Pension plan potpourri

Hubert Frenken

Nearly half the employees in Canada are covered by employer-sponsored registered pension plans (RPPs), but the benefits provided by these plans are far from homogeneous. RPPs come in a bewildering variety of forms and yield widely different benefits to the members upon retirement.

This article outlines the variety that exists in RPPs and indicates the number of workers covered by each type of plan.[1] Unlike Canada and Quebec Pension Plan (C/QPP) benefits, which depend only on the member's contributory period and earnings during that period, RPP pensions are linked to any of the following: contributions, length of participation, earnings, and, particularly, the benefit formula. Some RPP members accumulate thousands of dollars in pension credits each year; others earn only small amounts.

The article shows how benefits can vary for hypothetical workers earning identical annual wages ($40,000 at retirement), retiring at the same age (60) and having the same service (20 years), but whose pension plans have different benefit formulas. The article also looks at the costs of plans with different formulas, identifies the plans most likely to require employee contributions and describes some characteristics of workers likely to have substantial pensions.

The calculations are kept as simple as possible. For each formula, only the most common example is presented. No consideration is given to possible pension savings with previous employers. Nor is the scope of ancillary benefits provided by many plans addressed (spousal pensions, early retirement options, benefit indexing, past service benefits and special supplements in case of retirement before age 65).

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Two basic formulas

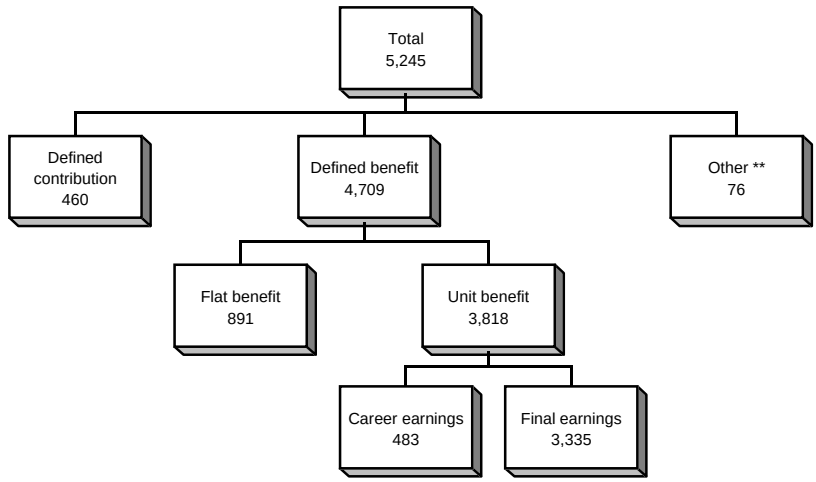
RPPs fall into two distinct groups: defined contribution plans and defined benefit plans (Figure 1). The former, similar to any savings plan, are called defined contribution because they specify an employer contribution rate but not a benefit formula. Employer payments and any employee contributions accumulate, earn investment income and provide a monthly pension at retirement. A typical contribution might be 5% of the employee's earnings provided by both employer and employee. Defined contribution plans represent 55% of all RPPs, but account for a relatively small share of RPP members: in 1993, just 9% of the 5.2 million RPP participants (Table 1).[2]

In contrast, defined benefit plans usually do not prescribe how much the employer must contribute, but always specify the amount of pension retiring members will receive. Employers contribute as needed to ensure that funds are available to cover expected retirement benefits (to maintain the actuarial soundness of the plan).[3] Defined benefit provisions have one advantage over defined contribution plans: the benefit formulas allow a more accurate calculation of members' pensions.

Different defined benefit formulas

Defined benefit plans have either a flat benefit or a unit benefit formula. Flat benefit arrangements specify a fixed monthly pension per year of service; for example, $20 per month for each year of service. Unrelated to earnings, flat benefits depend only on

Figure 1
Membership* in employer-sponsored pension plans, 1993



* *In thousands*
** *Combination of defined contribution and defined benefit, or variable formula for different categories of members*

Table 1
Employer-sponsored pension plan membership, 1993

	Both sexes		Men		Women	
	'000	%	'000	%	'000	%
All plans	**5,245**	**100**	**3,025**	**100**	**2,220**	**100**
Defined contribution	460	9	284	9	176	8
Defined benefit	4,709	90	2,691	89	2,018	91
Flat benefit	891	17	737	24	155	7
Based on career earnings *	483	9	295	10	188	8
Based on earnings in final years **	3,335	64	1,660	55	1,675	75
3 years	343	7	211	7	132	6
4 years	12	-	7	-	5	-
5 years	2,505	48	1,136	38	1,369	62
6 or more years	476	9	306	10	170	8
Other †	76	1	50	2	26	1

Source: Pension plans in Canada database
* *May periodically be updated to take into account only recent years, rather than all years of plan participation*
** *Final average and average best earnings*
† *Combination of defined contribution and defined benefit, or different formulas for various categories of members*

the length of plan participation. In 1993, 19% of defined benefit plan members were covered by such formulas.

The majority (81%) were in unit benefit plans, which provide a "unit" of pension equal to a percentage of their earnings for each year of participation. The earnings on which the pension is calculated vary significantly. Some plans use career earnings, which encompass the earnings received during all the years of participation in the RPP. Others use final earnings, which refer to those near retirement only.

For this article, final average and average best formulas have been combined. Final average earnings suggests the average of earnings received during a specified period just before retirement, and average best, the average of those in the member's highest-earnings period. For most workers the highest-earning period is just before retirement.

How much pension?

For members of defined contribution arrangements – also called money purchase plans since the accumulated funds are used to purchase an annuity from a financial institution – only an approximate pension can be calculated. The benefit depends on the accumulated funds, the member's age at retirement, the type of annuity purchased and the prevailing interest rates at retirement.

Some relatively low ...

Generally, defined contribution pensions are small. Contributions are usually a percentage of earnings, so only high income members with significant combined employer and personal contributions earn generous pension credits.[4] Many long-term members would likely have had low contributions during their early years, resulting in modest pension savings during those years.

Based on assumed salary increases and interest rates during the years of plan participation, as well as standard life tables and current annuity rates, a defined contribution pension can be calculated for a hypothetical worker (see *About the data).* A non-indexed pension for someone aged 60, retiring in 1995, with a final salary of $40,000 and 20 years of combined employee and employer contributions of 10% of earnings, might be about $10,500 annually ($875 per month) for a man and $9,600 ($800 per month) for a woman.[5] If indexed (adjusted annually to reflect changes in the consumer price index), the former pension would start at approximately $7,200 per year ($600 monthly) and the latter at about $6,100 ($510 monthly).

Flat benefit plans also tend to produce relatively small pensions. The most common benefit rates are $20 and $30 a month for each year of service, although rates range from less than $5 a month to as high as $75 (Table 2). At the $20 rate, a worker with 20 years of service, regardless of earnings, would have an annual pension of just $4,800, and $7,200 at the $30 rate ($400 and $600 per month, respectively).

... others higher

In general, pension accruals are higher under unit benefit plans than under defined contribution and flat benefit plans. But even unit benefit accumulations can vary significantly.

Table 2
Flat and unit benefit plan membership, by benefit rates, 1993

	Members	
	'000	%
Flat benefit rate per month for each year of service		
Total	**891**	**100**
Less than $10.00	48	5
$10.00 - $19.99	92	10
$20.00 - $29.99	200	22
$30.00 - $39.99	209	23
$40.00 or more	35	4
Other *	308	35
Unit benefit rate as % of earnings **		
Total	**3,818**	**100**
Less than 1.5%	205	5
1.5% - 1.9%	506	13
2.0%	2,911	76
More than 2.0%	113	3
Other †	82	2

Source: Pension plans in Canada database
* *Variable rate for different categories of members or fixed dollar pension after a minimum period of service*
** *Ignores any lowering of benefits because of integration with the C/QPP (see* C/QPP integration*)*
† *Variable rate for different categories of members*

In career average plans, for example, low earnings at the beginning of a career would bring down the average used to calculate pensions. Because of that, many employers periodically adjust the earnings base to more recent earnings only; for instance, earnings since the beginning of January, 1988. It is not known how many members benefit from such adjustments.

About the data

Source

This article uses the Pension Plans in Canada database, maintained by the Labour Division of Statistics Canada. This database is updated annually with information from the federal and provincial agencies responsible for supervision and regulation of employer-sponsored pension plans (RPPs). Annual data reflect the number of active plans and their characteristics as of January 1 each year. The information in this article is for 1993.

Records for each RPP provide detailed classifications of contribution and benefit formulas, including the existence and nature of any linkage with Canada and Quebec Pension Plan (C/QPP) contributions and benefits. For further details, consult the Statistics Canada biennial reports and supplements, *Pension Plans in Canada*, Catalogue 74-401 or contact the Pensions Section, Labour Division, Statistics Canada, (613) 951-4034.

Methodology

To calculate the pensions produced by the different formulas for 60 year-olds retiring in 1995 with 20 years of service and $40,000 final year salary, it was assumed that earnings were a constant proportion of each year's maximum pensionable earnings (YMPE) of the C/QPP. For example, the average earnings for the final five years in the final earnings arrangement were 115% of the average 1991-to-1995 YMPE (the ratio of the $40,000 final salary to the 1995 YMPE).

For defined contribution benefits, interest during the accumulation period was assumed to average 7.5% per year, while the annuities for a non-indexed pension were based on 9.5% net interest for 15 years and 6% thereafter, and for an indexed pension, 4.5% for 15 years and 3% thereafter (see *Acknowledgements*).

Pensions based on earnings near retirement are usually higher than those based on earlier earnings, particularly if the earnings base is a short period. The most common period is the last five years (66% of unit benefit plan members). In comparison, 13% have a career average earnings base and 9% have one based on the last three years before retirement (the shortest period permitted).

Just as benefit rates for flat benefit plans differ, so do those for unit benefit plans. Some members are entitled to less than 1% of earnings for each year of service, while others receive more than 2% (Table 2). Most receive 2% (76% of all unit benefit plan members). Predictably, members entitled to 2% or more of final earnings collect the most generous pensions (assuming a significant number of years of service). For a worker retiring in 1995 after 20 years of service and with a $40,000 final year salary, the annual pension would be about $10,250 ($850 per month) with a 2% unadjusted career earnings formula. Under a 2% final five-year earnings provision, the same worker would receive approximately $15,250 ($1,270 per month).

Many 2% final earnings pensions are integrated with C/QPP benefits, however, resulting in lower benefits after the pensioner reaches 65. This integration can take different forms and is usually accompanied by integration of contributions (see *C/QPP integration*).

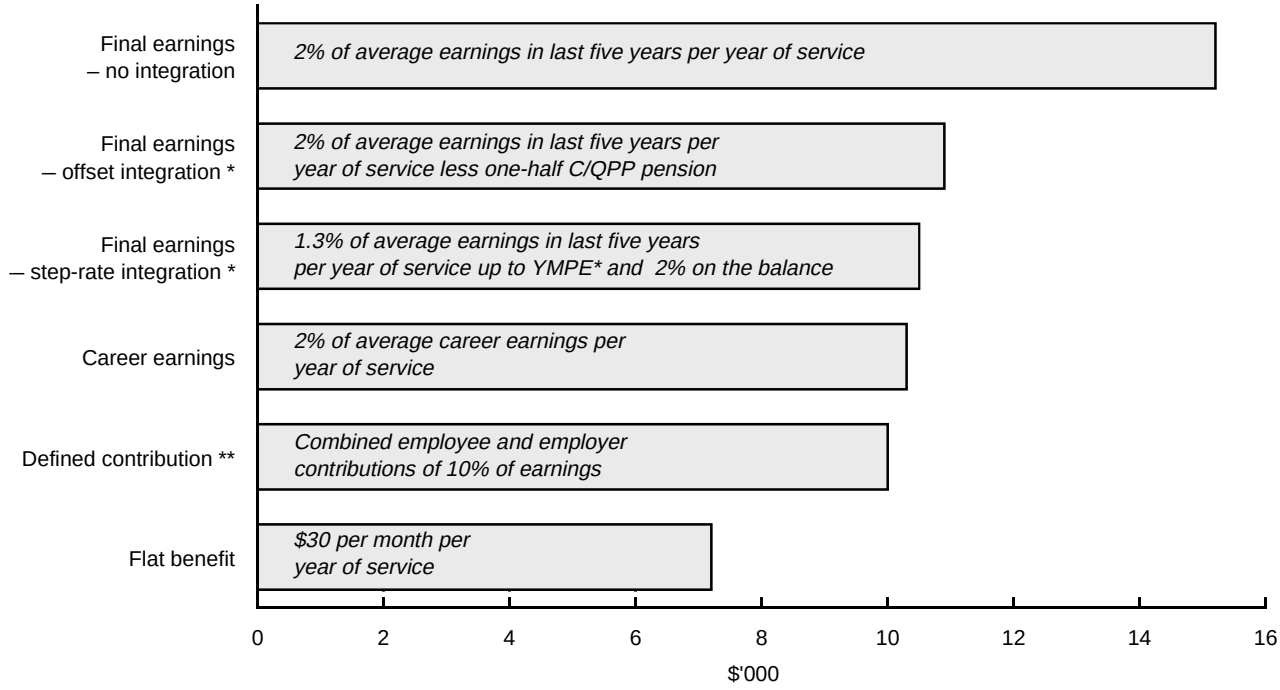
Nevertheless, final earnings plans tend to provide the highest pensions, followed by career earnings plans, defined contribution plans and, finally, flat benefit plans (Figure 2).

Contribution differences

The higher the pension the greater the contributions required. Although many other factors have an impact, differences in the retirement pensions provided under the various formulas are reflected in the range of average

Figure 2
Annual pension produced by different benefit formulas

Retirement in 1995 with 20 years of service and $40,000 final-year salary



** See* C/QPP integration *for definitions*
*** Non-indexed median pension for men and women*

contributions per active member of each type of plan.[6] In 1992, nearly $20 billion in combined employer/employee contributions was deposited into RPP funds, $3,750 for each of the 5.2 million active members. The per capita contribution ranged from $4,700 for final earnings plans, to $2,600 for career earnings plans, $2,160 for defined contribution plans and $1,760 for flat benefit arrangements (Chart A).

Who must contribute?

Participating in a relatively generous pension plan often comes at a price. Members of these plans are more likely to share the costs of their pension accruals than members of other plans. For example, 38% of the total contributions to final earnings plans were made by the members themselves, while the employee share of flat benefit deposits was only 10%.

Three out of four RPP members overall had to contribute in 1993, but their contribution rates varied widely. Some contributed a certain number of cents per hour worked; others, a fixed dollar amount per year. The majority (92% of contributors), however, had a fixed percentage taken from their salaries, ranging from less than 5% to more than 8%. The most common rate was between 7% and 7.9% (Chart B).

Nearly nine out of ten final earnings plan members were obliged to contribute to their RPP in 1993, and almost two-thirds of them contributed 7% or more of their earnings. At the other end of the spectrum, 18% of flat benefit plan members had to contribute and none at such a high level. Nearly 78% of defined contribution plan members and 71% of those in career earnings plans had mandatory contributions. The most common rate was 5% of earnings, and very few contributed over 7%.

RPP members with ample benefit accruals generally bear a significant share of the costs, while those with much lower pension savings tend to make no or very limited personal contributions.

Who earns generous pensions?

Differences by size of employer

Small and medium-sized employers are much less likely than large organizations to sponsor a pension plan for their workers (Morissette, 1991, and Frenken and Maser, 1992). And, if they do, they are more apt to have a defined contribution plan. In 1993, two-thirds of the members in plans

C/QPP integration

Many RPPs have benefit formulas linked to or integrated with the C/QPP, especially plans paying a unit of benefit based on career or final earnings. Integration can take two forms: benefit offset or benefit step rate.

RPP members with C/QPP integration of benefits based on percentage of earnings, 1993

	Members	
	'000	%
Total	**3,735**	**100**
Offset integration	791	21
Step-rate integration	2,510	67
No integration	434	12

Source: Pension plans in Canada database

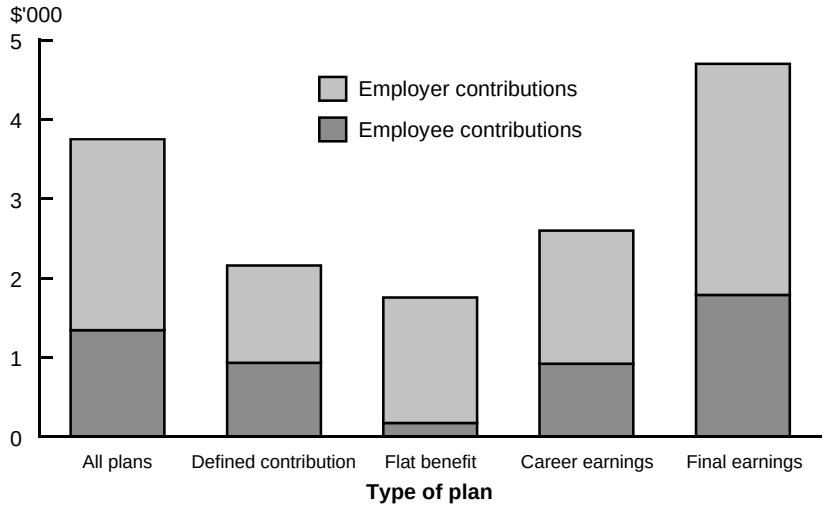
A benefit offset reduces the pension by all or part of the C/QPP benefit. For example, the hypothetical member with 20 years of service and $40,000 in final earnings, retiring in 1995 with an offset of one-half the C/QPP pension from the 2% of final earnings, would receive an annual RPP benefit of about $10,950 ($15,250 minus an offset of approximately $4,300), or $910 per month.

Step-rate integration is more common. A benefit step-rate formula uses two rates: a lower rate applied to earnings up to the C/QPP year's maximum pensionable earnings (YMPE) ($34,900 in 1995) and a higher one above that level. The final earnings plan member with $40,000 final salary and 20 years of service retiring in 1995 would receive an annual benefit of about $10,550 ($880 per month), based on a two-tiered formula of 1.3% and 2%.

Many RPP members with C/QPP benefit integration can retire at age 60, or even sooner, with the pension they have accrued. Furthermore, they are often paid a supplementary benefit from the time of retirement to age 65. This supplement (also called bridging benefit) may consist of payment of the full pension, without the C/QPP reduction. For example, someone with an RPP benefit of 2% of earnings for each year of service less C/QPP benefits, would have the C/QPP offset applied only at age 65. And someone with an RPP step-rate formula of 1.3% for each year of service up to the YMPE and 2% on the balance of earnings would receive 2% of all earnings until age 65. The lower rate on earnings up to the YMPE would be applied only at that age.[7]

Most plans with an integrated benefit formula also have integrated contributions. Of the 3.8 million RPP members who were required to contribute in 1993, 78% had contributions integrated with the C/QPP. More than three-quarters of them had a contribution step-rate formula (for example, 4.5% of earnings up to the YMPE and 7% on the balance of earnings); the remainder had contribution offsets (for example, 7% of earnings less the required C/QPP contributions). For further details on contribution integration and analysis of formula changes in recent years, see Frenken, 1993.

Chart A
Per capita contributions were greatest for final earnings plans in 1992.



Source: Pension plans in Canada database

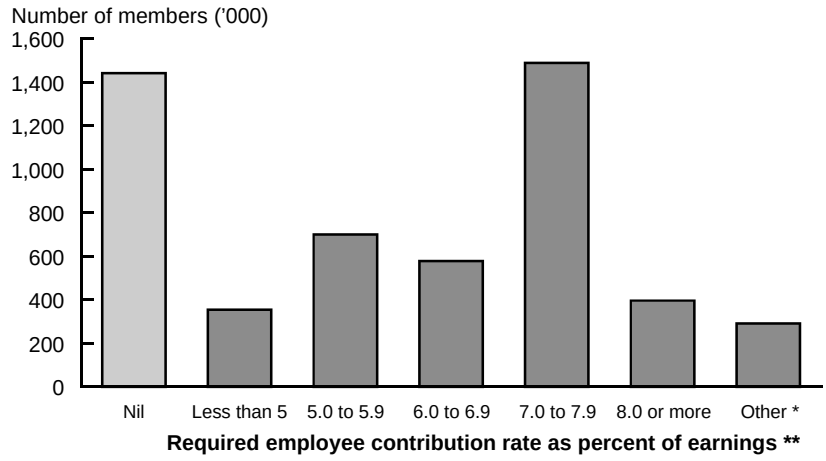
with fewer than 50 participants had a defined contribution arrangement.[8] At the other end of the spectrum, more than three-quarters of members in plans with 5,000 or more participants had a final earnings formula.[9]

Variations by industry

Specific RPP arrangements tend to be associated with particular industries. Although only 9% of all RPP members had defined contribution arrangements in 1993, the proportion was 20% in both primary industries and trade (Table 3).

Flat benefit formulas predominate in construction. In 1993, almost nine out of ten construction industry workers covered by an RPP had such an arrangement. Flat benefit formulas were also common in some manufacturing industries, notably clothing, wood products and transportation equipment, where 70% of covered workers had such a formula. In these industries pension plans are usually

Chart B
Three-quarters of plan members had to contribute in 1993.



Source: Pension plans in Canada database
* *Contributions of a specified number of cents per hour worked, a fixed dollar amount per year, or a variable rate for different categories of members*
** *Ignores any lowering of contributions because of C/QPP integration*

union-negotiated and restricted to members of the union.[10]

In contrast, nearly all employees in public administration and defence belonging to a pension plan and most RPP members in finance, insurance and real estate; in transportation, communication and other utilities; and in community, business and personal services accrued benefits based on final earnings. Transportation, communication and other utilities includes many Crown corporations, whose pension programs are comparable to public service plans. Also, the relatively high percentage of RPP members with final earnings plans in community, business and personal services can be attributed to province-wide plans for teachers and health-care workers.

Contrasts by sex

As a whole, female RPP members are in plans that yield larger pensions than those of male participants.

Table 3
Employer-sponsored pension plan membership, by industry, 1993

			Type of plan			
	All plans		Defined contribution	Flat benefit	Career earnings	Final earnings
	'000			%		
All industries	**5,245**	**100**	**9**	**17**	**9**	**64**
Primary industries *	103	100	20	34	7	34
Manufacturing	941	100	10	38	19	29
Construction	290	100	11	87	1	1
Transportation, communication and other utilities	427	100	7	7	8	76
Trade	443	100	20	37	24	16
Finance, insurance and real estate	353	100	8	--	7	84
Community, business and personal services **	950	100	12	5	12	69
Public administration and defence **	1,737	100	3	-	1	96

Source: Pension plans in Canada database
* *Agriculture, forestry, trapping, fishing and mining*
** *Education and health care workers are included in community services in all provinces except Quebec, whose province-wide plan, covering nearly all public sector employees, is coded to public administration*
Note: Percentages may not add to 100% because of the exclusion of the "other" plan category defined in Table 1

Because women predominate in some industries where most workers earn final earnings benefits, a larger proportion of female members have such provisions and fewer flat benefits (Table 1). In 1993, women represented 69% of all RPP participants in finance, insurance and real estate; 59% in community, business and personal services, and 51% in public administration and defence. On the other hand, women's representation in industries that favour flat benefit plans is relatively low. In 1993, just 2% of RPP members in construction, 8% in wood products and 15% in transportation equipment were women.

Summary

Employer-sponsored pension plans vary in both application and design. Retirement benefits depend on factors such as years of participation in the plan and, most frequently, the worker's earnings. The most important factor, though, is the formula used to calculate pensions. The most generous pensions are those linked to earnings at or near retirement. Members of defined contribution plans and those whose pension is a fixed amount for each year of service tend to collect less.

Small and medium-sized employers are less likely than large ones to provide pension plans and, if they do, they tend to favour defined contribution arrangements. Covered workers in public administration and defence, education, health care and Crown corporations nearly always earn pensions based on a percentage of their earnings near retirement. Members of union-negotiated plans typically earn a flat benefit not related to earnings. A substantial portion of women work in industries with generous pension programs. However, these pensions depend mostly on members' earnings and years of service, both of which may lower benefits accrued by women. □

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Notes

1 For a detailed analysis of the overall RPP coverage rate and the types of jobs likely to provide such coverage, see Frenken and Maser (1992).

2 In recent years, employer-sponsored group registered retirement savings plans (RRSPs) have become a common alternative to RPPs. They are similar to defined contribution RPPs, but do not require employer contributions *per se*, although employers may pay the administration costs. Employer contributions are treated as members' earned income for income tax purposes. Currently, there are no accurate data on the number of group RRSPs or on the number of members.

3 Some union-negotiated plans have both a defined benefit formula and a stipulated employer contribution rate, usually specified in the union contract. These are treated as defined benefit plans.

4 Many senior executives and owner/operators of incorporated businesses fall into this category. Under Revenue Canada regulations, these "significant shareholders" are not permitted to have a defined benefit plan.

5 Different life expectancies, resulting in a longer projected benefit period for women, account for the different pensions of men and women. The aggregate pensions, assuming deaths will occur as projected, will be the same.

6 Other factors influencing contributions:
- a) ancillary benefits such as survivors' pensions, indexing, past service benefits, supplements paid on retirement before age 65, and early retirement options, all of which can be very costly
- b) characteristics unique to each plan, such as different withdrawal rates before retirement and average age of participants
- c) unfunded liabilities, which require significant employer contributions to liquidate, or pension fund surpluses, which may absolve employers from contributing
- d) investment earnings, which supplement defined contribution plan premiums but reduce defined benefit costs
- e) contributions for former members for whom unfunded liabilities may still exist

7 When these provisions were implemented, the earliest age of entitlement for C/QPP retirement benefits was 65. Today, C/QPP benefits can be received at age 60, albeit at a reduced level. The RPP bridging benefits have not been lifted, however.

8 Including many owner/operators of incorporated businesses (see Note 4).

9 The number of plan members is not necessarily equivalent to the size of the employer. Some employers have separate plans for different categories of worker, such as those in various locations or positions. Also, many large RPPs are multi-employer, industry-wide plans with different-sized employers participating: for example, the Quebec Construction Industry Pension Plan, which covers workers employed by approximately 16,000 employers. Therefore, the fact that only 5% of flat benefit members were in plans with fewer than 50 members in 1993 is misleading, in that it suggests, erroneously, that this type of plan is favoured by large employers.

10 These plans are subject to collective agreements. Most unionized RPP members belong to final earnings plans not subject to such agreements.

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