Some economic considerations of private pension plan options

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Author's note

This is an amended and abridged version of a 1998 paper of the same title that I prepared for members of the pension plan. The current AUFA Executive requested that I abridge the earlier document (which is still available from the author) in advance of distribution of proposed amendments to the Acadia University Pension Plan. I have not seen the proposed amendments, so no discussion of them appears here.

The focus of the original version was the potential for major plan revision, including the possibility of merging plans with other universities. This seems not so relevant in 2006, but members may still find my descriptions and explanations of the various types of plans and terminology useful. (Many thanks to Richard Cunningham for comments on an earlier draft.)

Should members wish to review the relevant provincial legislation, please see http://www.gov.ns.ca/legislature/legc/statutes/pension.htm. Articles 20 and 79, especially, may be of interest.

Some information requires updating. Note that the RRSP limit in 2006 is $18,000, the annual benefit limit is $2,111.11 per year of pensionable service (see Section V.2) and the Yearly Maximum Pension Earnings (YMPE) is $42,100.

A brief summary of the current pension plan is provided in Section V. However, members may wish to examine the full plan. It is available at http://www.caut.ca/aufa/links/pension.htm.

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I. INTRODUCTION

Many members of the Canadian labour force do not belong to any employer-sponsored private pension plan. Of those who do, many participate in a 'defined-benefit' plan, while the rest either belong to a 'money purchase' plan or their employers contribute directly into their 'locked-in' RRSPs. These alternatives are described below.

An employee often simply accepts the existing pension plan as a condition of employment. Although the terms of a plan can be altered, some plan structures are clearly more difficult to modify than others. Nevertheless, sometimes it is possible for firms and employees to choose a plan without hindrance; for example, in the case of a new firm. In either situation — changing a plan or starting one anew — employers and employees may rank plan alternatives differently. Also, in many cases, these principal stakeholders may not appreciate all of the trade-offs involved and thus are unable to make an informed decision as to why one plan structure might be preferred to another.

Given the jargon and complexities involved, it is little wonder that people experience difficulty determining what kind of pension plan — or none at all — would best suit their circumstances. Indeed, some may not even be aware of alternatives. One purpose of this paper is to describe and compare the major elements of four options from an economic perspective in the context of existing pension plan legislation.

The various trade-offs individuals and firms make, sometimes unwittingly, when they choose one type of plan over another are examined. As well, because it is unclear that legislators are aware of the economic and ethical implications of the pension laws they make and enforce, the question of what type of person current pension legislation disadvantages (or favours) is addressed.

In order to examine these matters, a series of comparisons is presented: defined-benefit *versus* money purchase plans; money purchase plans *versus* employer-sponsored RRSPs; and, participating *versus* not participating in any type of private pension plan. These comparisons are discussed in Section II, albeit mostly from an employee's perspective. To make the alternatives more easily comparable, it is assumed that the financial burden on the employer is more or less identical across alternatives. Moreover, again for simplicity, it is assumed in this section that each alternative involves matching employer and employee contribution rates (exactly at each point in time in some cases and 'on average' in the case of defined-benefit plans).[1]

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[1] We emphasize that this is a simplifying assumption <u>only</u>. In some plans, for example, employees contribute nothing to their pension plans. They are 100% employer-financed.

In Section III, these options are compared from an employer's perspective and, in Section IV, we describe other features of pension plans not discussed in detail in the previous sections. In Section V, we provide a brief guide of the current Acadia University Pension Plan.

II. PENSION PLAN ALTERNATIVES

II.1 Defined-Benefit *versus* Money Purchase Plans

Many private pension plans are of the 'defined-benefit' type. That is, the size of an individual's (monthly or annual) pension is based on a formula which includes his or her years of pensionable service with an employer and average salary in the years immediately prior to retirement. A typical plan of this type would define each employee's contributions as a percentage of earnings and determine benefits such that, on average, an employer's contributions would match those of employees — not a necessary condition of such plans but assumed here in order to facilitate easy comparison with other types of plans. In a given year, an employer's contributions may be higher or lower than 100% of employees' contributions depending on the performance of the pension fund portfolio. The employer's legal responsibility is to maintain the actuarial soundness of the fund; to contribute whatever amount is required to ensure that no unfunded liability exists. Therefore, in a year when the portfolio earns relatively high rates of return (higher than the plan's *valuation rate*[2]), the employer would contribute less than employees in order to maintain actuarial soundness. In years when the fund performs poorly, the employer would be required to more than match employees' contributions in order to achieve actuarial soundness. (An employer's contribution rate required to maintain actuarial soundness is usually calculated at three-year intervals.)

A 'defined-contribution' or 'money purchase' plan is substantially different. A typical plan of this type has prescribed contribution rates for both employer and employees, often times — and assumed for purposes of this discussion — to be matching. (Contribution limits exist and are identical to annual RRSP contribution limits.) Thus, whereas an employee's contributions are matched by the employer every pay period in this type of plan, they are meant to be matching only on average in a defined-benefit plan. Within a money purchase plan, an employee's personal fund (twice his or her contributions plus investment earnings) accumulates over time at whatever rate of return

[2] If a plan is meant to require matching employer and employee contributions on average, one might think of its valuation rate as the rate of return a fund would have to earn every year — no more or less — such that employer and employee contributions would match exactly in order to maintain actuarial soundness on an annual basis.

the entire fund portfolio earns (after expenses). Upon retirement, the magnitude of a retiree's regular pension cheque depends on the size of his or her fund, not on years of service explicitly.

If an employee's contributions were identical in both cases, would he or she have reason to prefer one type to the other? Therein lies the source of much confusion.

One argument put forward in support of defined-benefit plans is that the employer bears all of the risk. If the fund portfolio does particularly poorly, it is the employer's responsibility to contribute more than employees to restore it to actuarial soundness. In a money purchase plan, this portfolio risk is borne by employees. However, this argument in favour of defined-benefit plans is somewhat flawed.

First, defined-benefit plans hire actuaries on a regular basis to determine the financial health of the fund. If an actuary were to assume that a plan would earn the rate of return a reasonably prudent portfolio manager would generate on average, the employer would indeed bear the risks associated with uncertain stock and bond markets. However, actuaries typically assume that a plan's portfolio will earn a very conservative average rate of return (the valuation rate of the plan). Notice that by setting this valuation rate low, below the average return a reasonably prudent investor would earn, actuaries are taking into account portfolio risk on behalf of contributing employers. Indeed, the difference between these two rates can be thought of as compensation to the employer for risk-taking. This compensation is not costless: employees, perhaps unwittingly, have traded off risk for a low (imputed) rate of return to their contributions.

Second, some plan members seem to believe that they have little to worry about if their plan's portfolio performance is disastrous. They may think that the calamity will only affect the finances of their employer. This is not so. Pension plan legislation allows employers to 'wind up' plans. Provisions for employers to terminate plans exist (conditional upon various legal requirements). Moreover, an employer in such a circumstance may be inclined to reduce payroll to make up the shortfall.[3] Again, employers do not bear all of the risk. The alleged superiority of defined-benefit plans on this basis is, thus, somewhat illusory.

Indeed, a case can be made for preferring a money purchase plan. Employees ultimately pay for poor plan portfolio performance regardless of type. What if a portfolio performs especially well? Members of a money purchase plan automatically capture any gains to be had as there is no *assumed* rate of return. They receive whatever their contributions (and their employer's) earn from stocks, bonds and the like. In a defined-

[3] Of course, bankruptcy is possible.

benefit plan, it is possible for employees to gain nothing when the portfolio earns more than the assumed (valuation) rate on average. This depends on whether they have any claim to their plan's surplus. When an individual retires, the cost to the plan of providing that person with the pension calculated for him or her according to the plan's benefit formula is the *commuted value* of that person's pension.[4] One way to define an employee's surplus (it can also be defined for the aggregate pension fund) is to determine twice that person's contributions — what employer plus employee would have contributed if the employer were required to match contributions as in a money purchase plan — plus earnings (from the portfolio) minus the commuted value of that employee's pension. Some defined-benefit plans pay employees 100% of their surplus upon retirement, thus causing these plans to be equivalent to a money purchase plan in this respect. Typically, however, defined-benefit plans pay less than 100% of surplus, often times none, and are thus inferior to money purchase plans in this regard. At best, a defined-benefit plan can only match this dimension of a money purchase plan.

There is another reason why employees might well prefer a money purchase to a defined-benefit plan. Pension legislation requires an employer to maintain the actuarial soundness of its plan — to ensure that the assets of a fund are sufficient to meet its liabilities. Calculation of whether a plan is over- or under-funded requires the services of an actuarial consultant because the liabilities of a plan depend on mortality rates, expected salaries, expected rates of inflation, expected years of service *et cetera* — a calculation complex enough to require an actuary's expertise. These evaluations are required on a regular basis, and actuarial services are costly. Fees for these services are paid out of pension funds and are, thus, ultimately borne or shared by plan participants. This cost is not incurred in money purchase plans because they are actuarially sound by definition when employers simply match employees' contributions every pay period. Therefore, the cost of administering a money purchase plan is much lower. As administrative costs are paid out of a plan's fund, this cost saving of money purchase plans is ultimately reflected in enhanced pension payments.

An additional reason why money purchase plans may be preferred to defined-benefit plans is their portability. When an employee leaves employment with a firm

[4] Consider the simplest case, with no survivor's benefit, indexation, guaranteed number of payments or the like. When a person retires, he or she is owed a stream of pension payments. From a mortality table, the actuary calculates the expected number of payments the individual will receive (until death). The commuted value of an individual's pension is the present value of this (expected) stream of payments using an interest rate consistent with actuarial principles. (Currently, Acadia's actuary uses an annual interest rate slightly less than 5%.) That is, the commuted value of an individual's pension can be thought of as the total dollar amount that must be set aside when a person retires in order to finance his or her expected stream of retirement payments.

operating a money purchase plan, that employee's personal pension fund goes with him or her, and it can be easily transferred to another firm's money purchase plan or to the employee's RRSP. A dollar is a dollar: it is much like transferring a savings account from one bank to another. It is not so simple to transfer from one defined-benefit plan to another as a 'year of pensionable service' at one firm may not be worth twelve months of service at another because of differences in salary, plan terms (including early retirement provisions and the like) and pension formulae. Again, it requires the services of an actuary to perform the necessary calculations for transfers between defined-benefit plans (when allowed), whereas this cost is not incurred when funds are transferred between money purchase plans. Indeed, some firms simply forbid transfers of other firms' pensions into their defined-benefit plans.

Portfolio investments are risky, but employees ultimately bear a share of the costs of this risk regardless of whether their plan is defined-benefit or money purchase. If employees realized this, they would prefer money purchase plans because of their other attractive features. In money purchase plans participants earn whatever return their fund earns over time whereas, in defined-benefit plans, their (implicit) earnings may be restricted to the valuation rate assumed by actuaries; money purchase plans are less complicated and thus less expensive to administer; and, pension funds in a money purchase plan are much more portable.

II.2 Money Purchase *versus* Employer-Sponsored RRSPs

There is another pension arrangement similar to a money purchase plan. If, within a money purchase plan, an employer has agreed to pay a certain percentage of an employee's salary into his or her fund, that employer, from a purely financial perspective, should be at least as willing to pay the same amount directly into an employee's Registered Retirement Savings Plan (RRSP). The advantage of this arrangement is that the employee has more control than in a formal pension plan over his or her pension portfolio and may purchase stocks, bonds, investment certificates or whatever (subject to some legal restrictions) according to his or her own risk preferences. Of course, people who feel uncomfortable with this responsibility may prefer to be enrolled in a money purchase plan and entrust their funds (usually) to whatever portfolio manager the fund hires. However, such people should be aware that, again, there is a trade-off. Indirectly, through the plan, they will pay for the portfolio manager's services.

There is, however, more to this trade-off. It may be that a money purchase plan restricts the pay-out options available to individuals upon retirement. That is, it may be that they must draw a pension from their fund *via* the plan. (One way to circumvent this is to resign before any compulsory retirement age.) This is equivalent to being a member of

a compulsory life annuity plan. Because all members must participate, pensions will be calculated for them on the basis of the group's average life expectancy. If the group is large enough, this life expectancy may be the same as that of an average-lived retiree in the entire population. In an employer-sponsored RRSP plan — and any plan that allows monies to be withdrawn at retirement age — most contributions are 'locked-in' by law. This means that an employee cannot withdraw these funds until retirement age and that, upon retirement, he or she can only use these funds plus earnings (eventually) to purchase a life annuity (or a life income fund which must be converted to an annuity before a designated age). This annuity, however, would be purchased in a private sector annuity market where transactions are voluntary. Because there exist people whose RRSPs are not locked-in by law — such as the self-employed — who may think they have short life expectancies (perhaps because of ill health during their working lives) and thus will be reluctant to purchase life annuities, the average life expectancy of annuity purchasers will be somewhat longer than that of the retired population as a whole. The longer the life expectancy a life annuity is based on, the lower the annuity (pension) payment per dollar spent on it.

Therefore, whereas an employer-sponsored RRSP gives an individual more flexibility as to how he or she wishes to invest these monies, the drawback is that the annuity they must eventually buy will be based on the life expectancy of an average-lived voluntary annuity purchaser and not on the shorter life expectancy of an average-lived retiree in the population as a whole. Whether this trade-off is appealing to a particular person depends on his or her own personal preferences and circumstances.

Moreover, the terms of this trade-off will not be the same for males and females. Males will likely prefer employer-sponsored RRSP plans to a (compulsory life annuity) money purchase plan. Pension legislation in many jurisdictions does not permit private pension plan benefits to be determined on the basis of sex. If this were not so, females would receive lower pensions per dollar paid in premiums than males because an average female has a longer life expectancy than an average male (of the same age). Therefore, in a money purchase pension plan, males' pension payments are lower because of the presence of females. A male may thus prefer to use RRSP funds to purchase a life annuity in a private sector annuity market where he would garner some advantage because of his shorter life expectancy. Private sector annuity sellers are allowed to use sex as a factor to determine payments, much as insurance companies do to determine premiums for life insurance policies. Arguing along the same lines, females will find it more advantageous to belong to a money purchase pension plan if some of the plan participants are male.

On the basis of portability, employer-sponsored RRSPs come out slightly ahead of money purchase pension plans. Whereas funds must actually pass from one plan to another in the latter, an employee with an RRSP could simply direct a new employer to

pay contributions into that same RRSP. Therefore, over a person's working life, several employers could contribute to an individual's single RRSP, even simultaneously if circumstances warranted it.

II.3 A Plan *versus* No Plan

Employees who negotiate a pension package which increases their employer's costs should not be surprised if their wage settlement is lower than if their pension plan had not been enhanced. An employer's contribution to an employee's pension plan is not a gift; it is deferred compensation and employers and employees should be aware of this. If a firm is contributing a certain percentage of employees' gross wages into a pension plan, it should — on a purely financial basis — be equally as willing to pay the same amount to employees directly in the form of increased wages.

Suppose that an employer is indifferent between contributing a specific percentage of an employee's wages into a pension plan and the same amount directly to that employee in the form of increased wages. Would the employee be indifferent? There are a number of factors to be considered.

The first is the number of options open to an employee upon retirement. Even if an employee can withdraw the commuted value of his or her pension from a defined-benefit plan or his or her entire personal fund from a money purchase plan, pension legislation requires that the bulk of these monies, like those in an employer-sponsored RRSP, be converted eventually into some form of life annuity or life income fund (LIF or, RLIF in Alberta).[5] A person who forgoes an employer-sponsored pension plan in exchange for increased salary can operate his or her own RRSP. Upon retirement, that person has more options. Unlike a pension plan member, the entire balance of his or her RRSP could be used to purchase a life annuity, a Registered Retirement Income Fund (RRIF), a LIF, a term-certain-to-age-ninety annuity, or any combination of these — all of which are options already available to all self-employed people. (RRSPs accumulated by plan members outside of their pension plan are not locked-in; that is, they can be used to purchase RRIFs, which are often preferred to annuities, LIFs and the like.)

There are several advantages to purchasing a RRIF. A RRIF has no insurance component. A retiree simply runs his or her fund down according to a schedule he or she determines (within certain legal limits) when his or her RRSP is converted into a RRIF. This option is especially attractive to people who, perhaps because of ill health, wish to spend the bulk of their retirement savings soon after retirement. If an individual dies

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[5] A LIF is like a RRIF but, if an individual is still alive at an age defined by law (80 years), the remaining balance must be converted to a life annuity.

before his or her RRIF is exhausted, the balance passes to a beneficiary (or the individual's estate). When a life annuity purchaser dies, payments stop unless he or she has previously traded off the size of pension payments for survivors' benefits. Depending on the age of heirs, a person may prefer a RRIF, as would any person who believed his or her life expectancy to be shorter than that upon which a life annuity is based. A RRIF offers this type of person more flexibility than a life annuity in order to plan expenditures according to his or her circumstances and preferences. Therefore, if an employer's contribution can be taken as increased wages, a person can make him- or herself better off by choosing not to participate in a plan.

The choice between a life annuity and a term-certain-to-age-ninety annuity involves similar trade-offs. A person who purchases a life annuity receives a predetermined series of payments until death. Depending on which type of life annuity a person purchases, payments may be wholly, partly or not indexed for inflation. A variety of provisions for continued payments to survivors also exists. The greater the provision for survivors' benefits and/or indexation for inflation, the lower are annuity payments. The major difference between this kind of annuity and a term-certain-to-age-ninety annuity is that payments cease at age ninety should a purchaser survive that long. Should he or she die before attaining that age, any remaining payments are paid to a designated heir or to the purchaser's estate. Because, on average, retirees do not survive to age ninety, payments from a term-certain-to-age-ninety annuity are less — all other things being equal — than from a life annuity. Whereas many of the advantages of a term-certain annuity are similar to those of a RRIF, a person thinking he or she will survive beyond age ninety will prefer a life annuity (barring an overriding bequest motive).

Employers, however, may not be indifferent between having and not having a compulsory pension plan. Paternalism is the usual reason stated. Employers and some employees feel that some individuals would not use their enhanced wages to operate their own RRSPs and thus provide for retirement.[6] This may be true, but people making this argument should be aware that it entails a very strong ethical judgment. Indeed, the whole matter of one person imposing constraints on another, even with the best of intentions, is troublesome.

First, Old Age Security and the Canada Pension Plan exist. That is, the federal government has already adopted a paternalistic stance, and further interference may be undesirable. Put to an extreme, if some individuals and firms want to compel other

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[6] Another difference between employer-sponsored RRSPs and voluntary RRSPs is that the former are 'locked-in'. That is, an employee is not allowed to withdraw these funds during his or her working life. If an employee uses enhanced wages to purchase an RRSP voluntarily, these monies can be withdrawn, although they would be treated as taxable income.

individuals to save for retirement *via* employer-sponsored pension plans, would they not favour telling retirees how they can spend their pension cheques? For example, should they hire guards to keep pensioners out of liquor stores? Indeed, some people may choose to use their savings to purchase a home rather than an RRSP despite any income tax implications. Presumably, they know best the needs and preferences of their families.

Second, it may be that people who favour compulsory plans on the basis of paternalism do not recognize that by doing so they disadvantage some people unintentionally. People who are responsible and capable of operating their own RRSPs are hindered when they are forced to participate in a pension plan. The question arises: Should the competent and responsible be forced to support the incompetent and irresponsible, or is this more properly a function of government? People in poor health with short life expectancies would prefer not to belong to a plan. Should these unfortunates be required to subsidize people with longer life expectancies (which they do, implicitly, when they are compelled to belong to a plan)? Should people with strong bequest motives be impeded from pursuing their goals? Such individuals would likely prefer RRIFs or term-certain annuities to pensions (life annuities), but current legislation hinders them in this pursuit.

Third, employees and employers motivated by paternalism should realize that by advocating compulsory participation in pension plans, they are answering the above questions, perhaps without considering the ethical implications of their answers or even the impacts of their decisions on others. The same holds true for governments that legislate and enforce pension plan laws. Decisions of an ethical nature are made regularly, and the above is not to be construed as a call that they be banned. More important here is for people who advocate pension rules and legislation to appreciate the ethical dimensions of their decisions. Although they obviously intend to protect and help some people, they should realize that by doing so they disadvantage others. Fortunately, recent changes to tax legislation that allow individuals to contribute more to individual RRSPs have reduced the extent to which the compulsory aspect of pension plans can disadvantage people.

Finally, another possibility is that employers, not knowing the trade-offs involved, choose a particular form of pension plan on the advice of an actuarial consultant. One problem may be that many consultants do not share objectives common to employers and employees. For example, a defined-benefit plan requires the services of an actuary, whereas no other plan type does. At the very least, the incentive for actuaries to advocate defined-benefit plans should be recognized.

II.4 Summary

Employees trying to choose among a defined-benefit pension plan, a money purchase pension plan, an employer-sponsored RRSP and no pension plan at all face a difficult decision. The latter three dominate defined-benefit plans, but the choice among these three involves a series of trade-offs. The choice most certainly depends on individual circumstances and preferences. However, employees may not be allowed to opt out of a pension plan and use the employer's contribution to operate a separate RRSP. Whether they should be allowed to or not raises serious ethical questions.

Ultimately, governments will determine what degree of paternalism is warranted. When doing so, legislators should be aware that their decisions will advantage certain types of people at the expense of others.

There is, however, a compromise which legislators may wish to consider. 'Locking-in' provisions prevent individuals from spending pension funds during their working lives and force them either to accept a pension or to purchase an annuity (or LIF). A suggestion would be to eliminate this second provision, thus allowing individuals to use their accumulated pension funds or employer-sponsored RRSPs to purchase the combination of life annuities, term-certain-to-age-ninety annuities, LIFs and RRIFs they choose. That is, a government might consider allowing members of employer-sponsored pension plans all of the options currently available to self-employed individuals and other people who are not members of a pension plan. By not allowing plan members to withdraw their funds before retirement, one aspect of a government's paternalism objective — likely the major one — is met. By allowing individuals more flexibility upon retirement, they would reduce the degree to which they treat plan members differently from people not forced to belong to a plan. Certainly, the plainly discriminatory treatment mandated by current legislation is questionable.

III. AN EMPLOYER'S PERSPECTIVE

In addition to what we have noted above, there are other considerations for employers regarding plan preferences, even if contribution rates are identical across the basic alternatives. In the above section, it was assumed that an employer would match employee contributions, at least on average. This is consistent with provincial legislation requiring that an employee finance no more than 50% of his or her pension. Still, it is reasonable to think that employers have objectives — other than witless paternalism — with respect to pension plans that go beyond their share of contributions to pension plans. They may include the following: risk sharing (described above), rights to surplus, administrative costs, and attractiveness to potential employees.

III.1 Rights to Surplus

If employees have no claim on any part of a plan's surplus, any employer is advised, at least on one basis, to operate a defined-benefit plan. Because valuation rates are set lower than rates of return to reasonably diversified portfolios, fund earnings in excess of the valuation rate — barring legislation — could make it necessary for the employer to contribute much less to a plan than what employees do.

Perhaps because of this phenomenon, laws in various jurisdictions require employers to contribute at least 50% toward the cost of employees' pensions. Still, the resulting surplus (in aggregate) has been the cause of a number of court challenges. On the other hand, it is not unusual for employer-employee pension committees to use such surpluses to enhance the terms of defined-benefit plans (especially with respect to indexing, normal-form-of-pension and early retirement provisions).

Unfortunately, such actions only entrench that which is, at best, an inferior pension structure. Moreover, Revenue Canada has placed limits on various aspects of pension plans and, once reached, the problem of how to deal with aggregate surplus remains. Given the mechanics of defined-benefit plans, the reluctance of actuaries to react to market-determined rates of return and, thus, the prevalence of surpluses, 'too much money' can actually become a problem. (Of course, if employers contribute less than what is necessary to maintain actuarial soundness, deficits result.) No such problem can arise in a money purchase or an employer-sponsored RRSP plan.

III.2 Administrative and Time Costs

The surpluses that can result in defined-benefit pension plans may or may not be attractive to employers. Nevertheless, these plans are costly to operate and not all costs may be shifted to the plan itself — even if an employer's contribution rate is identical across options.

An operator of a defined-benefit plan usually commissions the services of an actuary, a trustee, at least one portfolio manager and a measuring service. Although an actuary may be consulted from time to time by operators of money purchase plans, he or she is not required to the extent necessary for the operation of a defined-benefit plan. Nevertheless, a trustee, at least one portfolio manager and a measuring service are usually hired by overseers of money purchase plans. Indeed, in some cases an insurance company is hired to administer a money purchase plan. None of these services is required if the employer-sponsored RRSP or 'no plan' option is chosen, although a participant will pay administrative and portfolio management fees (explicitly or implicitly) to the bank, trust company or other financial institution in which his or her RRSP(s) is held.

Therefore, employers who sponsor defined-benefit or money purchase plans will likely require at least one person (full- or part-time) to act as the pension plan's benefits officer, if only to maintain communications with various consultants and to deal with employees' questions. This is a cost that is avoided if either the employer-sponsored RRSP or 'no plan' option is chosen. In these cases, an employer's obligations can be met as part of existing payroll procedures. That is, direct payment into an employee's RRSP is no more complicated than direct deposits of employees' pay cheques into their designated bank accounts. (We note that small employers seem to favour employer-sponsored RRSP plans, perhaps because they cannot spread this extra administrative cost over several employees.)

Another major cost is incurred only if a defined-benefit or a money purchase plan is operated. Usually an employer-employee committee is charged with overseeing the pension plan. These people meet regularly to examine the performance of the portfolio, to examine the need for changes, and to consider the advices of actuarial consultants (in the case of defined-benefit plans). Obviously, time spent performing these duties cannot be spent in any alternative productive activity. In an industrial setting, profits are forgone. In a university setting, alternative academic activities are forgone.

Therefore, from the perspective of an employer, an employer-sponsored RRSP plan or 'no plan' is preferable on the bases of administrative and time costs.

III.3 Recruiting

An employer may find it more or less difficult to attract potential employees depending on the type of pension plan it operates. What appeals and what does not appeal to people being recruited will depend on their characteristics and perceptions.

A defined-benefit plan can be relatively attractive to a person who joins a firm within fifteen to twenty years of retirement (and plans to stay with the new firm). This occurs because over a person's working life in a defined-benefit situation, benefits accrue more slowly at young ages than at advanced ages, even though the contribution rate may not change over the period. That is, the commuted value of a pension earned by a person joining a defined-benefit plan at, say, age 50, is likely to be greater than twice contributions plus earnings. One reason for this is that pension formulae are based on final average earnings, and such people are likely to enter at high salaries relative to their previous earnings. (For these same reasons, young potential employees will find the other three pension plan alternatives more attractive.)

On the other hand, a perceived drawback of defined-benefit plans is that some employers do not allow transfers from other plans.[7] Although a potential employee should be, presumably, indifferent between receiving one pension cheque or cheques from multiple employers, this may not be the perception. This phenomenon does not arise in other plan structures.

III.4 Summary

If legislation exists that requires that no employee pay for more than 50% of his or her pension and any surplus is to be shared equally, it is not clear why an employer would want a defined-benefit plan. If such legislation did not exist, an employer may find the potential for a fund surplus attractive. Of course, the employer should be prepared for a legal battle if it attempts to expropriate all or part of a plan's surplus. Sometimes such surpluses are simply used to enhance the terms of plans.

Still, many defined-benefit plans exist even though they are not attractive equally to all potential employees and they require significant administrative and time expenditures. That is, they exist although an employer-sponsored RRSP would satisfy any paternalistic motive at lower cost. The reason for this is likely historical. In the past, almost all employer-sponsored plans were of the defined-benefit variety, perhaps because no provision for RRSPs existed when these plans were initiated. Also, defined-benefit plans are the most difficult to convert to other structures once in operation.

IV. OTHER FEATURES OF PENSION PLANS

IV.1 Vesting

A pension is considered ‘vested’ when an employee has a right upon termination to contributions made by the employer on the employee’s behalf. For example, if a plan’s vesting period is two years, an employee with fewer than two years of pensionable service has a right to his or her contributions (plus earnings) only upon termination, whereas an employee with two or more years of service will have a right to his or her contributions plus the employer’s contributions plus earnings (usually expressed as twice contributions plus earnings).

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[7] Moreover, depending on age, not all of an individual’s pension monies may be transferred on a tax-protected basis.

IV.2 Termination/Death Benefits

Obviously, termination benefits are a function of the vesting period. In addition, there may exist other conditions. For example, a long-time employee who terminates employment may be required to accept a pension from the plan whenever he or she reaches a specified age (usually the 'Normal' or 'Early' age of retirement). On the other hand, a terminating employee may be offered the choice of taking a pension from the plan or transferring termination benefits to a RRIF, an RRSP (if eligible) or to another pension plan.

What applies to termination applies to death. Therefore, a plan member usually names an heir to be his or her 'pension plan beneficiary'.

IV.3 Normal Form of Pension

This is usually an issue only for employees in defined-benefit plans and refers to the 'default' type of annuity such a pension plan provides. Aside from indexation and other considerations, a 'normal form of pension' provision may specify a number of guaranteed payments and a survivor's benefit (payable upon the death of the member).

Regarding guarantees, a '5-year guaranteed' pension means that even should the recipient die within 60 months of retirement, the total number of monthly payments to the recipient and/or his or her estate will be at least 60. Therefore, the estate (or named heir) of a retiree who receives only one payment before death is guaranteed a further 59 payments (2 and 58, 3 and 57, and so forth to maintain a total of 60).

Regarding spousal benefits, a normal form of pension may specify something similar to '…and a 60% survivor's benefit'. This means that if a retiree dies, his or her spouse (or named heir) will receive 60% of the retiree's monthly pension until death. This percentage may be discounted if the named beneficiary is significantly younger than the retiree. In most cases, if the beneficiary is the retiree's spouse (married or not), no adjustment is necessary.

Revenue Canada has placed limits on 'normal form of pension'. Currently, a 'five-year-guaranteed with two-thirds spousal support' maximum is prescribed. This does not mean that a person must accept this form of pension. For example, a single person would, obviously, prefer a pension not involving a spousal guarantee. Indeed, there are alternatives.

A retiree need not choose the 'normal form of pension'. Usually, a person approaching retirement is asked what form of pension most suits his or her circumstances. What they are being offered is the 'actuarial equivalent' of the normal form of pension. Thus, a single person who wishes a pension in the form of a life annuity which specifies no guarantee and no spousal benefit would receive a monthly pension much in excess of what a married person would receive. The idea is that all available alternative forms of pension should be more or less of equal cost to the plan — the commuted value of the 'normal' form of pension, regardless of how normal or not the 'normal' form is.

IV.4 Indexation

Indexing refers to inflation, usually measured as 'change in Consumer Price Index (CPI)' and is meant to reflect changes in retirees' cost of living or purchasing power. Pension plans have indexing provisions ranging from none to full (and no more as prescribed by law). A retiree with half-indexing would see his or her regular pension cheque increase by half the increase in CPI. Similarly, a retiree whose plan offered full indexing would observe annual increases equal to the change in CPI, thus maintaining his or her purchasing power.

Indexation was deemed to be a major provision of plans throughout the 1970s and 1980s when inflation ran rampant, at least in relative terms. Since then, however, inflation has been low and, thus, indexing provisions have become less important. Still, when one buys an annuity in private sector markets, a large premium is paid for indexation. This occurs because annuity sellers price annuities based on 'expected' — not 'actual' — rates of inflation. There is risk. After all, annuity payments may be made well into the future, whereas a decision on how to index must be made in the present. People wishing to purchase certainty (in terms of purchasing power) should be advised that a cost — and, therefore, reduced benefits — is involved. This cost is factored into annuity prices (returns) to the extent that the higher the degree of indexation, the lower the regular pension payment. In any context, indexing is costly. Thus, even within a non-defined-benefit plan, retirees wishing protection against inflation should be prepared to pay for it, and they will find a variety of indexed annuities offered in the marketplace.

IV.5 Contribution and Pay-out Limits

It was noted above that money purchase, employer-sponsored RRSPs, and no-plan options all involve contribution limits in line with normal RRSP ones. In 1998, this limit is 18% of earnings to a maximum of $13,500. There is no limit on contributions to a defined-benefit plan, but there is one on how much can be paid out (in regular pension

payments excluding surplus). Also in 1998, the maximum annual pension from a defined-benefit plan is $1,722 times years of pensionable service (to a maximum of 35 years). If an employee has a right to surplus, it is taxable.

IV.6 Normal and Early Ages of Retirement

Usually, an employee is required to retire on or before his or her ‘normal’ age of retirement, almost always 65 years. If retirement is not compulsory, sometimes employees are not allowed to contribute to their company pension plan upon reaching this age. In any case, legislation imposes a maximum of 35 years of pensionable service.

An ‘early’ age of retirement refers to the youngest age at which an employee may retire and draw a pension (immediately) according to an early retirement provision. (Note that these are found only in defined-benefit plans, although early retirement provisions may exist outside of any plan — such as part of a collective agreement.) If such a provision exists, a person satisfying the age provision receives a pension according to formula but may or may not be treated as if he or she had attained, in fact, the normal age of retirement for actuarial purposes. That is, in some plans no deduction is made because their retirement (and thus stream of pension cheques) is expected to last longer than that of someone who retires at the normal age. Of course, any sort of actuarial reduction because of young age is possible.

IV.7 Integration with the Canada Pension Plan

Whether or not a pension plan is integrated with CPP is peculiar to defined-benefit plans. The specific form of integration is observable in contribution rates, pay-out rates and, possibly, bridging benefits (see below).

IV.8 Contribution Schedules

Many defined-benefit contribution schedules consist of two parts, specifying one rate on income up to Revenue Canada's defined Yearly Maximum Pension Earnings (YMPE, which is $36,900 in 1998), and then a higher contribution rate on earnings above YMPE. An alternative to this is to charge the following: one rate for earnings below which CPP premiums are not charged (the Year’s Basic Exemptions, $3,500 in 1998), a lower rate on earnings subject to CPP (up to YMPE), and then the higher rate, again, on earnings above YMPE.

IV.9 Pay-out Schedules

If a plan's premium structure is linked to CPP, so will its pay-out schedule. This means that the pension formula will feature one pay-out rate for final average salary up to YMPE and a higher one for final average salary in excess of YMPE. (Every defined-benefit plan specifies how 'final average salary' is to be determined. For example, it could be the average of the employee's best three, four or five years of continuous service according to salary — usually the last years of employment.)

Taken together, integration on the basis of a CPP parameter, YMPE, is of little consequence *vis-à-vis* non-integrated plans with respect to what a plan member's contributions actually earn for him or her. Indeed, one argument against such integration is that it causes contribution and pay-out schedules to be more complicated than otherwise to no discernible end. Nevertheless, if integration with CPP entails bridging benefits, then employees and employers may deem the added complexity warranted.

IV.10 Bridging Benefits

Many defined-benefit plans specify early retirement options. One problem is that a member may be entitled to retire at an age at which he or she is too young to qualify for CPP payments. A bridging benefit is meant to fill the pension income gap (in whole or part) in the years between early retirement and when CPP payments begin.

IV.11 Employer/Employee Contribution Rates

It was assumed above that employer and employee contributions would match, either year-by-year or on average. This assumption was made for convenience only so that plan structures would be more readily comparable.

Although many defined-benefit plans are designed for matching contributions on average, some are not. Indeed, some employers pay both their own and their employees' contributions — presumably in lieu of otherwise higher wages. This is somewhat unusual in defined-benefit plans, but it is common in money purchase plans and employer-sponsored RRSP plans for employers to pay higher contribution rates than their employees.

V. THE ACADIA UNIVERSITY PENSION PLAN

The Plan — Defined-Benefit *cum* Money Purchase Hybrid

The description below of Acadia University's pension plan reflects current terms and conditions, ignoring a series of changes that have an impact on the pensions of a few long-time still-active members. This description is based on *Rules of the Revised Pension Plan for Staff of Acadia University, July 1991*. All Acadia University employees are members of the pension plan. Although legally a defined-benefit plan, because of rights to surplus, 'money purchase with a guaranteed defined-benefit minimum' more accurately describes the structure of this plan.

V.1 Normal Retirement Age

65 years.

V.2 Amount of Pension

The average of the best three consecutive years of annual salary x 1.3% of average earnings plus 0.7% of average earnings in excess of YMPE x years of pensionable service to a maximum of $1,715 x years of service.

V.3 Indexing

Indexing is calculated in two parts. The first, guaranteed part is approximately one-third of the annual increase of the CPI to a maximum of 4%. The second part, to a maximum (total) of full indexing, is the fund's rate of return in excess of 8.0%.

V.4 Normal Form of Pension

Five years guaranteed with a two-thirds survivor's (spousal) benefit.

V.5 Early Retirement

No actuarial reduction is made if the 'Rule of 80' is satisfied. That is, the member must be at least 55 years of age such that age plus years of pensionable service sum to at least 80. Moreover, the plan includes a bridging benefit (until CPP payments commence). Also, under the *Collective Agreement* with faculty, members who retire at age 60, 61 or 62 receive lump-sum payments of $2000, $1500 and $1000, respectively, per year of service.

V.6 Contributions

Commencing July 1, 1981, 5.1% of salary, plus an additional 2.7% of the excess, if any, of a member's salary over the YMPE in effect at the beginning of the Plan Year.

V.7 Vesting

After two years.

V.8 Rights to Surplus

If the commuted value of a member's pension is less than twice his or her contributions plus portfolio earnings, the member is entitled to 100% of the difference.

V.9 Termination benefit

The same as death benefits: twice (vested) contributions plus earnings.

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