on the pensionable earnings record of the contributor to the date of his death. The flat-rate part is determined as \$25 per month adjusted in accordance with changes in the Pension Index from 1967 to the year in which the death of

the contributor occurs. The initial earnings-related part is equal to  $37\frac{1}{2}\%$  of an earnings-related pension based on the contributor's pensionable earnings record, calculated as at the date of the contributor's death or commencement of his age retirement pension, whichever is the earlier, except that, in the latter case, the calculated pension is adjusted in accordance with changes in the Pension Index from the year in which the contributor's age retirement pension became payable to the year of his death. In general, the amount of the contributor's earnings-related pension is calculated in the manner described earlier for retirement pensions, except that the "contributory period" ends at the date of death or at age 65, whichever is the earlier, and that, both during and after the ten-year transitional period ending December 31, 1975, the number of years to be taken into account in determining the "average earnings ratio" is,

- A. if the number of years in the contributory period is less than ten, the number of years in the contributory period, or
- B. if the number of years in the contributory period is ten or more, the greater of ten or 85% of the number of years in the contributory period.

(iii) Widows aged less than 45 at widowhood, without dependent children and not disabled

A widow without dependent children and not disabled, aged 35 or less at the death of her "contributor" husband, is not entitled to a widow's pension.

A widow without dependent children and not disabled, aged more than 35 but less than 45 at the death of her "contributor" husband, is entitled to an amount of pension, calculated as described in (ii) above, reduced by  $1/120$ th of such amount for each month that her age, at the date of death of the contributor, is less than 45.

(iv) Widows aged less than 45 at widowhood,  
with dependent children

A widow aged less than 45 at the death of her "contributor" husband, with dependent children, is entitled to a widow's pension calculated as described in (ii) above.

If a widow in receipt of a widow's pension is aged less than 45 and not disabled at the time she ceases to be a "widow with dependent children", the amount of her pension is discontinued or reduced in the manner described in (iii) above in accordance with her age at the time she ceased to be a "widow with dependent children" except that, for the purpose of determining such age, a non-disabled child attending school after age 18 is deemed not to be a child.

(v) Disabled widows

A widow aged less than 65 is entitled to a disabled widow's pension, if she either is disabled at the date of death of the contributor or becomes disabled at a later date.

The disabled widow's pension is payable from the month following the month in which the contributor dies or from the month following the month in which the widow is disabled, whichever is the later. The initial amount of pension is calculated as described in (ii) above, except that, in the case where the widow becomes disabled subsequent to the death of the contributor, the pension so calculated is adjusted in accordance with changes in the Pension Index from the year in which the contributor died to the year in which disability occurs. The calculated initial amount of pension is subject to the limitation on the maximum initial amount payable in respect of dual pensions, as explained in (a) above.

(vi) Widows aged 65 or over

At age 65, or upon widowhood at a later age, a widow who is not then in receipt of an age retirement pension or to whom such a pension does

not become immediately payable, is entitled to an amount of pension equal to 60% of an earnings-related pension\* based on the pensionable earnings record of her "contributor" husband.

At the time that a widow becomes entitled to both a widow's pension and a retirement pension or to either one if she is then in receipt of the other, the total amount of pension is equal to the greater of

- A. 60% of the widow's own retirement pension plus 60% of an earnings-related pension\* based on the pensionable earnings record of her "contributor" husband, or
- B. 100% of the widow's own retirement pension plus 37½% of an earnings-related pension\* based on the pensionable earnings record of her "contributor" husband,

subject to the limitation on the maximum initial amount payable in respect of dual pensions, as explained in (a) above.

(c) Disabled Widowers' Pensions

A widower of any age who was wholly or substantially maintained by his "contributor" wife before her death is entitled to a disabled widower's pension, if he is disabled at the time of death of the contributor.

The initial amount of pension payable to a disabled widower aged less than 65 is determined in the manner described for widows' pensions in (b)(ii) above. The initial amount of pension payable to a disabled widower at age 65 or after is determined in the manner described for widows' pensions in (b)(vi) above.

(d) Orphans' Benefits

The provision for orphans' benefits are analogous to those described earlier for children of disabled contributors.

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\* An earnings-related pension, calculated as described in (ii) above, adjusted, where applicable, in accordance with changes in the Pension Index from the year in which the contributor died to the year in which the widow attains age 65 or the year in which a retirement pension becomes payable to her while she is in receipt of a widow's pension.

For purposes of orphans' benefits, an "orphan" means an unmarried child of a deceased male contributor or of a deceased female contributor who wholly or substantially maintained the child immediately before her death, where the child is

- (i) under age 18, or
- (ii) aged 18 or over but under age 25 and has been attending school substantially without interruption since attainment of age 18 or the time of the contributor's death, whichever occurred later.

The initial amount of pension payable in respect of each of the first four orphans is \$25 per month adjusted in accordance with changes in the Pension Index from 1967 to the year of death of the contributor; one-half that amount is payable in respect of each orphan in excess of four. However, only one orphan's benefit is payable in respect of each child, even if both deceased parents were contributors.

#### 9. Death Benefits

A lump-sum benefit is payable to the estate of a deceased contributor who made contributions in at least the minimum number of calendar years required for entitlement to a survivor's benefit.

The amount of benefit is equal to,

- (a) in respect of a contributor to whom a retirement pension was not payable at the time of death, one-half of the annual amount of an earnings-related pension calculated in the manner described for retirement pensions, except that the deceased contributor's contributory period ends at the date of death or at age 65, whichever is the earlier, and that there is no reduction by reasons of death occurring within the ten-year transitional period ending December 31, 1975, or
- (b) in respect of a contributor to whom a retirement pension was payable at the time of death, one-half of the annual amount of pension payable in the year of death, adjusted to exclude any reduction that may have arisen by reason of commencement of pension within the ten-year transitional period ending December 31, 1975.

subject to the limitation that the amount of benefit cannot exceed 10% of the Y.M.P.E. applicable in the year of the contributor's death.

10. Contributions

No person who is under age 18 or over age 70, who has earnings less than the minimum required for contribution purposes or who is in any specifically excluded class is eligible to contribute under the Plan. Also, no contributor to whom a retirement pension or a disability pension is payable is eligible to contribute.

For persons eligible to contribute under the Plan, contributions in any year are required in respect of all earnings between the basic exemption and the maximum pensionable earnings for that year.

The rate of contribution as respects earnings subject to contributions which has been in effect since the inception of the Plan is 1.8% of salary and wages for each of employees and their employers and 3.6% of self-employed earnings.

III. SUMMARY OF 1970 WHITE PAPER PROPOSALS

1. The Year's Maximum Pensionable Earnings (upper contributory earnings limit) is to be increased as follows:

<u>Year</u>	<u>Existing Plan</u>	<u>Proposed Plan</u>
1972	\$5,500	\$5,500
1973	5,600	6,300
1974	5,700	7,100
1975	5,800	7,800

After 1975, the provision for increases in accordance with the Earnings Index is to be retained.

2. Effective January 1, 1973, the levels of certain benefits are to be changed and certain new benefits are to be introduced as indicated below. Moreover, all pensions on which payments commenced in 1972 or earlier are to be adjusted to reflect the new levels of benefit in January 1973, provided the pensions are still in payment at that time. (Adjustments in accordance with the Pension Index are to be continued.)

3. Disability pensions are to be increased as follows:

- (a) the flat-rate portion is to be increased to \$80 per month (under the existing plan it would be \$28.15) and is to be continued after attainment of age 65 but reduced by the Old Age Security benefit;
- (b) the earnings-related portion is to be increased from 75% to 100% of an earnings-related pension.

4. For wives of disabled contributors who have children entitled to benefits, a wife's pension of \$80 per month is to be provided up to age 65, but this pension would not be payable to a person entitled to a disability pension.

5. The pension to children of disabled contributors are not to be discontinued solely because the contributor attains age 65.

6. Pensions to widows and disabled widowers are to be increased as follows:

- (a) the flat-rate portion is to be increased to \$80 per month (under the existing plan it would be \$28.15) and is to be continued after attainment of age 65 but reduced by the Old Age Security benefit;
- (b) the earnings-related portion is to be increased to 75% of a pension related to the spouse's contributory earnings (under the existing plan the corresponding percentage is 37½% for beneficiaries below age 65 and 60% for beneficiaries aged 65 and over);
- (c) although not specified in the White Paper, it is understood that the total amount of pension payable to a person entitled to a widow's or disabled widower's pension as well as a retirement or disability pension is to be equal to
  - (i) the larger plus one-half of the smaller of the two earnings-related benefits, subject to an outside maximum equal to the maximum retirement pension payable in the year in which entitlement to the second pension becomes effective (ignoring reductions made during the transitional period ending December 31, 1975, as is the case under the existing plan), plus
  - (ii) a flat-rate benefit equal to \$80 per month reduced, upon attainment of age 65, by the Old Age Security benefit.

7. The Year's Basic Exemption is to be fixed at \$600.



IV. PRINCIPAL ASSUMPTIONS UNDERLYING FINANCIAL ESTIMATES

1. General

The various assumptions necessary in preparing projections for a programme such as the Canada Pension Plan may be largely divided into two types - demographic and economic. Since the assumptions do not lend themselves to precise forecasts, it suggests itself that a reasonable range could be established for the two types of assumptions, and projections could be prepared for all combinations of low and high cost demographic and economic assumptions. As none of the four resulting combinations could be rejected as unreasonable, such an approach would necessitate a minimum of four sets of projections for both the existing and the proposed plan.

In view of the obvious compounding of difficulties that a set of four projections would produce for any decision-making process, it appeared desirable to reduce the number of alternative sets of projections to two and to make the range as narrow as could reasonably be justified. As the dramatic reduction in birth rates in recent years and the apparently remote likelihood of a return to higher levels seemed to have removed one of the principal reasons for preparing estimates on two sets of demographic assumptions, it was decided to adopt one set of what might be considered as reasonably realistic demographic assumptions, but to prepare financial estimates based on two sets of economic assumptions.

2. Economic Assumptions

For purposes of making projections for the existing plan as well as for purposes of measuring the impact of the proposed amendments, two significantly different sets of economic assumptions were chosen. These are referred to as "reasonable stability" and "moderate inflation" and have the following characteristics:

	Annual Increase in Average Earnings %	Annual Increase in Consumer Price Index %	Effective Annual Rate of Interest on New Investments* %
<u>(A) Reasonable Stability</u>			
1970	6.5	4.0	8.0
1971	5.9	3.4	7.3
1972	5.3	2.8	6.6
1973	4.7	2.2	5.9
1974	4.1	1.6	5.2
1975 and later	3.5	1.0	4.5
<u>(B) Moderate Inflation</u>			
1970	6.5	4.0	8.0
1971	6.3	3.8	7.7
1972	6.1	3.6	7.4
1973	5.9	3.4	7.1
1974	5.7	3.2	6.8
1975 and later	5.5	3.0	6.5

\* Pursuant to sections 111 to 113 of the Canada Pension Plan, funds are invested in provincial obligations at interest rates comparable to the average yield on outstanding Government of Canada obligations of comparable maturity. The term to maturity is 20 years or such lesser period as may be fixed by the Minister of Finance for purposes of liquidity.

### 3. Population Projections

The table below shows census and projected populations for selected years for Canada excluding Quebec. The projections were used as a basis for the financial estimates. More detailed tables and the bases of derivation are given in the Appendix.

#### Census and Projected Populations for Canada excluding Quebec

Middle of Year	(in thousands)			Birth Rate per 1,000	% Proportion of population aged 65 and over to population aged 20 to 64
	Males	Females	Total		
1921	3,350	3,077	6,427	26.3	9.1
1931	3,928	3,574	7,502	20.9	10.8
1941	4,228	3,947	8,175	20.6	12.7
1951	5,067	4,887	9,954	26.1	15.5
1961	6,587	6,392	12,979	26.1	16.4
1966	7,168	7,066	14,234	19.5	16.7
1970	7,590	7,523	15,113	17.2	16.5
1975	8,100	8,081	16,181	17.1	16.4
1980	8,716	8,736	17,452	18.3	16.6
1985	9,413	9,461	18,874	18.3	16.9
1990	10,125	10,198	20,323	17.0	18.1
1995	10,811	10,906	21,717	15.6	19.1
2000	11,481	11,597	23,078	15.2	19.0

### 4. Participation Rates

These rates are required for purposes of estimating the number of contributors and beneficiaries and were derived from a comparison of the records of contributors for 1966 and 1967 with populations from the 1966 census and projections for 1967. In the case of females in age group 25 to 64 some provision was made for the trend toward higher participation in the labour force.

While it is recognized that average rates of participation have been decreasing both below age 20 and in the early twenties because of the increasing trend toward continued education, it was felt that the effect of this factor would be largely reflected in the lower average earnings at these ages.

The element of unemployment was not introduced explicitly into the calculations. The effect of unemployment is, of course, reflected in average earnings, and variation in unemployment was not thought to have a significant effect on the financial projections. The rates used are shown below.

#### (a) Participation Rates for Existing Plan

Age Group	Females			
	Males %	to 1974 %	1975-84 %	1985 & later %
18-19	65	46	46	46
20-24	100	66	66	66
25-29	100	44	48	52
30-34	100	36	40	44
35-49	93	36	40	44
50-59	87	36	40	44
60-64	78	25	28	31
65-69	53	13	13	13

(b) Participation Rates for Proposed Plan

<u>Males</u>			<u>Females</u>			
<u>Age Group</u>	<u>to 1984</u> %	<u>1985 &amp; later</u> %	<u>Age Group</u>	<u>to 1974</u> %	<u>1975-84</u> %	<u>1985 &amp; later</u> %
<u>Reasonable Stability</u>						
18-19	65	68	18-19	46	49	53
20-34	100	100	20-24	66	68	71
35-49	93	94	25-29	44	50	56
50-59	87	88	30-59	36	41	47
60-64	78	79	60-64	25	29	33
65-69	53	54	65-69	13	13	14
<u>Moderate Inflation</u>						
18-19	65	68	18-19	46	50	55
20-34	100	100	20-24	66	69	73
35-49	93	94	25-29	44	50	57
50-59	87	88	30-59	36	42	48
60-64	78	79	60-64	25	29	34
65-69	53	54	65-69	13	13	14

The rates for the proposed plan are seen to increase gradually relative to those for the existing plan, as a result of holding the Year's Basic Exemption constant at \$600. Moreover, the increases are slightly greater on the "moderate inflation" assumptions than on the "reasonable stability" assumptions, although for males this factor does not appear significant.

5. Modified Average Earnings

For purposes of estimating contributions and pensionable earnings on which earnings-related benefits are based, modified average earnings were developed which could be applied to the participating populations. Modified average earnings take account only of earnings up to the Year's Maximum Pensionable Earnings and ignore all earnings of persons who are precluded from participation because their earnings are below the required minimum. Sample values of modified average earnings based on a study of contributors for 1966 and 1967 are shown below:

<u>Modified Average Earnings</u>						
<u>(A) Reasonable Stability Assumptions</u>						
<u>Age Group</u>	<u>Year</u> <u>Y.M.P.E.</u>	<u>Existing Plan</u>			<u>Proposed Plan</u>	
		<u>1970</u>	<u>1985</u>	<u>2000</u>	<u>1985</u>	<u>2000</u>
<u>Males</u>						
18-19		2,466	4,352	7,271	4,222	6,966
20-24		3,917	6,732	11,246	7,363	12,236
25-34		4,709	7,908	13,209	9,733	16,220
35-49		4,815	8,057	13,459	10,101	16,878
50-59		4,632	7,777	12,992	9,591	16,042
60-64		4,380	7,401	12,363	8,810	14,711
65-69		3,795	6,514	10,881	7,163	11,931
<u>Females</u>						
18-19		1,972	3,428	5,727	3,203	5,053
20-24		3,085	5,320	8,889	5,319	8,597
25-29		3,446	5,919	9,887	6,044	9,825
30-59		3,371	5,769	9,637	5,966	9,694
60-64		3,388	5,797	9,684	6,037	9,813
65-69		2,978	5,141	8,588	5,119	8,272

(B) Moderate Inflation Assumptions

<u>Age Group</u>	<u>Year</u>	<u>Existing Plan</u>			<u>Proposed Plan</u>	
		<u>1970</u>	<u>1985</u>	<u>2000</u>	<u>1985</u>	<u>2000</u>
		<u>Y.M.P.E.</u>	\$5,300	\$10,100	\$22,600	\$13,600
<u>Males</u>						
18-19		2,466	5,527	12,367	5,372	11,783
20-24		3,917	8,078	18,075	9,117	20,198
25-34		4,709	9,213	20,616	11,582	25,749
35-49		4,815	9,349	21,919	11,949	26,576
50-59		4,632	9,052	20,254	11,416	25,384
60-64		4,380	8,680	19,422	10,638	23,621
65-69		3,795	7,819	17,497	8,859	19,663
<u>Females</u>						
18-19		1,972	4,268	9,551	4,026	8,330
20-24		3,085	6,502	14,550	6,604	14,166
25-29		3,446	7,145	15,987	7,477	16,148
30-59		3,371	6,953	15,558	7,374	15,930
60-64		3,388	6,985	15,630	7,420	16,069
65-69		2,978	6,272	14,035	6,346	13,631

6. Contributions and Expenses of Administration

- (a) Subject to (b), contributions at the rate of 3.6% of all contributory earnings were assumed throughout for purposes of the fund projections, except for the illustrative modifications in Table 10 (section VIII).
- (b) The amounts of contributions estimated in accordance with all basic assumptions were adjusted upward to allow for contributions in excess of 3.6% because of overpayments.
- (c) Costs of administration were assumed to be at the level of 0.1% of contributory earnings.

7. Retirement Benefits

- (a) For the period 1970 to 1974 it was assumed that
  - (i) a person who did not commence to contribute on January 1, 1966, or who ceased to contribute after that date will not subsequently contribute;
  - (ii) the probabilities of being a contributor at pertinent ages are as follows:

<u>Age Last Birthday</u>	<u>Males</u>	<u>Females</u>
56-59	0.87	0.36
60-64	0.78	0.25
65	0.73	0.18
66	0.57	0.14
67	0.52	0.12
68	0.44	0.10
69	0.36	0.08

- (iii) a worker will elect to take his pension as soon as possible after ceasing to contribute.

(b) For the period beginning in 1975 it was assumed that

- (i) the effect of the "15% drop-out" provision would be zero for females and one-half its maximum value for males,
- (ii) the proportion of available benefits not payable between ages 65 and 70 because of delayed retirement or the earnings test would be 50% for males and 25% for females.

**8. Disability Benefits**

(a) The assumed proportions of total populations insured for disability benefits under the existing plan were as shown in the table below. Very slightly higher proportions were assumed for purposes of the proposed plan.

Proportions of Total Population  
Insured for Disability Benefits  
(Existing Plan)

	<u>22-24</u> %	<u>25-29</u> %	<u>30-34</u> %	<u>35-39</u> %	<u>40-54</u> %	<u>55-59</u> %	<u>60-64</u> %
Males	40	95	95	95	90	85	85
Females							
1975	20	45	40	35	35	35	30
1980 and 1985	20	50	45	40	40	40	35
1990 and later	20	55	50	45	45	45	40

(b) Disability prevalence rates were assumed in accordance with the table below:

Disability Prevalence Rates  
(Males and Females)

<u>Age Group</u>	<u>1975</u> %	<u>1980</u> %	<u>1985</u> %	<u>1990</u> %	<u>1995</u> %	<u>2000</u> %
22-24	0.05	0.05	0.05	0.05	0.05	0.05
25-29	0.12	0.14	0.14	0.14	0.14	0.14
30-34	0.30	0.36	0.38	0.38	0.38	0.38
35-39	0.50	0.62	0.68	0.70	0.70	0.70
40-44	0.82	1.00	1.08	1.13	1.15	1.15
45-49	1.17	1.45	1.57	1.64	1.67	1.69
50-54	2.19	2.73	2.96	3.08	3.15	3.18
55-59	3.54	4.46	4.82	4.98	5.08	5.13
60-64	6.14	8.09	8.74	9.02	9.21	9.30

(c) For purposes of estimating amounts of earnings-related benefits

- (i) it was assumed that earnings of disability pensioners were equal to the following percentages of earnings of disabled contributors generally

<u>Males</u>	<u>Females</u>		
	<u>1975</u>	<u>1980 and 1985</u>	<u>1990 and later</u>
95%	70%	75%	80%

(ii) for the existing plan all benefits in payment in a given year were assumed to be at the level of payments emerging in that year;

(iii) for the proposed plan all benefits in payment in a given year were calculated so as to bear a proper ratio to all benefits in payment for the existing plan.

9. Pensions to Children of Disabled Contributors

- (a) The "proportions insured for disability benefits" and the "disability prevalence rates" used for disability benefits, and the "distributions of fathers of new born children" used for orphans' benefits, were assumed to be applicable.
- (b) No specific provision was made for payment of benefits beyond age 18 or for payments to children of female contributors.
- (c) All children under age 18 of male disability pensioners were assumed to be entitled to benefits (i.e., no reduction was made for an aggregate number of children in excess of four, or for termination of benefits because of marriage of children).
- (d) Under the proposed plan, benefits will be payable in respect of children of contributors over age 65 who were in receipt of a disability pension immediately prior to age 65 and who continue to satisfy the disability test. This was ignored.

10. Pensions to Wives of Disabled Contributors (Proposed Plan)

- (a) The "proportions insured for disability" and the "disability prevalence rates" used for disability benefits were assumed to be applicable.
- (b) Proportions of females married by age and relative age distributions of husbands and wives were derived from 1961 census data.
- (c) Ratios of husband-wife families with children to total husband-wife families, by age of husband, were derived from 1966 census data.
- (d) It was assumed that the proportion of wives who would be disqualified from receiving wives' benefits by reason of the earnings test would be somewhat greater than female participation rates on the theory that wives of disability pensioners are more likely to engage in remunerative employment than females in general.

11. Widows' and Disabled Widowers' Benefits

- (a) No direct provision was made for benefits to dependent disabled widowers.
- (b) The effect of ineligibility for benefits because of an insufficient number of years of contributions was ignored.
- (c) Reductions or suspensions of pensions to widows below age 45 at widowhood were disregarded.
- (d) No reduction was made below age 65 for widows entitled to disability pension as well as widow's pension.

- (e) Proportions of male participants married were derived from the 1961 census with some allowance for expected improvement in female mortality. Sample values are as follows:

Proportions Married

<u>Age</u>	<u>1970</u>	<u>2000</u>
20-24	30	30
25-29	70	70
30-34	82	82
40-44	88	88
50-54	87	88
60-64	82	85
70-74	74	80
80-84	55	62

- (f) Relative age distributions of husbands and wives were derived from 1961 census data.
- (g) Rates of remarriage were assumed in accordance with the rates described in the paper "Remarriage Experience under the Pension Act of Canada" (Transactions of the Society of Actuaries, Volume XII).
- (h) A final adjustment factor of 0.9 was applied to total widows' benefits calculated in accordance with the foregoing assumptions to allow for lighter mortality among married than unmarried males and heavier mortality among widows (without dependent children) than among females generally.

12. Orphans' Benefits

- (a) The distributions of fathers of new born children by age was based on data from Vital Statistics for 1958 to 1962.
- (b) No specific provision was made for payments of benefits beyond age 18 or for payments to children of female contributors.
- (c) All children under age 18 of males who died after January 1, 1968, were assumed to be entitled to benefits (i.e., no reduction was made for uninsured males, for an aggregate number of orphans in excess of four, or for termination of benefits because of marriage of orphans).

13. Recognition of Experience Statistics

Because of the considerable uncertainty regarding the proportions of eligible beneficiaries who apply for benefits, it was decided to disregard the substantial gap which appeared to exist between projections and probable expenditures for benefits in 1970 and perhaps 1971.

On the other hand, rather high credibility was given to contribution statistics, and the substantial excess of contributions actually received over contributions expected on the basis of unadjusted projections was used for purposes of deriving adjustments to allow for overpayments.

V. ESTIMATES FOR EXISTING PLAN

This section contains the following tables:

	<u>Reasonable Stability*</u>	<u>Moderate Inflation*</u>
Benefits and expenses of administration	Table 1A	Table 1B
Benefits and expenses as percentages of contributory earnings	" 2A	" 2B
Fund projections	" 3	" 3

For greater ease of comparison with corresponding tables in section VI (relating to the proposed plan) an unnecessary column headed Wives' Pensions is shown in Tables 1A, 1B, 2A and 2B.

A comparison of Tables 2A and 2B indicates that the effect of relatively inflationary conditions is rather small from the point of view of costs expressed as percentages of contributory earnings. However, Table 3 shows that relatively higher rates of increases in earnings combined with higher rates of interest can have a highly significant effect on the accumulation of funds during the period before the benefit load becomes relatively mature.

By the year 2000 the accumulated fund is estimated to be at the level of \$22 billion and declining, on the "reasonable stability" assumptions, as against a level of \$45 billion and still increasing, on the "moderate inflation" assumptions. About that time the excess of expenditures over contributions is estimated to be at the level of \$1.5 billion on both sets of economic assumptions; however, interest earnings at that time are estimated at about \$1.0 billion on "reasonable stability" and about \$2.9 billion on "moderate inflation" assumptions.

Costs expressed as percentages of contributory earnings are estimated to rise to between 4.46% (moderate inflation) and 5.00% (reasonable stability) by the year 2000. As explained in more detail in section VIII, costs may well lie below or above this range, and it may be anticipated that they would continue to rise gradually for another generation.

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\*. See page 23 for details.



Table 1A

Benefits and Expenses of Administration  
(in millions of dollars)

Existing Plan

"Reasonable Stability" assumptions\*

Calendar Year	Retirement Pensions	Disability Pensions				Widows' Pensions		Orphans' Benefits	Death Benefits	Expenses of Administration	Total
		Flat Rate	Earnings Related	Children's Benefits	Wives' Pensions	Flat Rate	Earnings Related				
	(1)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(4)	(5)	(6)	(7)
1970	33.4	3.2	6.4	2.4	Nil	12.4	18.8	10.6	11.3	21.9	120.4
1971	52.4	14.3	28.0	10.7	"	17.7	27.7	16.0	13.3	23.2	203.3
1972	77.6	16.3	32.2	12.0	"	23.2	37.4	21.6	15.4	24.4	260.1
1973	108.8	18.7	38.1	13.1	"	28.9	48.2	27.1	17.6	25.7	326.2
1974	148.3	21.2	45.5	14.1	"	34.6	60.1	32.7	20.1	26.9	403.5
1975	194.7	23.8	54.0	15.2	"	40.4	73.3	38.1	22.8	28.7	491.0
1976	264.5	26.6	63.5	16.2	"	46.2	87.8	41.4	25.7	30.1	602.0
1977	343.6	29.4	73.8	17.2	"	51.9	103.8	44.2	28.7	32.3	724.9
1978	430.6	32.3	84.6	18.1	"	57.7	121.2	46.5	32.0	33.9	856.9
1979	524.0	35.1	95.6	19.1	"	63.4	140.3	48.7	35.4	36.3	997.9
1980	622.6	37.9	106.9	19.9	"	69.0	161.0	50.4	39.0	38.8	1,145.5
1985	1,143.8	49.6	157.2	23.4	"	95.1	292.9	55.6	59.6	52.4	1,929.6
1990	1,782.4	61.0	213.4	28.1	"	118.7	462.5	61.7	85.0	66.0	2,878.8
1995	2,540.3	69.8	281.2	32.8	"	134.8	659.5	68.9	116.5	83.6	3,987.4
2000	3,377.8	82.4	376.6	36.3	"	156.0	907.2	73.4	156.2	105.6	5,271.5

\* See page 23 for details.

Table 1B  
Benefits and Expenses of Administration  
(in millions of dollars)

<u>Existing Plan</u>		<u>"Moderate Inflation" assumptions*</u>									
Calendar Year	Retirement Pensions	Disability Pensions				Widows' Pensions		Orphans' Benefits	Death Benefits	Expenses of Administration	Total
		Flat Rate	Earnings Related	Children's Benefits	Wives' Pensions	Flat Rate	Earnings Related				
	(1)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(4)	(5)	(6)	(7)
1970	33.4	3.2	6.4	2.4	Nil	12.4	18.8	10.6	11.3	21.9	120.4
1971	52.4	14.3	28.0	10.7	"	17.7	27.7	16.0	13.3	23.2	203.3
1972	77.6	16.3	32.2	12.0	"	23.2	37.4	21.6	15.4	24.6	260.3
1973	108.8	18.7	38.1	13.1	"	28.9	48.2	27.1	17.6	25.9	326.4
1974	148.6	21.2	45.5	14.1	"	34.6	60.1	32.7	20.1	27.3	404.2
1975	195.1	23.8	54.1	15.2	"	40.4	73.3	38.1	22.8	29.3	492.1
1976	265.5	26.6	64.0	16.2	"	46.2	87.9	41.4	25.7	30.8	604.3
1977	346.1	29.4	74.9	17.2	"	51.9	104.0	44.2	29.0	33.8	730.5
1978	435.8	32.3	86.8	18.1	"	57.7	121.8	46.5	32.5	36.3	867.8
1979	533.6	35.1	99.3	19.1	"	63.4	141.4	48.7	36.2	39.4	1,016.2
1980	638.2	37.9	112.3	19.9	"	69.0	162.9	50.4	40.2	42.0	1,172.8
1985	1,227.4	49.6	179.7	23.4	"	95.1	304.6	55.6	65.1	61.8	2,062.3
1990	2,099.2	63.3	269.9	29.2	"	123.1	516.7	64.0	101.0	86.9	3,353.3
1995	3,313.7	76.2	392.3	35.7	"	147.0	806.2	75.1	151.9	120.1	5,118.2
2000	4,859.4	94.4	580.0	41.6	"	178.6	1221.4	83.9	224.3	166.9	7,450.5

\* See page 23 for details.

Table 2A

Benefits and Expenses of Administration  
expressed as  
Percentages of Contributory Earnings

Existing Plan

"Reasonable Stability" assumptions\*

Calendar Year	Retirement Pensions	Disability Pensions				Widows' Pensions		Orphans' Benefits	Death Benefits	Expenses of Administration	Total
		Flat Rate	Earnings Related	Children's Benefits	Wives' Pensions	Flat Rate	Earnings Related				
	(1)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(4)	(5)	(6)	(7)
1970	.15	.01	.03	.01	Nil	.06	.09	.05	.05	.10	.55
1971	.23	.06	.12	.05	"	.08	.12	.07	.06	.10	.89
1972	.32	.07	.13	.05	"	.09	.15	.09	.06	.10	1.06
1973	.42	.07	.15	.05	"	.11	.19	.11	.07	.10	1.27
1974	.55	.08	.17	.05	"	.13	.22	.12	.07	.10	1.49
1975	.68	.08	.19	.05	"	.14	.26	.13	.08	.10	1.71
1976	.88	.09	.21	.05	"	.15	.29	.14	.09	.10	2.00
1977	1.06	.09	.23	.05	"	.16	.32	.14	.09	.10	2.24
1978	1.27	.10	.25	.05	"	.17	.36	.14	.09	.10	2.53
1979	1.44	.10	.26	.05	"	.17	.39	.13	.10	.10	2.74
1980	1.60	.10	.28	.05	"	.18	.41	.13	.10	.10	2.95
1985	2.18	.09	.30	.04	"	.18	.56	.11	.11	.10	3.67
1990	2.70	.09	.32	.04	"	.18	.70	.09	.13	.10	4.35
1995	3.04	.08	.34	.04	"	.16	.79	.08	.14	.10	4.77
2000	3.20	.08	.36	.03	"	.15	.86	.07	.15	.10	5.00

\* See page 23 for details.

Table 2B.

Benefits and Expenses of Administration  
expressed as  
Percentages of Contributory Earnings

Existing Plan

"Moderate Inflation" assumptions\*

Calendar Year	Retirement Pensions	Disability Pensions				Widow's Pensions		Orphans' Benefits	Death Benefits	Expenses of Administration	Total
		Flat Rate	Earnings Related	Children's Benefits	Wives' Pensions	Flat Rate	Earnings Related				
	(1)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(4)	(5)	(6)	(7)
1970	.15	.01	.03	.01	Nil	.06	.09	.05	.05	.10	.55
1971	.23	.06	.12	.05	"	.08	.12	.07	.06	.10	.89
1972	.32	.07	.13	.05	"	.09	.15	.09	.06	.10	1.06
1973	.42	.07	.15	.05	"	.11	.19	.10	.07	.10	1.26
1974	.54	.08	.17	.05	"	.13	.22	.12	.07	.10	1.48
1975	.67	.08	.18	.05	"	.14	.25	.13	.08	.10	1.68
1976	.86	.09	.21	.05	"	.15	.28	.13	.08	.10	1.95
1977	1.02	.09	.22	.05	"	.15	.31	.13	.09	.10	2.16
1978	1.20	.09	.24	.05	"	.16	.34	.13	.09	.10	2.40
1979	1.36	.09	.25	.05	"	.16	.36	.12	.09	.10	2.58
1980	1.52	.09	.27	.05	"	.16	.39	.12	.10	.10	2.80
1985	1.99	.08	.29	.04	"	.15	.49	.09	.11	.10	3.34
1990	2.42	.07	.31	.03	"	.14	.59	.07	.12	.10	3.85
1995	2.76	.06	.33	.03	"	.12	.67	.06	.13	.10	4.26
2000	2.91	.06	.35	.02	"	.11	.73	.05	.13	.10	4.46

\* See page 23 for details.

Table 3

Fund Projections

Existing Plan

Calendar Year	(A) "Reasonable Stability" assumptions*			(B) "Moderate Inflation" assumptions*		
	(\$ millions)		(\$ billions)	(\$ millions)		(\$ billions)
	Contributions Produced by 3.6% rate on Contributory Earnings	Benefits and Expenses	Fund at end of Year	Contributions Produced by 3.6% rate on Contributory Earnings	Benefits and Expenses	Fund at end of Year
	(1)	(2)	(3)	(4)	(5)	(6)
1970	789	120	3.6	789	120	3.6
1971	835	203	4.5	836	203	4.5
1972	880	260	5.4	885	260	5.4
1973	924	326	6.4	934	326	6.5
1974	969	404	7.4	984	404	7.5
1975	1,032	491	8.5	1,056	492	8.6
1976	1,085	602	9.5	1,111	604	9.7
1977	1,162	725	10.5	1,217	731	10.9
1978	1,219	857	11.5	1,307	868	12.1
1979	1,307	998	12.5	1,417	1,016	13.4
1980	1,398	1,146	13.5	1,510	1,173	14.6
1985	1,888	1,930	18.2	2,226	2,062	21.7
1990	2,378	2,879	21.7	3,127	3,353	29.8
1995	3,011	3,987	23.0	4,323	5,118	37.8
2000	3,802	5,272	21.8	6,009	7,451	45.2

\* See page 23 for details.

## VI. ESTIMATES FOR WHITE PAPER PROPOSALS

This section contains tables related to the proposed plan analogous to those contained in section V, as follows:

	<u>Reasonable Stability*</u>	<u>Moderate Inflation*</u>
Benefits and expenses of administration	Table 4A	Table 4B
Benefits and expenses as percentages of contributory earnings	" 5A	" 5B
Fund projections	" 6	" 6

The accumulated fund is estimated to reach a maximum of about \$14 billion in 1985 on "reasonable stability" assumptions and of about \$21 billion in 1991 on "moderate inflation" assumptions. Thereafter, the fund is expected to decline fairly rapidly, becoming actually exhausted in the year 1997 on "reasonable stability" assumptions and approaching \$10 billion in the year 2000 on "moderate inflation" assumptions. The effect on the fund of changing the contribution rate in accordance with certain stipulated schedules of increases is shown in section VIII.

Costs expressed as percentages of contributory earnings are estimated to rise to between 5.11% (moderate inflation) and 5.93% (reasonable stability) by the year 2000. As noted for the existing plan and explained in more detail in section VIII, costs may well lie below or above this range and may be anticipated to rise gradually for another generation.

All estimates in this section are based on the assumption that the Old Age Security benefit will be held constant. Costs would be lower and accumulated funds would be greater to the extent that ad hoc changes in the Old Age Security benefit were to be made by Parliament. In section VIII additional projections are shown, based on the assumption that periodic upward adjustments in the Old Age Security benefit equivalent to increases in the Pension Index would be made.

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\* See page 23 for details.

Table 4A

Benefits and Expenses of Administration  
(in millions of dollars)

Proposed Plan

"Reasonable Stability" assumptions\*

Calendar Year	Retirement Pensions	Disability Pensions				Widows' Pensions		Orphans' Benefits	Death Benefits	Expenses of Administration	Total
		Flat Rate	Earnings Related	Children's Benefits	Wives' Pensions	Flat Rate	Earnings Related				
	(1)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(4)	(5)	(6)	(7)
1970	33.4	3.2	6.4	2.4	-	12.4	18.8	10.6	11.3	21.9	120.4
1971	52.4	14.3	28.0	10.7	-	17.7	27.7	16.0	13.3	23.2	203.3
1972	77.6	16.3	32.2	12.0	-	23.2	37.4	21.6	15.4	24.4	260.1
1973	110.2	53.1	47.6	13.1	18.9	82.2	87.6	27.1	19.2	27.9	486.9
1974	154.6	60.5	57.5	14.1	21.3	98.8	110.9	32.7	23.1	31.2	604.7
1975	211.2	68.3	71.8	15.2	23.7	116.3	137.0	38.1	27.0	34.9	743.5
1976	300.4	76.9	89.5	16.2	26.1	133.9	165.9	41.4	31.1	37.0	918.4
1977	402.7	85.9	109.7	17.2	28.6	151.8	197.8	44.2	35.3	39.3	1,112.5
1978	516.1	94.9	131.8	18.1	31.1	171.1	232.7	46.5	39.6	42.4	1,324.3
1979	638.4	103.7	154.5	19.1	33.4	189.7	270.7	48.7	44.0	45.0	1,547.2
1980	767.7	113.0	177.4	19.9	35.9	209.8	312.1	50.4	48.7	47.9	1,782.8
1985	1,446.3	156.4	261.2	23.4	47.3	319.4	572.8	55.6	74.1	65.9	3,022.4
1990	2,256.5	205.7	354.2	28.1	57.5	437.9	903.8	61.7	106.6	84.5	4,496.5
1995	3,195.7	247.8	461.8	32.8	67.7	548.8	1,283.9	68.9	146.7	107.3	6,161.4
2000	4,226.1	301.0	616.2	36.3	80.7	686.4	1,771.5	73.4	197.0	136.9	8,125.5

\* See page 23 for details.

Table 4B

Benefits and Expenses of Administration  
(in millions of dollars)

"Moderate Inflation" assumptions\*

Proposed Plan

Calendar Year	Retirement Pensions	Disability Pensions				Widows' Pensions		Orphans' Benefits	Death Benefits	Expenses of Administration	Total
		Flat Rate	Earnings Related	Children's Benefits	Wives' Pensions	Flat Rate	Earnings Related				
	(1)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(4)	(5)	(6)	(7)
1970	33.4	3.2	6.4	2.4	-	12.4	18.8	10.6	11.3	21.9	120.4
1971	52.4	14.3	28.0	10.7	-	7.7	27.7	16.0	13.3	23.2	203.3
1972	77.6	16.3	32.2	12.0	-	23.2	37.4	21.6	15.4	24.6	260.3
1973	110.3	53.1	47.7	13.1	18.9	82.2	87.5	27.1	19.2	28.1	487.2
1974	154.7	60.5	57.6	14.1	21.3	98.9	110.9	32.7	23.1	31.7	605.5
1975	211.5	68.3	71.9	15.2	23.7	116.3	137.1	38.1	27.0	36.0	745.1
1976	301.1	77.0	90.0	16.2	26.1	133.9	166.0	41.4	31.2	38.4	921.3
1977	404.8	86.1	111.1	17.2	28.6	151.8	198.2	44.2	35.5	41.7	1,119.2
1978	521.2	95.2	134.5	18.1	31.1	171.1	233.7	46.5	40.1	45.6	1,337.1
1979	648.5	104.1	159.4	19.1	33.4	189.7	272.9	48.7	44.9	49.1	1,569.8
1980	785.3	113.5	185.3	19.9	35.9	209.8	316.0	50.4	50.1	53.4	1,819.6
1985	1,553.1	157.1	301.9	23.4	47.3	319.4	597.7	55.6	81.4	81.1	3,218.0
1990	2,670.5	217.9	454.1	29.2	59.6	465.1	1,020.4	64.0	127.9	114.6	5,223.3
1995	4,208.5	281.4	652.9	35.7	73.8	634.0	1,590.0	75.1	193.3	160.1	7,904.8
2000	6,145.8	364.9	960.9	41.6	92.4	857.3	2,420.9	83.9	286.1	224.8	11,478.6

\* See page 23 for details.



Table 5A

Benefits and Expenses of Administration  
expressed as  
Percentages of Contributory Earnings

Proposed Plan

"Reasonable Stability" assumptions\*

Calendar Year	Retirement Pensions	Disability Pensions				Widows' Pensions		Orphans' Benefits	Death Benefits	Expenses of Administration	Total
		Flat Rate	Earnings Related	Children's Benefits	Wives' Pensions	Flat Rate	Earnings Related				
	(1)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(4)	(5)	(6)	(7)
1970	.15	.01	.03	.01	-	.06	.09	.05	.05	.10	.55
1971	.23	.06	.12	.05	-	.08	.12	.07	.06	.10	.89
1972	.32	.07	.13	.05	-	.09	.15	.09	.06	.10	1.06
1973	.40	.19	.17	.05	.07	.30	.31	.10	.07	.10	1.76
1974	.50	.19	.18	.05	.07	.32	.36	.10	.07	.10	1.94
1975	.61	.20	.21	.04	.07	.33	.39	.11	.08	.10	2.14
1976	.81	.21	.24	.04	.07	.36	.45	.11	.08	.10	2.47
1977	1.02	.22	.28	.04	.07	.39	.50	.11	.09	.10	2.82
1978	1.22	.22	.31	.04	.07	.40	.55	.11	.09	.10	3.11
1979	1.42	.23	.34	.04	.07	.42	.60	.11	.10	.10	3.43
1980	1.60	.24	.37	.04	.08	.44	.65	.11	.10	.10	3.73
1985	2.20	.24	.40	.04	.07	.48	.87	.08	.11	.10	4.59
1990	2.67	.24	.42	.03	.07	.52	1.07	.07	.13	.10	5.32
1995	2.98	.23	.43	.03	.06	.51	1.20	.06	.14	.10	5.74
2000	3.09	.22	.45	.03	.06	.50	1.29	.05	.14	.10	5.93

\* See page 23 for details.

Table 5B

**Benefits and Expenses of Administration  
expressed as  
Percentages of Contributory Earnings**

Proposed Plan

"Moderate Inflation" assumptions\*

Calendar Year	Retirement Pensions	Disability Pensions				Widows' Pensions		Orphans' Benefits	Death Benefits	Expenses of Administration	Total
		Flat Rate	Earnings Related	Children's Benefits	Wives' Pensions	Flat Rate	Earnings Related				
	(1)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(4)	(5)	(6)	(7)
1970	.15	.01	.03	.01	-	.06	.09	.05	.05	.10	.55
1971	.23	.06	.12	.05	-	.08	.12	.07	.06	.10	.89
1972	.32	.07	.13	.05	-	.09	.15	.09	.06	.10	1.06
1973	.39	.19	.17	.05	.07	.29	.31	.10	.07	.10	1.74
1974	.49	.19	.18	.04	.07	.31	.35	.10	.07	.10	1.90
1975	.59	.19	.20	.04	.07	.32	.38	.11	.08	.10	2.08
1976	.78	.20	.23	.04	.07	.35	.43	.11	.08	.10	2.39
1977	.97	.21	.27	.04	.07	.36	.48	.11	.09	.10	2.70
1978	1.14	.21	.29	.04	.07	.38	.51	.10	.09	.10	2.93
1979	1.32	.21	.32	.04	.07	.39	.56	.10	.09	.10	3.20
1980	1.47	.21	.35	.04	.07	.39	.59	.09	.09	.10	3.40
1985	1.92	.19	.37	.03	.06	.39	.74	.07	.10	.10	3.97
1990	2.33	.19	.40	.03	.05	.41	.89	.06	.11	.10	4.57
1995	2.63	.18	.41	.02	.05	.40	.99	.05	.12	.10	4.95
2000	2.73	.16	.43	.02	.04	.38	1.08	.04	.13	.10	5.11

\* See page 23 for details.

Table 6

Fund Projections

Proposed Plan

Calendar Year	(A) "Reasonable Stability" assumptions*			(B) "Moderate Inflation" assumptions*		
	(\$ millions)		(\$ billions)	(\$ millions)		(\$ billions)
	Contributions Produced by 3.6% rate on Contributory Earnings	Benefits and Expenses	Fund at end of Year	Contributions Produced by 3.6% rate on Contributory Earnings	Benefits and Expenses	Fund at end of Year
	(1)	(2)	(3)	(4)	(5)	(6)
1970	789	120	3.6	789	120	3.6
1971	835	203	4.5	836	203	4.5
1972	880	260	5.4	885	260	5.4
1973	1,003	487	6.3	1,012	487	6.4
1974	1,123	605	7.3	1,140	606	7.4
1975	1,255	744	8.3	1,294	745	8.5
1976	1,330	918	9.2	1,383	921	9.5
1977	1,416	1,113	10.1	1,500	1,119	10.6
1978	1,525	1,324	11.0	1,641	1,337	11.6
1979	1,621	1,547	11.7	1,769	1,570	12.6
1980	1,723	1,783	12.3	1,922	1,820	13.6
1985	2,371	3,022	14.0	2,919	3,218	18.3
1990	3,043	4,497	12.2	4,127	5,223	21.2
1995	3,864	6,161	4.7	5,764	7,905	19.4
2000	4,930	8,126	-9.6	8,094	11,479	10.3

\* See page 23 for details.

VII. COMPARISON OF EXISTING AND PROPOSED PLANS

In order to facilitate comparisons, the tables in this section show projections for the existing and proposed plans side by side. The projections are the same as contained in sections V and VI, but less detail is given for various types of benefits. The tables are as follows:

	<u>Reasonable Stability*</u>	<u>Moderate Inflation*</u>
Benefits and expenses of administration	Table 7A	Table 7B
Benefits and expenses as percentages of contributory earnings	" 8A	" 8B
Fund projections	" 9A	" 9B

It will be noted that the fund projections for the existing and proposed plans diverge with increasing rapidity, while total costs expressed as percentages of contributory earnings are steadily higher for the proposed plan. The latter does not always hold true for the costs attributable to retirement benefits which exhibit a somewhat irregular behaviour because of the effect of the rapid increase in the Year's Maximum Pensionable Earnings under the proposed plan.

No significance should be attached to the difference between the expenses of administration shown for the existing and proposed plans. Because it appeared too early in the operation of the Plan to develop a more appropriate formula, the assumption was made (as noted in section IV) that expenses would be equal to 0.1% of contributory earnings. The differences are merely a result of this assumption.

As noted in section VI, estimates for the proposed plan are based on the assumption that the Old Age Security benefit would be held constant. Additional projections based on the assumption of continued increases in the Old Age Security benefit are shown in section VIII.

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\* See page 23 for details.

Table 7A

Benefits and Expenses of Administration  
(in millions of dollars)

"Reasonable Stability" assumptions\*

Calendar Year	Existing Plan					Proposed Plan				
	Retirement Pensions	Disability Pensions**	Survivors' and Death Benefits	Expenses of Administration	Total	Retirement Pensions	Disability Pensions***	Survivors' and Death Benefits	Expenses of Administration	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1970	33.4	12.0	53.1	21.9	120.4	33.4	12.0	53.1	21.9	120.4
1971	52.4	53.0	74.7	23.2	203.3	52.4	53.0	74.7	23.2	203.3
1972	77.6	60.5	97.6	24.4	260.1	77.6	60.5	97.6	24.4	260.1
1973	108.8	69.9	121.8	25.7	326.2	110.2	132.7	216.1	27.9	486.9
1974	148.3	80.8	147.5	26.9	403.5	154.6	153.4	265.5	31.2	604.7
1975	194.7	93.0	174.6	28.7	491.0	211.2	179.0	318.4	34.9	743.5
1976	264.5	106.3	201.1	30.1	602.0	300.4	208.7	372.3	37.0	918.4
1977	343.6	120.4	228.6	32.3	724.9	402.7	241.4	429.1	39.3	1,112.5
1978	430.6	135.0	257.4	33.9	856.9	516.1	275.9	489.9	42.4	1,324.3
1979	524.0	149.8	287.8	36.3	997.9	638.4	310.7	553.1	45.0	1,547.2
1980	622.6	164.7	319.4	38.8	1,145.5	767.7	346.2	621.0	47.9	1,782.8
1985	1,143.8	230.2	503.2	52.4	1,929.6	1,446.3	488.3	1,021.9	65.9	3,022.4
1990	1,782.4	302.5	727.9	66.0	2,878.8	2,256.5	645.5	1,510.0	84.5	4,496.5
1995	2,540.3	383.8	979.7	83.6	3,987.4	3,195.7	810.1	2,048.3	107.3	6,161.4
2000	3,377.8	495.3	1,292.8	105.6	5,271.5	4,226.1	1,034.2	2,728.3	136.9	8,125.5

\* See page 23 for details.

\*\* Includes pensions for children of disabled contributors.

\*\*\* Includes pensions for children and wives of disabled contributors.

Table 7B

Benefits and Expenses of Administration  
(in millions of dollars)

"Moderate Inflation" assumptions\*

Calendar Year	Existing Plan					Proposed Plan				
	Retirement Pensions	Disability Pensions**	Survivors' and Death Benefits	Expenses of Administration	Total	Retirement Pensions	Disability Pensions***	Survivors' and Death Benefits	Expenses of Administration	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1970	33.4	12.0	53.1	21.9	120.4	33.4	12.0	53.1	21.9	120.4
1971	52.4	53.0	74.7	23.2	203.3	52.4	53.0	64.7	23.2	203.3
1972	77.6	60.5	97.6	24.6	260.3	77.6	60.5	97.6	24.6	260.3
1973	108.8	69.9	121.8	25.9	326.4	110.3	132.8	216.0	28.1	487.2
1974	148.6	80.8	147.5	27.3	404.2	154.7	153.5	265.6	31.7	605.5
1975	195.1	93.1	174.6	29.3	492.1	211.5	179.1	318.5	36.0	745.1
1976	265.5	106.8	201.2	30.8	604.3	301.1	209.3	372.5	38.4	921.3
1977	346.1	121.5	229.1	33.8	730.5	404.8	243.0	429.7	41.7	1,119.2
1978	435.8	137.2	258.5	36.3	867.8	521.2	278.9	491.4	45.6	1,337.1
1979	533.6	153.5	289.7	39.4	1,016.2	648.5	316.0	556.2	49.1	1,569.8
1980	638.2	170.1	322.5	42.0	1,172.8	785.3	354.6	626.3	53.4	1,819.6
1985	1,227.4	252.7	520.4	61.8	2,062.3	1,553.1	529.7	1,054.1	81.1	3,218.0
1990	2,099.2	362.4	804.8	86.9	3,353.3	2,670.5	760.8	1,677.4	114.6	5,223.3
1995	3,313.7	504.2	1,180.2	120.1	5,118.2	4,208.5	1,043.8	2,492.4	160.1	7,904.8
2000	4,859.4	716.0	1,708.2	166.9	7,450.5	6,145.8	1,459.8	3,648.2	224.8	11,478.6

\* See page 23 for details.

\*\* Includes pensions for children of disabled contributors.

\*\*\* Includes pensions for children and wives of disabled contributors.

Table 8A

Benefits and Expenses of Administration  
expressed as  
Percentages of Contributory Earnings

"Reasonable Stability" assumptions\*

Calendar Year	Existing Plan					Proposed Plan				
	Retirement Pensions	Disability Pensions**	Survivors' and Death Benefits	Expenses of Administration	Total	Retirement Pensions	Disability Pensions***	Survivors' and Death Benefits	Expenses of Administration	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1970	.15	.05	.25	.10	.55	.15	.05	.25	.10	.55
1971	.23	.23	.33	.10	.89	.23	.23	.33	.10	.89
1972	.32	.25	.39	.10	1.06	.32	.25	.39	.10	1.06
1973	.42	.27	.48	.10	1.27	.40	.48	.78	.10	1.76
1974	.55	.30	.54	.10	1.49	.50	.49	.85	.10	1.94
1975	.68	.32	.61	.10	1.71	.61	.52	.91	.10	2.14
1976	.88	.35	.67	.10	2.00	.81	.56	1.00	.10	2.47
1977	1.06	.37	.71	.10	2.24	1.02	.61	1.09	.10	2.82
1978	1.27	.40	.76	.10	2.53	1.22	.64	1.15	.10	3.11
1979	1.44	.41	.79	.10	2.74	1.42	.68	1.23	.10	3.43
1980	1.60	.43	.82	.10	2.95	1.60	.73	1.30	.10	3.73
1985	2.18	.43	.96	.10	3.67	2.20	.75	1.54	.10	4.59
1990	2.70	.45	1.10	.10	4.35	2.67	.76	1.79	.10	5.32
1995	3.04	.46	1.17	.10	4.77	2.98	.75	1.91	.10	5.74
2000	3.20	.47	1.23	.10	5.00	3.09	.76	1.98	.10	5.93

\* See page 23 for details.

\*\* Includes pensions for children of disabled contributors.

\*\*\* Includes pensions for children and wives of disabled contributors.

Table 8B

**Benefits and Expenses of Administration  
expressed as  
Percentages of Contributory Earnings**

"Moderate Inflation" assumptions\*

Calendar Year	Existing Plan					Proposed Plan				
	Retirement Pensions	Disability Pensions**	Survivors' and Death Benefits	Expenses of Administration	Total	Retirement Pensions	Disability Pensions***	Survivors' and Death Benefits	Expenses of Administration	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1970	.15	.05	.25	.10	.55	.15	.05	.25	.10	.55
1971	.23	.23	.33	.10	.89	.23	.23	.33	.10	.89
1972	.32	.25	.39	.10	1.06	.32	.25	.39	.10	1.06
1973	.42	.27	.47	.10	1.26	.39	.48	.77	.10	1.74
1974	.54	.30	.54	.10	1.48	.49	.48	.83	.10	1.90
1975	.67	.31	.60	.10	1.68	.59	.50	.89	.10	2.08
1976	.86	.35	.64	.10	1.95	.78	.54	.97	.10	2.39
1977	1.02	.36	.68	.10	2.16	.97	.59	1.04	.10	2.70
1978	1.20	.38	.72	.10	2.40	1.14	.61	1.08	.10	2.93
1979	1.36	.39	.73	.10	2.58	1.32	.64	1.14	.10	3.20
1980	1.52	.41	.77	.10	2.80	1.47	.67	1.16	.10	3.40
1985	1.99	.41	.84	.10	3.34	1.92	.65	1.30	.10	3.97
1990	2.42	.41	.92	.10	3.85	2.33	.67	1.47	.10	4.57
1995	2.76	.42	.98	.10	4.26	2.63	.66	1.56	.10	4.95
2000	2.91	.43	1.02	.10	4.46	2.73	.65	1.63	.10	5.11

\* See page 23 for details.

\*\* Includes pensions for children of disabled contributors.

\*\*\* Includes pensions for children and wives of disabled contributors.



Table 9A

Fund Projections

"Reasonable Stability" assumptions\*

Calendar Year	Existing Plan			Proposed Plan		
	(\$ millions)		(\$ billions)	(\$ millions)		(\$ billions)
	Contributions Produced by 3.6% rate on Contributory Earnings	Benefits and Expenses	Fund at end of Year	Contributions Produced by 3.6% rate on Contributory Earnings	Benefits and Expenses	Fund at end of Year
	(1)	(2)	(3)	(4)	(5)	(6)
1970	789	120	3.6	789	120	3.6
1971	835	203	4.5	835	203	4.5
1972	880	260	5.4	880	260	5.4
1973	924	326	6.4	1,003	487	6.3
1974	969	404	7.4	1,123	605	7.3
1975	1,032	491	8.5	1,255	744	8.3
1976	1,085	602	9.5	1,330	918	9.2
1977	1,162	725	10.5	1,416	1,113	10.1
1978	1,219	857	11.5	1,525	1,324	11.0
1979	1,307	998	12.5	1,621	1,547	11.7
1980	1,398	1,146	13.5	1,723	1,783	12.3
1985	1,888	1,930	18.2	2,371	3,022	14.0
1990	2,378	2,879	21.7	3,043	4,497	12.2
1995	3,011	3,987	23.0	3,864	6,161	4.7
2000	3,802	5,272	21.8	4,930	8,126	-9.6

\* See page 23 for details

Table 9B  
Fund Projections

"Moderate Inflation" assumptions\*

Calendar Year	Existing Plan			Proposed Plan		
	(\$ millions)		(\$ billions)	(\$ millions)		(\$ billions)
	Contributions Produced by 3.6% rate on Contributory Earnings	Benefits and Expenses	Fund at end of Year	Contributions Produced by 3.6% rate on Contributory Earnings	Benefits and Expenses	Fund at end of Year
	(1)	(2)	(3)	(4)	(5)	(6)
1970	789	120	3.6	789	120	3.6
1971	836	203	4.5	836	203	4.5
1972	885	260	5.4	885	260	5.4
1973	934	326	6.5	1,012	487	6.4
1974	984	404	7.5	1,140	606	7.4
1975	1,056	492	8.6	1,294	745	8.5
1976	1,111	604	9.7	1,383	921	9.5
1977	1,217	731	10.9	1,500	1,119	10.6
1978	1,307	868	12.1	1,641	1,337	11.6
1979	1,417	1,016	13.4	1,769	1,570	12.6
1980	1,510	1,173	14.6	1,922	1,820	13.6
1985	2,226	2,062	21.7	2,919	3,218	18.3
1990	3,127	3,353	29.8	4,127	5,223	21.2
1995	4,323	5,118	37.8	5,764	7,905	19.4
2000	6,009	7,451	45.2	8,094	11,479	10.3

\* See page 23 for details.

### VIII. OBSERVATIONS AND CONCLUSIONS

1. As indicated in section IV of this report, it was decided to prepare projections on two significantly different sets of economic assumptions. While it appears reasonable to expect actual conditions in the long run to lie somewhere between these two sets of assumptions, the possibility exists that conditions may become stabilized outside the limits selected. In any event, the projections on the two bases should not be taken as "high cost" and "low cost" projections but rather as markers of a narrow range of reasonably realistic forecasts.
  
2. From an inspection of the economic assumptions it will be noted that both sets of assumptions maintain a constant differential of  $2\frac{1}{2}\%$  between the annual rate of increase in average earnings and the annual rate of increase in the Consumer Price Index and, after 1974, a constant differential of  $3\frac{1}{2}\%$  between the rate of interest on new investments and the annual rate of increase in the Consumer Price Index. If actual experience in the long term reveals greater differentials, the operation of the Plan will be somewhat more favourable than anticipated; if actual differentials turn out to be smaller, the reverse will be true.
  
3. When considering costs expressed as percentages of contributory earnings, it should be recognized that the difference between "reasonable stability" and "moderate inflation" estimates is attributable almost entirely to the existence of the 2% limit on the annual increase in the Pension Index. Without this limit, "moderate inflation" costs would be nearly identical with "reasonable stability" costs. (Of course, this does not hold true for absolute amounts of benefits payable and fund accumulations.) It might not be unreasonable to go a little further and suggest that the long term level of costs indicated on "moderate inflation" assumptions would unlikely be experienced in practice; because, if the long-term average annual rate of increase in the Consumer Price Index should actually appear to become stabilized at 3%, as assumed, it might be difficult to maintain the 2% maximum imposed on the annual increase in the Pension Index.

4. Although, as indicated in section IV, the demographic assumptions were selected to produce reasonably realistic populations of contributors and beneficiaries, substantial variation of experience from the assumed bases could occur. For example, a major breakthrough in medical science could result in an unexpectedly high increase in the amounts of retirement pensions payable, although this would be partially offset by a reduction in widows' and orphans' pensions. On the other hand, a return to higher fertility rates or a substantial increase in the level of net immigration would tend to result in relatively lower costs and higher fund accumulations than indicated by the projections, toward the last decade of this century.

5. It should be recognized that a temporary levelling out of costs expressed as percentages of contributory earnings may be expected about the beginning of the twenty-first century, but that this is the result of low fertility rates in the depression of the 1930s. Earlier studies indicate that the rates may be expected to continue their gradual ascent during the first half of the twenty-first century.

6. Clearly, the total contribution rate (employee and employer combined) required to support expenditures in any year is the cost expressed as percentage of contributory earnings reduced to some extent by the proceeds from the investment fund in that year - whether from investment earnings or net capital redemptions. In the fund projections it has been assumed that the total contribution rate of 3.6% applicable to contributory earnings would remain in effect to the year 2000; under certain conditions, this is seen to result in the development of a negative fund (i.e., accumulated debt). In practice, presumably, contribution rates would be increased long before the fund approached exhaustion.

7. The gradually increasing rates exhibited in the projections of costs expressed as percentages of contributory earnings suggest that the most orderly way of maintaining the Canada Pension Plan Investment Fund at an agreed level would be to raise contribution rates gradually in a series

of steps. Since, even for the proposed plan with current contribution rates, the fund appears unlikely to begin its decline for another fifteen or twenty years, it may be somewhat premature to enact a definite schedule of increasing contribution rates which might be adjusted many times in the light of actual experience before being put into effect.

8. The following table illustrates the effect of increasing the contribution rate under certain conditions. If for the proposed plan the total contribution rate were to be raised from 3.6% in accordance with certain scheduled progressive increases to levels indicated in the column heads, the fund projections would be as shown below.

Table 10  
Fund Projections for Proposed Plan  
under certain assumed increases in contributions  
(\$ billions)

Calendar Year	Reasonable Stability*			Moderate Inflation*		
	Contributions Constant 3.6% as in Existing Plan	1990: 4.0% 1992: 4.4% 1994: 4.8% 1996: 5.2%	1986: 3.8% 1988: 4.2% 1990: 4.6% 1992: 5.0% 1996: 5.2% 1999: 5.4%	Contributions Constant 3.6% as in Existing Plan	1995: 4.0%	1993: 4.0% 1997: 4.4% 2000: 4.6%
	(1)	(2)	(3)	(4)	(5)	(6)
1985	14.0	14.0	14.0	18.3	18.3	18.3
1990	12.2	12.5	14.3	21.2	21.2	21.2
1995	4.7	9.7	14.4	19.4	20.0	21.3
2000	-9.6	7.5	13.9	10.3	15.6	21.3

It is fairly clear that in order to maintain the fund at a certain level under "reasonable stability" conditions, increases in contributions would have to come sooner or be greater or both than would be the case under "moderate inflation" conditions.

9. The White Paper indicated that the proposed pensions relating to widows and the disabled would be reduced by the amount received under Old Age Security at age 65, and a major problem in making projections was to predict what the amount of the Old Age Security benefit would be in the years

\* See page 23 for details.

ahead. The assumption that would result in the shifting of the maximum amount of cost to the Canada Pension Plan is that this benefit be kept constant at \$80 per month, and all the above estimates relating to the proposed plan are based on this assumption.

However, the White Paper does not suggest that the benefit be set at \$80 for all time. It indicates that in the short run additional funds made available by the removal of the automatic adjustment feature will help to finance better benefits through the Guaranteed Income Supplement and that, in the future, upward adjustments of the Old Age Security benefit would depend on consideration and action by Parliament. This indication together with the further suggestion in the White Paper that the Old Age Security benefit is to continue as a base for the Canada Pension Plan, point to the possibility of upward adjustments in the Old Age Security benefit being provided by Parliament on an ad hoc basis from time to time. The projections provided with respect to the proposed plan would obviously be affected by such adjustments.

Accordingly, it was considered appropriate to provide projections that show the situation under the proposed plan, on the assumption that ad hoc adjustments to the Old Age Security benefit made by Parliament in the years ahead would be equivalent in value to increases that would occur were the Pension Index to be retained. Fund projections based on this assumption are set out below.

Fund Projections for Proposed Plan  
based on assumption of adjustments in Old Age Security  
equal in value to increases in accordance with Pension Index

Calendar Year	Reasonable Stability*			Moderate Inflation*		
	Benefits and Expenses \$ millions	Total Contributions \$ millions	Balance in Fund \$ billions	Benefits and Expenses \$ millions	Total Contributions \$ millions	Balance in Fund \$ billions
1975	730	1,255	8.3	731	1,294	8.5
1980	1,747	1,723	12.5	1,783	1,922	13.8
1985	2,932	2,371	14.6	3,127	2,919	18.9
1990	4,336	3,043	13.6	5,042	4,127	22.8
1995	5,914	3,864	7.6	7,589	5,764	23.2
2000	7,776	4,930	-4.2	10,988	8,094	17.8

\* See page 23 for details.

10. Notwithstanding the comments in (7) above, if the plan were to be amended along the lines of the White Paper proposals, it would be desirable to obtain tentative agreement with the provinces within five years on the approximate level at which the ultimate fund is intended to be maintained, so that the terms to maturity of obligations to be issued by the provinces might not be shortened unnecessarily. Any decision regarding the level of the ultimate fund is, of course, interrelated with the decision regarding increases in contribution rates and, in the matter of contribution rates, it would seem particularly important to reach agreement with Quebec, so that the terms of the Canada Pension Plan and those of the Quebec Pension Plan would remain essentially identical.

11. In discussing the concept of an "ultimate fund" it is not intended to convey the impression that this ought to be an absolute amount. Unless other means of financing temporary fluctuations are instituted, the fund will eventually have to be maintained at least in some reasonable minimum relationship to annual expenditures. Since expenditures may be expected to increase slowly in absolute amount as a result of increasing levels of earnings (even after the system will have reached a "stationary condition" and even if there were no increases in prices and the Pension Index), it seems reasonable to assume that the "ultimate fund" would be maintained as a slowly increasing amount, even though the fund could be allowed to decline from the relatively high level it may reach during the first twenty years or so of its operation.

Respectfully submitted,



Walter Riese,  
Chief Actuary.

December 11, 1970,  
Department of Insurance,  
Ottawa 8, Canada.

Appendix

Population Projections

1. General

The three factors affecting population are mortality, fertility and net migration. Because of the wide variations that are possible and have in fact occurred in the past in fertility rates and the numbers of "net" immigrants, it has been fairly common practice to choose at least one set of "low" and one set of "high" assumptions for purposes of long term cost estimates. However, the development and widespread acceptance of new means of contraception have resulted in dramatic reductions in fertility rates and there appears to be a strong likelihood that there will be less variation in the long term level of fertility rates in the future than there has been in the past. It is also possible that a more stable long term level of net immigration rates will emerge, but this will be more difficult to discern because of the likely continuation of very substantial variation from year to year.

It is possible that a lower level of birth rates will in the long run be accompanied by a higher level of immigration, but the opposite is not inconceivable. In any event, the level of net immigration is affected to a substantial degree by emigration for which data are extremely difficult to obtain.

Although the formulation of assumptions regarding rates of birth and net immigration will likely continue to remain in the realm of conjecture, it was decided to adopt only one set of assumptions, namely, fertility rates slightly below the current level and net immigration rates at what might be considered a reasonably realistic long term level.

The populations required for the Canada Pension Plan pertain to Canada excluding Quebec but including all members of the Canadian Forces and the Royal Canadian Mounted Police. The population projections used for purposes of the estimates were obtained by simple subtraction of the projected populations for Quebec from the projected populations for all of Canada. However, provision for members of the Canadian Forces and the Royal Canadian Mounted Police was made in the development of participation rates given in section IV of this report.

Populations were developed up to the year 2000; this provides a period of thirty-one years from the effective date of the examinations and satisfies the requirements for periodic actuarial reports under section 116 of the Canada Pension Plan.

2. Mortality

The method of introducing mortality assumptions into the population projections for all of Canada as well as for Quebec consisted of the calculation of five-year survivorship ratios for five-year age groups on the basis of the mortality rates of the 1955-57 and 1960-62 life tables as well as the mortality rates assumed for the year 2000, the calculation of survivorship ratios for each intermediate five-year period by interpolation, and finally the application of these survivorship ratios to successive quinquennial populations.



Schedule 1 below shows, for specimen ages, a comparison of mortality rates for all of Canada as well as for Quebec on the basis of the Canadian Life Tables 1955-57 and 1960-62 and shows the mortality rates assumed for the year 2000 and later.

Schedule 1

Comparison of Mortality Rates for Quebec and for All of Canada  
(Annual deaths per 1,000 persons)

<u>Age</u>	<u>Life Tables 1955-57</u>		<u>Life Tables 1960-62</u>		<u>Rates Assumed for 2000 A.D.</u>
	<u>Province of Quebec</u>	<u>All Canada</u>	<u>Province of Quebec</u>	<u>All Canada</u>	
<u>Males</u>					
0	43.19	34.72	34.90	30.58	20.17
1	2.97	2.50	2.11	1.85	1.26
5	.97	.83	.93	.73	.54
10	.62	.57	.59	.50	.34
20	1.58	1.60	1.50	1.53	1.20
30	1.76	1.72	1.50	1.50	1.21
40	3.12	2.88	3.15	2.82	2.20
50	8.73	7.94	8.29	7.72	5.62
60	22.23	20.37	21.56	19.99	15.32
70	47.75	44.25	47.06	44.67	36.86
80	112.25	106.11	104.95	100.91	92.41
90	243.15	237.84	244.10	227.12	224.04
<u>Females</u>					
0	34.62	27.67	27.19	23.87	15.87
1	2.38	2.16	1.86	1.64	1.10
5	.76	.58	.67	.53	.39
10	.41	.37	.34	.29	.23
20	.61	.60	.55	.55	.41
30	1.07	.94	.82	.79	.69
40	2.29	1.94	1.93	1.74	1.46
50	5.17	4.75	4.63	4.36	3.20
60	14.26	11.91	12.27	10.64	7.57
70	33.60	29.55	31.60	27.74	22.16
80	96.51	87.17	86.85	79.41	69.16
90	213.49	198.89	234.59	207.08	192.33

3. Fertility

The fertility assumptions chosen for the projections of the population for All Canada as well as for Quebec were, that fertility rates for 1970 and later would correspond to a gross reproduction rate of 1.05 (which is approximately equal to a net reproduction rate of one; i.e., every female born alive is assumed to bear one female child).

Schedule 2 below shows the average fertility rates for the 1956-60 and 1964-68 periods as well as the rates used for 1970 and later in accordance with the above assumptions.

Schedule 2

Selected Fertility Rates  
(Number of live births per 1,000 females in age group)

Female Age Group	Average of Fertility Rates for 1956-60 period		Average of Fertility Rates for 1964-68 period		Fertility Rates Assumed for 1970 and later	
	All Canada	Quebec	All Canada	Quebec	All Canada	Quebec
15-19	59.2	33.7	47.3	25.0	35.2	20.0
20-24	226.8	199.9	176.8	154.2	131.8	123.2
25-29	225.1	229.9	169.4	164.0	126.2	131.1
30-34	148.6	165.8	107.0	108.6	79.7	86.8
35-39	89.0	108.2	58.1	63.4	43.3	50.7
40-44	29.3	39.9	19.2	22.7	14.3	18.1
45-49	2.7	3.9	1.7	2.4	1.3	1.9

4. Immigration

The population projections were made on the assumption that the number of net immigrants to Canada was 100,000 for 1967 and that this number would increase at a compound rate of 1½% per annum. The assumption was designed to produce a level of net immigration which would bear an approximately constant ratio to the population at any point in time. Schedule 3 below shows the relationship of projected net immigrants and projected populations for three pivotal years:

Schedule 3

Year	Population (thousands) (1)	Net Immigrants (2)	% Ratio (2)÷(1)
1970	21,226	104,568	0.493
1985	26,548	130,734	0.492
2000	32,344	163,448	0.505

It was further assumed 23.5% of the net immigrants to Canada would take up residence in Quebec, that there would be an equal number of male and female net immigrants and that their age distributions would be as shown in Schedule 4 below:

Schedule 4

Distribution of Net Immigrants by Age Group

Age Group	Males	Females
	%	%
0-4	6	5
5-9	11	10
10-14	12	11
15-19	10	11
20-24	9	11
25-29	10	11
30-34	11	11
35-39	11	10
40-44	4	4
45-49	2	2
50-54	2	3
55-59	2	2
60-64	3	2
65-69	3	3
70 & over	4	4

5. Populations

In Schedules 5, 6 and 7 are shown for All Canada, Quebec and All Canada excluding Quebec, respectively, the 1961 census population and the projected populations for 1970 and quinquennial years thereafter to the year 2000. The populations are shown distributed by sex and broad age groups.

Schedule 5

Populations for All Canada  
(in thousands)

Middle of Year	14 and under		15 - 19		20 - 24		25 - 44		45 - 64		65 - 69		70 and over	
	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total
		%		%		%		%		%		%		%
1970 Males	3,274	30.8	1,052	9.9	913	8.6	2,663	25.0	1,958	18.4	287	2.7	491	4.6
1970 Females	3,120	29.5	1,006	9.5	910	8.6	2,651	25.0	1,988	18.8	305	2.9	609	5.7
1970 Total	6,394	30.1	2,058	9.7	1,823	8.6	5,314	25.0	3,946	18.6	592	2.8	1,100	5.2
1975 Males	3,056	26.9	1,209	10.6	1,070	9.4	2,988	26.3	2,174	19.1	334	2.9	542	4.8
1975 Females	2,902	25.5	1,164	10.2	1,033	9.0	2,995	26.3	2,238	19.7	359	3.2	693	6.1
1975 Total	5,958	26.2	2,373	10.4	2,103	9.2	5,983	26.3	4,412	19.4	693	3.1	1,235	5.4
1980 Males	2,974	24.3	1,232	10.1	1,229	10.0	3,482	28.4	2,329	19.0	385	3.2	617	5.0
1980 Females	2,828	23.0	1,170	9.5	1,193	9.7	3,485	28.3	2,407	19.6	423	3.4	801	6.5
1980 Total	5,802	23.6	2,402	9.8	2,422	9.8	6,967	28.4	4,736	19.3	808	3.3	1,418	5.8
1985 Males	3,260	24.6	994	7.5	1,254	9.5	4,122	31.2	2,464	18.6	418	3.2	714	5.4
1985 Females	3,098	23.3	948	7.1	1,202	9.0	4,104	30.8	2,553	19.2	482	3.6	935	7.0
1985 Total	6,358	23.9	1,942	7.3	2,456	9.3	8,226	31.0	5,017	18.9	900	3.4	1,649	6.2
1990 Males	3,576	25.1	1,009	7.1	1,020	7.2	4,694	33.0	2,632	18.5	479	3.4	809	5.7
1990 Females	3,398	23.7	963	6.7	983	6.8	4,626	32.2	2,736	19.1	556	3.9	1,084	7.6
1990 Total	6,974	24.4	1,972	6.9	2,003	7.0	9,320	32.6	5,368	18.8	1,035	3.6	1,893	6.7
1995 Males	3,728	24.6	1,166	7.7	1,037	6.8	4,821	31.8	2,967	19.6	525	3.5	920	6.0
1995 Females	3,541	23.1	1,111	7.3	1,001	6.5	4,723	30.8	3,092	20.2	597	3.9	1,256	8.2
1995 Total	7,269	23.8	2,277	7.5	2,038	6.7	9,544	31.3	6,059	19.9	1,122	3.7	2,176	7.1
2000 Males	3,766	23.4	1,294	8.1	1,196	7.4	4,814	29.9	3,453	21.5	527	3.3	1,030	6.4
2000 Females	3,577	22.0	1,233	7.6	1,152	7.1	4,718	29.0	3,585	22.0	589	3.6	1,411	8.7
2000 Total	7,343	22.7	2,527	7.8	2,348	7.3	9,532	29.5	7,038	21.8	1,116	3.4	2,441	7.5

Schedule 6

Populations for Quebec  
(in thousands)

Middle of Year	14 and under		15 - 19		20 - 24		25 - 44		45 - 64		65 - 69		70 and over		
	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	
		%		%		%		%		%		%		%	
1970	Males	946	31.1	317	10.4	281	9.2	795	26.1	528	17.3	71	2.3	110	3.6
	Females	901	29.4	303	9.9	284	9.3	810	26.4	548	17.9	81	2.6	139	4.5
	Total	1,847	30.2	620	10.1	565	9.2	1,605	26.3	1,076	17.6	152	2.5	249	4.1
1975	Males	882	26.9	356	10.9	320	9.8	903	27.6	596	18.2	88	2.7	128	3.9
	Females	835	25.3	344	10.4	309	9.3	921	27.9	627	19.0	99	3.0	168	5.1
	Total	1,717	26.1	700	10.7	629	9.6	1,824	27.7	1,223	18.6	187	2.8	296	4.5
1980	Males	865	24.5	352	10.0	360	10.2	1,050	29.7	652	18.5	100	2.8	153	4.3
	Females	820	23.0	333	9.3	350	9.8	1,061	29.7	688	19.3	114	3.2	205	5.7
	Total	1,685	23.7	685	9.7	710	10.0	2,111	29.7	1,340	18.9	214	3.0	358	5.0
1985	Males	958	25.1	274	7.2	357	9.4	1,230	32.3	701	18.4	112	2.9	181	4.7
	Females	909	23.5	261	6.8	341	8.8	1,232	31.9	742	19.2	131	3.4	245	6.4
	Total	1,867	24.3	535	7.0	698	9.1	2,462	32.1	1,443	18.8	243	3.2	426	5.5
1990	Males	1,039	25.4	297	7.3	280	6.8	1,367	33.4	771	18.8	130	3.2	210	5.1
	Females	986	23.8	282	6.8	269	6.5	1,350	32.5	819	19.7	153	3.7	289	7.0
	Total	2,025	24.6	579	7.0	549	6.7	2,717	33.0	1,590	19.3	283	3.4	499	6.0
1995	Males	1,070	24.6	338	7.8	303	7.0	1,372	31.5	879	20.2	147	3.4	244	5.6
	Females	1,017	23.0	322	7.3	291	6.6	1,341	30.4	932	21.1	173	3.9	339	7.7
	Total	2,087	23.8	660	7.5	594	6.8	2,713	30.9	1,811	20.7	320	3.7	583	6.6
2000	Males	1,070	23.3	371	8.1	345	7.5	1,360	29.6	1,023	22.2	150	3.2	280	6.1
	Females	1,018	21.8	354	7.6	331	7.1	1,329	28.5	1,072	22.9	173	3.7	391	8.4
	Total	2,088	22.5	725	7.8	676	7.3	2,689	29.0	2,095	22.6	323	3.5	671	7.3

Schedule 7

Populations for Canada Excluding Quebec  
(in thousands)

Middle of Year	14 and under		15 - 19		20 - 24		25 - 44		45 - 64		65 - 69		70 and over		
	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	Number	Prop'n of Total	
		%		%		%		%		%		%		%	
1970	Males	2,328	30.7	735	9.7	632	8.3	1,868	24.6	1,430	18.8	216	2.9	381	5.0
	Females	2,219	29.5	703	9.3	626	8.3	1,841	24.5	1,440	19.1	224	3.0	470	6.3
	Total	4,547	30.1	1,438	9.5	1,258	8.3	3,709	24.6	2,870	19.0	440	2.9	851	5.6
1975	Males	2,174	26.8	853	10.5	750	9.3	2,085	25.8	1,578	19.5	246	3.0	414	5.1
	Females	2,067	25.6	820	10.1	724	9.0	2,074	25.7	1,611	19.9	260	3.2	525	6.5
	Total	4,241	26.2	1,673	10.4	1,474	9.1	4,159	25.7	3,189	19.7	506	3.1	939	5.8
1980	Males	2,109	24.2	880	10.1	869	10.0	2,432	27.9	1,677	19.2	285	3.3	464	5.3
	Females	2,008	23.0	837	9.6	843	9.7	2,424	27.7	1,719	19.7	309	3.5	596	6.8
	Total	4,117	23.6	1,717	9.8	1,712	9.8	4,856	27.8	3,396	19.5	594	3.4	1,060	6.1
1985	Males	2,302	24.5	720	7.6	897	9.5	2,892	30.7	1,763	18.7	306	3.3	533	5.7
	Females	2,189	23.1	687	7.3	861	9.1	2,872	30.4	1,811	19.1	351	3.7	690	7.3
	Total	4,491	23.8	1,407	7.5	1,758	9.3	5,764	30.5	3,574	18.9	657	3.5	1,223	6.5
1990	Males	2,537	25.1	712	7.0	740	7.3	3,327	32.9	1,861	18.4	349	3.4	599	5.9
	Females	2,412	23.6	681	6.7	714	7.0	3,276	32.1	1,917	18.8	403	4.0	795	7.8
	Total	4,949	24.3	1,393	6.8	1,454	7.2	6,603	32.5	3,778	18.6	752	3.7	1,394	6.9
1995	Males	2,658	24.6	828	7.7	734	6.8	3,449	31.9	2,088	19.3	378	3.5	676	6.2
	Females	2,524	23.2	789	7.2	710	6.5	3,382	31.0	2,160	19.8	424	3.9	917	8.4
	Total	5,182	23.9	1,617	7.4	1,444	6.6	6,831	31.5	4,248	19.6	802	3.7	1,593	7.3
2000	Males	2,696	23.5	923	8.0	851	7.4	3,454	30.1	2,430	21.2	377	3.3	750	6.5
	Females	2,559	22.0	879	7.6	821	7.1	3,389	29.2	2,513	21.7	416	3.6	1,020	8.8
	Total	5,255	27.8	1,802	7.8	1,672	7.2	6,843	29.7	4,943	21.4	793	3.4	1,770	7.7