S E D A P

A PROGRAM FOR RESEARCH ON

SOCIAL AND ECONOMIC DIMENSIONS OF AN AGING POPULATION

Retirement 20/20
Innovation in Pension Design

Robert L. Brown

SEDAP Research Paper No. 267

For further information about SEDAP and other papers in this series, see our web site:
http://socserv.mcmaster.ca/sedap

Requests for further information may be addressed to:
Secretary, SEDAP Research Program
Kenneth Taylor Hall, Room 426
McMaster University
Hamilton, Ontario, Canada
L8S 4M4
FAX: 905 521 8232
e-mail: sedap@mcmaster.ca

Retirement 20/20
Innovation in Pension Design

Robert L. Brown

SEDAP Research Paper No. 267

May 2010

The Program for Research on Social and Economic Dimensions of an Aging Population (SEDAP) is an interdisciplinary research program centred at McMaster University with co-investigators at seventeen other universities in Canada and abroad. The SEDAP Research Paper series provides a vehicle for distributing the results of studies undertaken by those associated with the program. Authors take full responsibility for all expressions of opinion. SEDAP has been supported by the Social Sciences and Humanities Research Council since 1999, under the terms of its Major Collaborative Research Initiatives Program. Additional financial or other support is provided by the Canadian Institute for Health Information, the Canadian Institute of Actuaries, Citizenship and Immigration Canada, Indian and Northern Affairs Canada, ICES: Institute for Clinical Evaluative Sciences, IZA: Forschungsinstitut zur Zukunft der Arbeit GmbH (Institute for the Study of Labour), SFI: The Danish National Institute of Social Research, Social Development Canada, Statistics Canada, and participating universities in Canada (McMaster, Calgary, Carleton, Memorial, Montréal, New Brunswick, Queen's, Regina, Toronto, UBC, Victoria, Waterloo, Western, and York) and abroad (Copenhagen, New South Wales, University College London).

Retirement 20/20

Innovation in Pension Design

Robert L. Brown

Dept. of Statistics and Actuarial Science
University of Waterloo

Abstract

Today, both the United States and Canada are experiencing a decline in Single-Employer Sponsored Defined Benefit (DB) Pension plans. In some instances, they are being replaced by Defined Contribution (DC) or Individual Account [e.g., 401(k)] plans; in other cases, by nothing.

It appears that traditional sponsors of DB plans have concluded that their cost (or its variability) is larger than the rewards (e.g., a loyal work force). At the same time, two stock market meltdowns in less than a decade have indicated to all the frailties of Individual Account DC systems.

What we need is a new pension system that brings most of the advantages of the DB and DC plans to the participants, while minimizing their disadvantages. We must also recognize the skill set of the participants (e.g., do not expect a blue collar worker to be an investment professional) and not anticipate or require anomalous markets (e.g., ever-stronger equity returns).

Size matters. Larger plans can run at lower per unit expense ratios, and can also achieve entry into a wide variety of investment products (e.g., private placements) not available to a small plan. Larger funds also benefit from risk sharing through "Law of Large Numbers".

The model proposed is a "Jointly Governed Target Benefit Pension plan". Such plans would have many features in common with today's Ontario Multi-Employer Pension Plans (MEPPs), the Canada/Quebec Pension Plans (C/QPP), TIAA-CREF in the United States and the Dutch national plan. For the plan sponsor, this is a DC plan. Inherent in the concept are that smaller plans (and even individual plans) could commingle their assets to achieve "size" (e.g. a minimum investment portfolio of $10B). Investment management would be at arm's length from the plan itself.

JEL Classification: G23

Key Words: Target Benefit
Joint Governance
Commingled Assets

Résumé

Aujourd'hui, les États-Unis et le Canada connaissent une baisse de l'offre de la part des employeurs des régimes de retraite à prestations déterminées (PD). Dans le meilleur des cas, ces derniers sont remplacés par des régimes de retraite à cotisations déterminées (CD) ou des comptes de retraite individuels [par exemple, 401 (k)]; parfois, ils sont tout simplement supprimés.

Il semble que les promoteurs traditionnels des régimes de retraite à prestation déterminées sont arrivés à la conclusion que leur coût est supérieur à leur bénéfice (par exemple, retenir une main-d'œuvre loyale). Dans le même temps, deux effondrements boursiers en moins d'une décennie ont permis de mettre en lumière les faiblesses des régimes à cotisations déterminées.

Ce dont nous avons besoin est un nouveau système de pension qui combine les avantages des plans PD et CD tout en minimisant leurs inconvénients. Nous devons également reconnaître l'ensemble des compétences des participants (par exemple, n'attendons pas qu'un col bleu soit un professionnel de l'investissement) et ne pas anticiper des rendements de marchés anormaux (par exemple, des rendements boursiers de plus en plus élevés).

La taille des employeurs est aussi un facteur important. Les grandes entreprises peuvent fonctionner avec des frais généraux par unité productive plus faibles, et peuvent également accéder plus facilement à un large éventail de produits d'investissement (par exemple, des placements privés) auxquels les petites entreprises n'ont pas accès. Les grands fonds d'investissement bénéficient également du partage des risques grâce à la «loi des grands nombres».

Le modèle proposé est un régime de retraite conjoint à prestations déterminées. Ces plans de retraite partageraient de nombreuses caractéristiques avec les régimes de retraite interentreprises (RRI) de l'Ontario, les régimes de retraite du Canada et du Québec (RPC / RRQ), le TIAA-CREF des États-Unis et le plan national néerlandais. Pour le promoteur du plan, il s'agit d'un régime à CD. Inhérent à ce concept est la notion que les petits plans (et même les plans individuels) pourraient mettre leurs actifs en communs afin d'atteindre « une masse critique » (par exemple un portefeuille d'investissement minimum de 10 milliards de dollars). La gestion de ces placements se ferait sans lien de dépendance direct avec le plan lui-même.

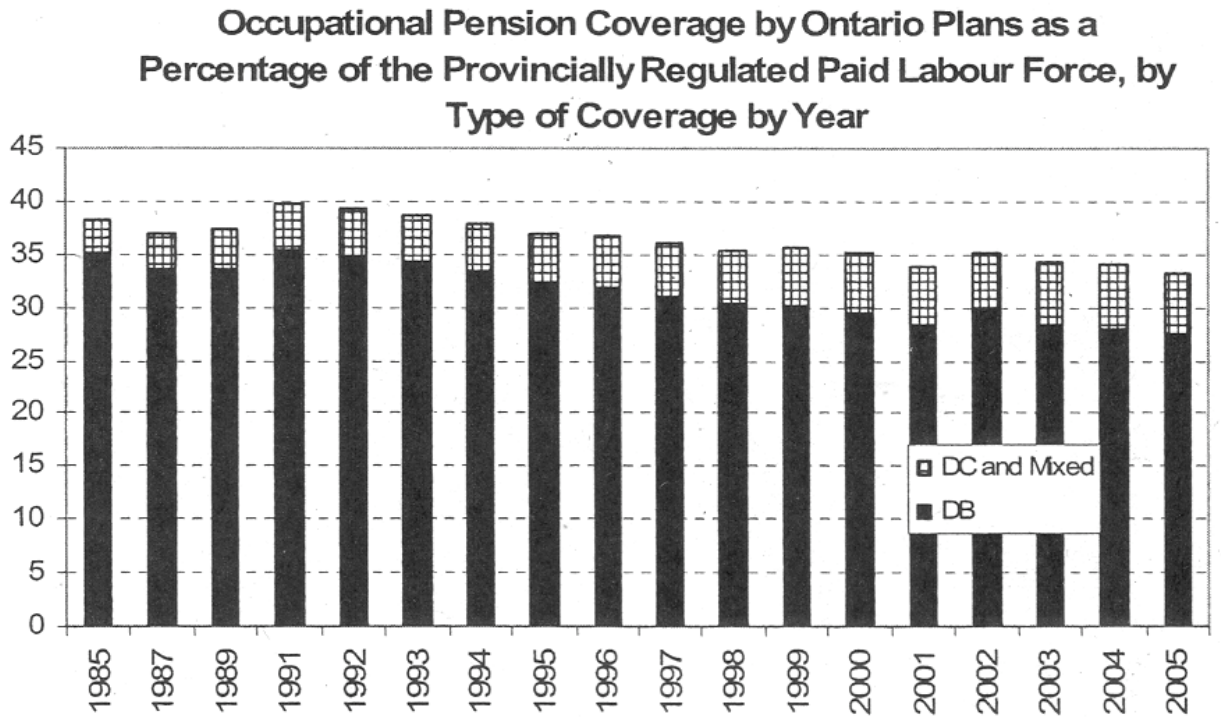
I Introduction

The world of Employer-Sponsored Pension Plans is evolving. The number and the coverage rate of Defined Benefit (DB) Pension Plans in both Canada and the United States are down significantly. While some of the room left for retirement saving has been filled by Defined Contribution (DC) or Individual Account plans (e.g. 401(k)), in total there are indications that the ability to retire comfortably has weakened over the past decade (Canadian Institute of Actuaries, 2007).

More pointedly, DB Employer Sponsored Pension Plans are now only common among public sector workers where the taxpayers are the ultimate sponsors. Thus, we see a strong bifurcation in Employer Sponsored Pension Plans: public sector workers have DB pension plans with a high level of apparent security. Private sector workers, if they have anything at all, will normally have DC or Individual Account Plans. (In Canada, 80% of public sector workers have DB pensions while only 25% of private sector workers have DB coverage.)

These tendencies can be seen in the two graphs that follow (Informetrica, 2007). Similar graphs would result from Canada-wide data.

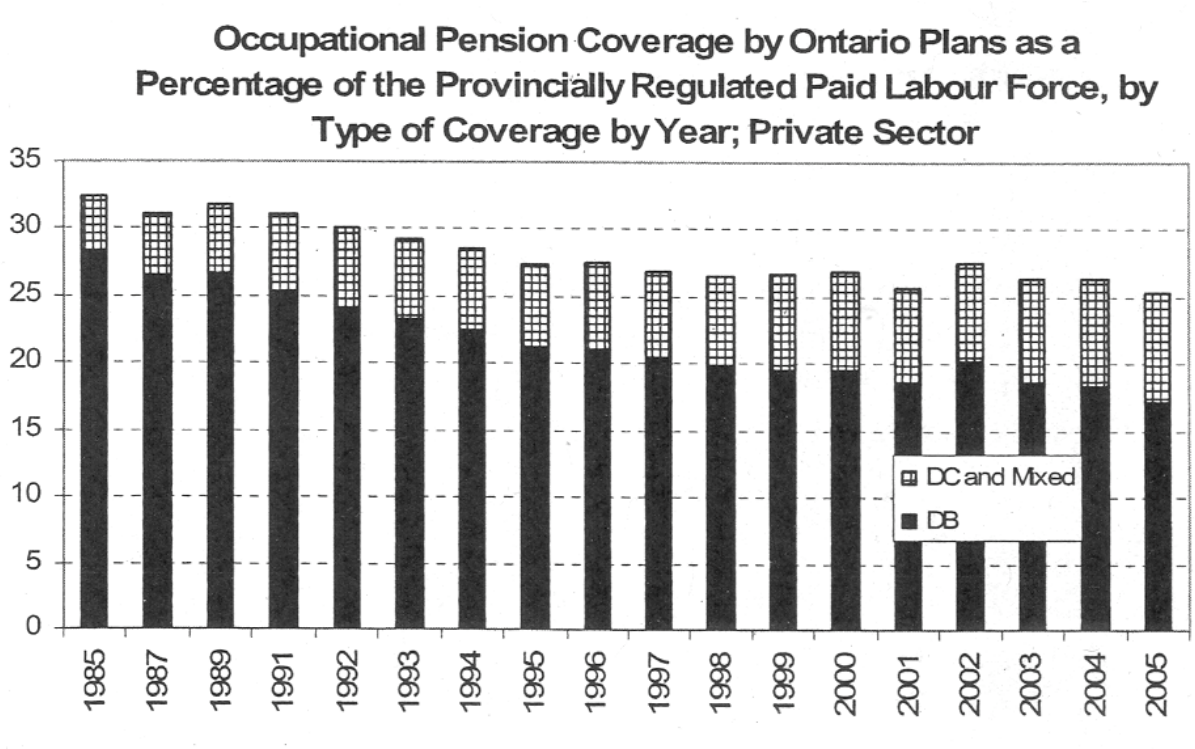
Figure 1



Source: Informetrica, 2007, Figure 17

Figure 1 presents overall coverage of the Paid Labour Force. Figure 2 provides the same information but for the private sector only.

Figure 2 Ontario Private Sector Pension Coverage



Source: Informetrica, 2007, Figure 19

There are a number of reasons for this evolution as will be outlined in the paper. What is clear, however, is that the day when private sector employers viewed a DB pension as a good human resource investment appears to be gone. At the same time, the financial crisis of 2008/9 has shown clearly the frailty of saving for retirement in a DC world.

What this paper attempts to do is to find a new pension model that shares the pension risk more evenly between sponsors and workers and provides both sides of the pension contract with most of the advantages of both a DB and a DC pension world.

This is done in a Canadian context where government-sponsored Social Security systems provide enough retirement income to alleviate poverty and provide a worker consistently earning the Average Wage, a 40% replacement ratio. Thus, we already have a significant foundation of protection that does not have to be provided by Employer-Sponsored Pension Plans.

II Whose Risk?

i) A Classical DB Plan

In a classical DB plan, almost all of the pension risk is carried by the plan sponsor. Risks associated with sponsoring a pension plan are:

1. Investment risk
2. Expense risk
3. Inflation risk (if the benefit includes the payout period)
4. Interest rate risk (if the payout is annuitized)
5. Longevity risk (if the payout is not annuitized)

While the plan sponsor "carries" these risks, the resultant costs may ultimately by borne by shareholders of the company or even consumers if goods produced by the company go up in price.

Workers will argue that all of these risks are ultimately borne by the workers through their total compensation packet. This paper will not take a position on this point. It will be the position of the paper that, regardless of who ultimately foots the bill, it is the Employer/Plan Sponsor who decides whether the plan will be DB or DC or whether there will be a plan at all.

In the early days of pension plans, sponsors were able to offer significant benefits, but face a relatively low actual cost. This was true because vesting periods were long, indexation of benefits was rare, and pension funding requirements allowed for the use of discount rates that reflected the full equity premium plus a number of averaging mechanisms, in determining the funding status.

With the advent of ERISA (1974) in the U.S. and a variety of Pension Benefits Acts in Canada, vesting periods were shortened. With the high inflation rates of the late 1970's and early 1980's, more workers bargained for inflation protection.

During the 1990's, plan sponsors were able to continue to promise large retirement benefits while incurring relatively small costs because of the very high investment returns experienced during that decade. But, in the past decade, we have experienced two market melt-downs leading to much higher actual pension contribution levels. This has been exacerbated by ever increasing life expectancy.

Add to that the fact that over the last few years, accounting rules have pushed for "mark to market" evaluations with little or no smoothing and a discount rate that reflects a parallel investment portfolio that would provide immunization if actually used.

These factors, and the continuing maturity of pension systems (the ratio of retirees to contributors) have raised the apparent cost of pensions (certainly it has raised the contributions required to be made today rather than down-the-road). Perhaps more importantly, it has raised the volatility of those contribution rates significantly. Thus, many private sector plan sponsors have decided that they can no longer afford the vagaries of the full DB promise.

Finally, it must be pointed out that a worker in a private sector SEPP (Single Employer Pension Plan) lives with the risk of the insolvency of the plan sponsor at a time when the liabilities of the plan are not fully funded. Once in bankruptcy, the pension plan and its members have very limited rights to attach to any remaining assets of the plan sponsor. For workers in the private sector in Ontario, 25% participate in a SEPP.

ii) A Classical DC Plan

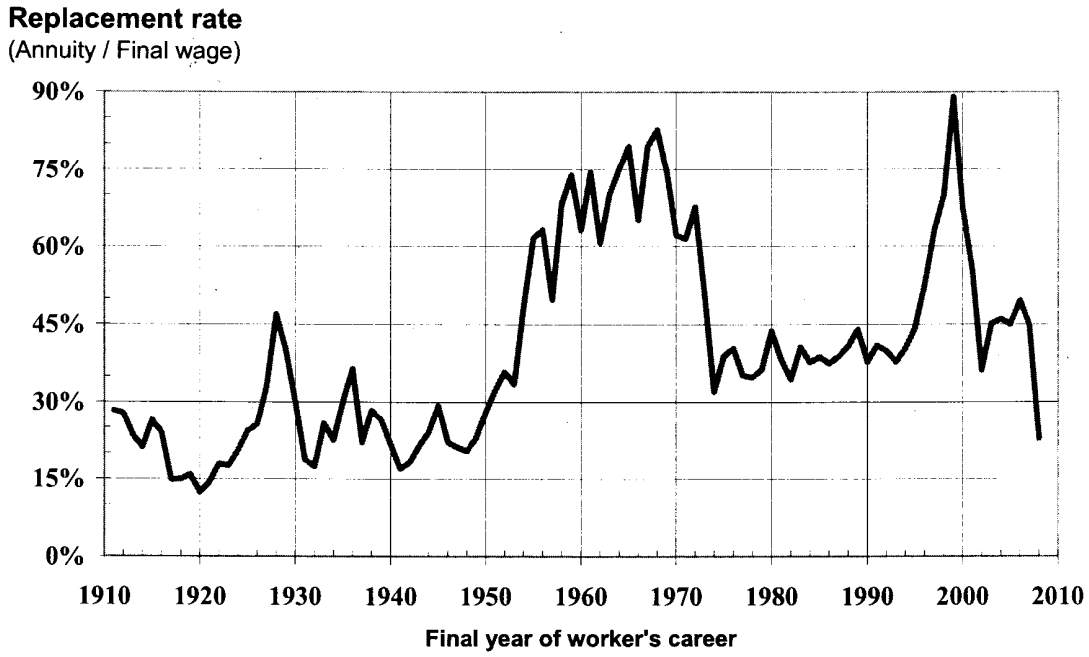
This section includes both Employer-sponsored DC pension plans and Individual Account systems (e.g. 401(k)) plans.

Under a Classical DC Plan, the worker carries all of the risks listed above. Clearly, the worker is not capable of managing these risks. While many of the risks can be mitigated to a certain extent, we would argue that most cannot be avoided in totality.

The investment risk, which is now the responsibility of the individual worker is illustrated nicely in the following graph.

Figure 3

Replacement rate obtained from personal account savings of workers who invest solely in stocks and contribute 4% of annual salary over a 40-year career

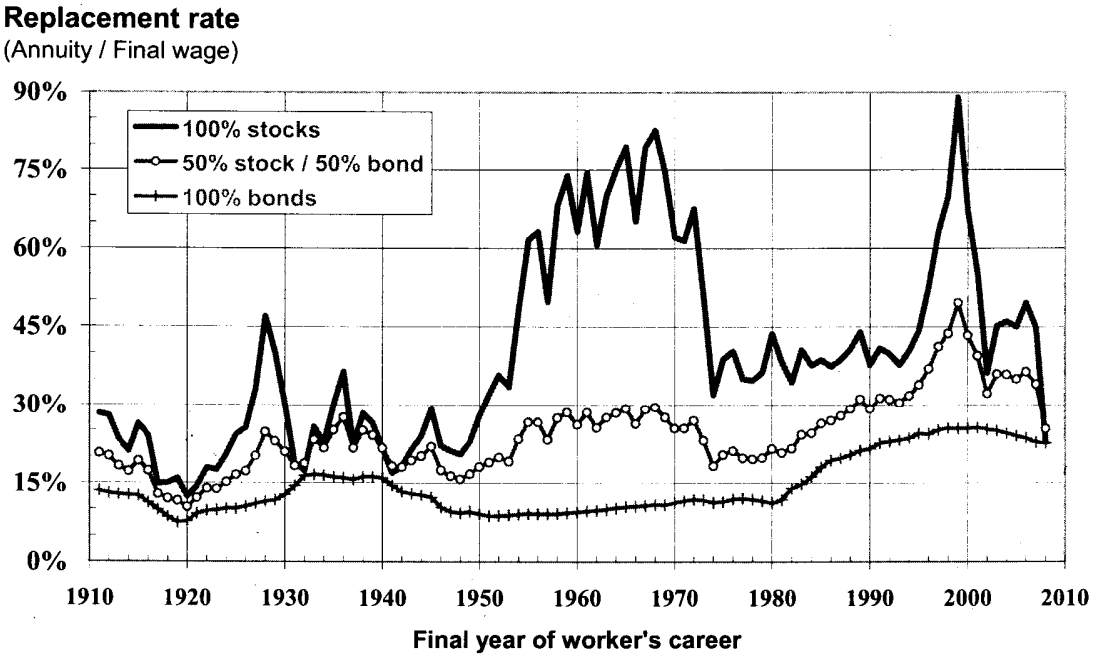


Source: Burtless, 2009 p 12

Clearly, the worker can decrease the portfolio risk by choosing less volatile investments such as government bonds. While it is true that the volatility decreases markedly, so too do the Replacement Rates as seen in Figure 4.

Figure 4

Replacement rate obtained from personal account savings of workers who invest in alternative portfolios and contribute 4% of annual salary over a 40-year career



Source: Burtless, 2009, p 16

In all fairness, there do exist programs to mitigate the investment risk. The employer/sponsor may suggest a number of investment options. (Interestingly, the more options that are provided, the higher the probability is that the worker will choose the default option). Or, the worker can hire an investment advisor. In a way, however, this only shifts the investment risk over to the expense risk. Individuals can easily lose 3% of their gross rate of return to the investment advisor or fund manager (referred to as the management expense ratio or MER). If funds earn in the neighborhood of 5% per annum and inflation runs close to 2% (not unusual assumptions for today) then such a worker is actually receiving no real rate of return at all.

On a macro-economic basis, one result of this investment risk is that DC plans produce counter-cyclic retirement patterns. That is, when the economy is soft and we would like workers to retire (to lower unemployment) workers will have deflated DC asset values that will cause them to work longer. Similarly, when times are good and DC balances high, workers will choose to retire just when we need them for an expanding labor force.

Workers also tend not to shift their investment portfolio mix as they approach retirement. The literature tells us that one should move out of a strong equity portfolio to more of a bond portfolio as one nears retirement. This is seldom actually seen when individual workers manage their investment affairs. Thus, many (most) individual account holders lost 20 to 30% of their equity investment values between the summer of 2008 and the spring of 2009. Work by the OECD (2009) shows that the market crash of 2008 could have led to a drop in replacement ratios of almost 10 percentage points. For example, an individual in the US lucky enough to have reached retirement age 65 in 2007 would have enjoyed a replacement ratio equal to 24% while the unlucky individual reaching age 65 at the end of 2008 would have enjoyed a replacement ratio of only 15% (assuming DC of 5% over 40 years and a fixed portfolio of 40% domestic government bonds and 60% in domestic equities).

The worker can also mitigate the longevity risk by buying a life annuity upon retirement. However, this again raises the ugly head of the expense risk. Further, many workers cannot get a true market-value annuity in today's marketplace. That is because insurers assume that if a worker voluntarily applies to purchase an annuity then that worker must be in five-star health and the annuity is priced accordingly. Very few workers have five-star life expectancy, but they get painted with the "one-size-fits-all" brush.

Purchasing an annuity also leaves the worker open to the interest-rate risk on the day of purchase.

Finally, it is very difficult to get an annuity that provides true inflation protection. One can buy variable annuities whose payouts move with market values, but market values do not correlate well with inflation. Or one can buy an annuity where the annual payout increases according to a set (constant) inflation factor, but this is far from true inflation protection (and, of course, this feature greatly decreases the initial monthly payout).

In total, the Individual Account, DC option, seems to create more problems than solutions. You cannot guarantee retirement income security just by saving for retirement.

III Size Matters

One of the problems with an Individual Account approach to retirement income security is the fact that one individual is attempting to mitigate many of the retirement income risks alone. Many advantages can come from having a larger asset pool, either by being part of a very large employment group or by allowing smaller pension plans (including individual accounts) to commingle their assets. Not only can you achieve savings in the expense of administration and management, but there are also investment opportunities that exist for large funds that do not accrue to smaller funds (e.g. private placements).

Further, if the commingled fund actually pays out the retirement income, then a large commingled plan has the advantage of the pooling of the mortality risk that results in a more accurate estimation of average life expectancy.

Work by K. Ambachtsheer displayed in Table 1, shows how important plan size is with respect to the investment expense risk.

Table 1: Investment Fees by Size of Pension Fund

Size of Pension Fund	Investment Fees for Large-Cap Equities
Individual Account	250-300 basis points
$10 million	60 basis points
$1 billion	42 basis points
$10 billion	28-35 basis points

Table 2 tracks the impact of investment expense ratios and shows how profoundly they can affect the aggregate pension benefits and working income replacement ratios of retired plan members. The data assume an annual contribution to a plan of $10,000 over 40 years for a worker making $50,000 per year.

Table 2: Impact of Investment Expense Ratios on Pension Adequacy

Expense Ratio	**0%**	**0.4%**	**1.5%**	**3%**	**5%**
Accumulated Value (after 40 years)	$777,000	$707,000	$551,000	$400,000	$272,000
Annual Pension Payout	$45,000	$41,000	$32,000	$23,000	$16,000
Replacement Ratio	90%	82%	64%	46%	32%

Ambachtsheer, 2007.

III Finding Middle Ground

If we accept that neither a pure DB plan nor a pure DC plan is optimal for the future, can we find an innovative pension plan design that might maximize the advantages of these two classical systems?

This plan design would have to satisfy certain basic principles.

1. Overall economic risk (variance) must be shared and shared in a manner that is appropriate to the participant (e.g., a blue collar worker should not be expected to be an investment expert nor to understand life cycle investing).
2. Size matters. There are efficiencies and opportunities that are a function of size and are worthy of pursuit.
3. Consistent with Principles 1 and 2, there should be a collective approach to risk sharing. That is, we should put to work the "Law of Large Numbers" to statistically minimize risk (variance) whenever and wherever possible.
4. In the transition from today's polarized DB and DC plans, whenever we ask a participant to cede a right or privilege, we should attempt to replace that lost attribute with a new right or privilege.
5. Any new plan design should be cognizant of market realities. Any plan that requires assumptions that cannot be expected to be met in a competitive market place should not be considered.

So, our search is now for a plan design for the 21st century that is neither pure DB nor pure DC. Rather it is some combination of the two. But a combination that maximizes the advantages of these traditional designs and minimizes the cost of the transition from the old world to the new world.

IV Are Ontario MEPPs DB or DC plans?

In Ontario, 43% of pension plan members belong to MEPPs (Multi-employer pension plans). The largest MEPP in Ontario is OMERS (Ontario Municipal Employees Retirement System) with 230,000 active members. Other large MEPPs are the Ontario Teachers Pension Plan (OTPP), and the Hospitals of Ontario Pension Plan (HOOPP) (Shilton, 2007, p 9).

Ontario regulates MEPPs as DB plans, as do many other jurisdictions. However, they are funded by fixed, collectively bargained contributions (*ibid*, p2).

Typically, the benefit formula for a MEPP is the total number of hours worked in the industry for participating employers multiplied by a flat rate. Contribution levels are negotiated at the collective bargaining table, and are fixed for the life of the particular collective agreement.

With defined benefits funded by fixed contributions, funding shortfalls are always a possibility, and accordingly such plans normally permit the trustees to amend the plan to reduce benefits: not just future benefits but also *accrued* benefits. *All* MEPPs established under collective or trust agreements are exempt from the prohibition against reducing

accrued benefits. Thus, the benefits are 'target benefits' to which one can attach an expectation but not a guarantee. Further, in Ontario, MEPPs plan sponsors carry no terminal liability risk as they do in the U.S. under ERISA.

Because benefits are not guaranteed, but can be reduced, MEPPs do not contribute to the Ontario Pension Benefits Guarantee Fund (PBGF).

With respect to the actuarial valuation of such plans, the plan actuary is required to:

- perform such tests as will demonstrate the sufficiency of the contributions required by the collective agreement to provide for the benefits set out in the plan without consideration of any provision for reduction of benefits set out in the plan; and

- where the contributions are not sufficient to provide the benefits under the plan, propose options available to the administrator of the plan that will have the result that the required contributions will be sufficient to provide the benefits under the plan.

If the actuary finds an "insufficiency" and proposes options, the actuary is required to inform the plans administrator. The onus then falls on the plan administrator to advise the regulator of what action will be taken to meet the funding requirements within the Pension Benefits Act (PBA).

Finally, under the PBA, the minimum content requirements for the annual statement to members must include a statement that the pension benefits are not guaranteed by the PBGF and a statement that if, on wind up of the plan, the assets of the plan are not sufficient to meet the liabilities of the plan, pension benefits may be reduced.

Thus, we see that 43% of Ontario pension plan members are in pension plans that have an expectation of defined benefits for the worker, but are clearly DC plans for the employer(s).

V Are the C/QPPs DB or DC plans?

Ask anyone who knows something about the Canada/Quebec Pension Plans (C/QPPs) whether they are DB or DC plans and the answer will be "DB". But, in the history of these plans, the benefit structure has been changed many times. And, even as this paper is being written, changes to the benefit structure of both systems are being proposed and debated.

One of the biggest changes to the C/QPP was made in 1997. At that time, benefits were cut by 9.3%. Also, contributions were increased from 6% in 1997 to 9.9% in 2003. This 9.9% was meant to be a steady state contribution rate and three CPP actuarial reports have confirmed that this rate is sufficient over a 75-year time horizon.

However, the story for the QPP is not so rosy. Because of lower fertility and immigration rates and because of lower growth in wages, the QPP is not sustainable at the steady-state contribution rate of 9.9% and will have to be amended, yet again, and soon.

Finally, an Automatic Balancing Mechanism was introduced for the CPP in 1997. If the actuarial report of the CPP shows that the steady-state contribution rate required for 75 year sustainability exceeds the current contribution rate (e.g., 9.9%) and if the federal finance minister, after consultation with the provincial finance ministers (the CPP is a joint federal-provincial plan) is not able to make a recommendation that will achieve stability then the following changes will occur:

--the contribution rate will increase 50% of the increase needed to achieve stability
--benefits will be frozen for three years, the time until the next actuary's report, by treating the cost-of-living adjustment factor as 1.00 so no increase in benefits is prescribed.

So, are the C/QPP DB plans? The author concludes that almost the entire Canadian labour force is participating in a pension plan where both the contribution rates and the benefit levels are well defined but neither is guaranteed. Thus the C/QPPs have both target benefits and target contributions. In both cases the participant can be said to have a high expectation as to their values but not a guarantee.

VI Searching for the Pension Holy Grail

We can take comfort that in the search for a new optimal pension design we are not without signposts and trail markers.

For Canadians, we have recently had reports from four government panels on pension reform for private pension plans. These include:

Quebec: Regies des rentes, Member-funded Pension Plans (2007)
Ontario: Ontario Expert Commission on Pensions, Jointly Governed Target Benefit Pension Plans (JGTBPPs) (2008)
Alberta/British Columbia: ABC Joint Expert Panel on Pension Standards, A new ABC joint provincial pension plan (2008)
Nova Scotia Pension Review Panel, a new Province-wide plan that would be a DC Target Benefit plan administered by an independent agency.

While these four reports, from five provinces, differ in their detailed recommendations, they share a strongly common theme if viewed from a high level. It is this common theme that will form the basis for my view of the optimal pension system for the 21st century.

I would be remiss if I did not point out that Keith Ambachtsheer has voiced some similar ideas in two recent publications. One is his short book entitled: Pensions Revolution: A Solution to the Pensions Crisis (2007) which introduces us to TOPS, The Optimal Pension System and the second is his recent paper in the C. D. Howe series entitled: The Canada Supplementary Pension Plan (2008) that again voices some similar ideas. It is no accident that Ambachtsheer's birthplace is Holland where a similar philosophy formed the foundation of the national pension system.

From a U.S. perspective, we will refer to many features that now exist in the TIAA-CREF pension model as being consistent with our intentions.

VII Hope, Expectation and Promises

In this paper, and in describing a new pension paradigm, we will be proposing a system of sharing of pension risks that is present in neither of the classic DB or DC systems. In this regard, some pension systems provide the worker with little more than a faint hope of retirement income security. We would include in this category many existing Individual Account DC and 401(k) plans with contribution rates that are just too low to result in retirement income security.

At the other extreme, many pension plans present the plan participant with a benefit promise that appears to be guaranteed. Such plans in existence today are virtually all in the public employment sector. They are DB plans with full indexation post-retirement backed by taxpayers. To say that these plans will fail is equivalent to suggesting that the government will fail.

In this paper, we intend to move beyond hope, but not as far as guarantees--toward something one might refer to as a justifiable expectation.

Obviously, regardless of what plan a worker/sponsor has today, our 'hybrid' plan will mean some gains and losses for both sides. It is the hope of this paper that these gains and losses will balance out in total and be acceptable to both parties of participants.

Our end-point will be a plan that can be described as a Jointly-Governed Target Benefit Pension Plan. The other key descriptive characteristic of this family of plans is that plan assets will be heavily commingled with plan assets from other plans with the intent of reaping the benefits of 'size'. We would hope to have a minimum target asset portfolio of $10B. These plan assets can be managed by the private sector or by an **arms-length** government-sponsored investment board similar to the Canada Pension Plan Investment Board (CPPIB). Note that the investment board might be government sponsored, but it would not be government controlled or even government influenced (again similar to the existing CPPIB). Nor would it be controlled by the plan sponsor. This should avoid some of

the investment issues now inherent in the MEPPs model in Canada. And, to repeat, the management of the assets could reside with a private-sector agency. This is not important to the scheme. What is important is that **total** management expense fees should be less than 40 basis points (i.e., <0.40%). Taxpayers should not subsidize any administration costs or be exposed to any plan risks.

It would be possible for the government to transfer "orphaned" pension benefits to these pooled funds. This is already possible under the Ontario Pension Benefits Act, Section 103 that states that the government "may establish or designate an agency for the purposes, among others, of receiving, holding and disbursing pension benefits".

It would also be possible for individuals to commingle their pension funds (and for that matter their RRSP funds) in these arms-length pooled funds.

Two further points of clarification are needed.

Having a commingled asset portfolio does not mean that all participant plans need to be identical. The participant plans can have differing contribution rates. They can even have differing benefits (e.g., 2% Final Average versus $1000 per year of service).

Second, the participant plans should have the ability to define parts of their investment portfolio. As one example, it should be possible for a plan sponsor to request that all assets backing members who are now retired will be real return bonds.

For the plan sponsor, this new plan will present itself as a DC Plan. For existing DB sponsors this will release them from a huge amount of responsibility inherent in a classic DB plan. However, because plan participants will receive regular updates on their expected retirement benefits (using slightly conservative actuarial assumptions, e.g., a financial economics attitude toward the equity-risk premium), one should not expect **any** of these plans to exist with low employer/employee contributions (e.g., < 6% of pay). In fact, it would be more likely to anticipate employer/employee contributions in the 10% to 20% of pay range. (Employee contributions will be permitted and should be common in Canada where they have the same tax incentives as employer contributions.) Thus, for sponsors who, today, have pure, classical DC plans, this may mean a significant uptick in the contribution rate to achieve meaningful target benefits.

Work by the OECD (2009) indicates that a contribution rate of 5% would provide a replacement ratio of 25.3%, while a contribution rate of 10% would double that to 50.7%. Equivalently, a one percent increase in the contribution rate would raise the replacement rate 5 percentage points, *ceteris paribus.* (This assumes 40 years of contributions and a fixed portfolio of 40% domestic government bonds and 60% domestic equities.)

One other change is important. These plans will have Joint Governance. That is, the Board that manages the plan will have 50% representation from the plan sponsor and 50% representation from the plan participants (including a least one representative from the retired population). It will be this Board that will make major decisions as to the details of the plan design and it will also be this Board that will liaise with the investment manager.

The members of the Pension Board/Committee do not have to be plan participants. In fact, in the view of this author, it would be preferable if this Board/Committee were populated with pension professionals. Models for this type of representation now exist (e.g., the Ontario Teachers Pension Plan, OTPP). On the other hand, the Board must be independent of service providers, government and fund managers.

It is the view of this paper that plans that have Joint Governance should be regulated more lightly than those where the plan sponsor is unilaterally in control.

In most sponsors' eyes, this would be a loss in the sense that they no longer have the right to unilaterally change the plan design or the funding of the benefits. All major decisions would be made by the 50/50 Pension Board/Committee. For the plan participant, this should be viewed as an improvement over a traditional employer-sponsored pension plan where participants often have little to no say in the running of the plan.

This new plan will result in huge improvements for the plan participants who are now in a traditional, classic DC plan. No longer will the plan participant have the responsibility for the investment of funds. This will be done by the arms-length independent investment manager.

These JGTBPPs should also enhance the retirement income security of workers who are presently in Single-Employer Pension Plans but who change jobs often (i.e., portability). Because we are accruing a DC account towards a Target Benefit, moving from one employer to another should not have as serious an impact as it does today in a DB plan. Further, because workers change jobs more often than they change careers, it is quite conceivable that even with a job change, the worker may still be in the same commingled pension fund.

Clearly, the investment risk is now that of a huge commingled asset portfolio (of several billions of dollars). The expense ratio for its management should be forced to be less than 40 basis points (this may require Pension Regulation or Legislation) thus alleviating the expense risk.

Asset values will go up and down, but should not have a full or immediate impact on the benefit schedule. (This is now true for MEPPs.)

These plans will also have to be designed to remove the interest rate risk and the longevity risk from the shoulders of the individual worker. Turning accumulated assets into

retirement benefits can be done in one of two ways. First, the plan can purchase deferred life annuities for plan participants as they near retirement. This could start at a relatively early age (say age 40) and the percent of plan assets allocated to an individual worker that is used to buy deferred annuities would increase to 100% by the expected retirement date (however, the annuities would never all be purchased on one day). The Group Annuity market in Canada today is highly competitive and provides good value.

Or, the plan can manage the payout of benefits and the plan can carry the investment risk in a more collective manner.

The author views this as being parallel to the systems used in the U.S. by the TIAA-CREF institution.

No longer will the individual worker/participant be expected to have the ability to manage one's assets, nor to manage the longevity risk. This would either be mitigated by buying deferred life annuities or by sharing the risk in a huge collective.

One risk that has not been mentioned to date is the inflation risk. It is the proposition of this paper that the 'Target Benefit' or 'Expected Benefit' be projected using slightly conservative actuarial assumptions (e.g., taking a Financial Economics view of the equity risk premium). If rates of return exceed those assumed in the actuarial projections, this would create room for benefit improvements. One benefit improvement would be to upgrade the earnings profile of the participant pre-retirement so as to move the plan from one replicating a Career Average set of benefits to one more closely paralleling a Final Average plan. A second improvement, that would take place post-retirement, would be to use any 'excess' earnings to 'index' benefits to inflation. Clearly, there is no guarantee that true CPI-indexed benefits will necessarily result. However, this plan would move indexation from a hope to an expectation. (This is very similar to how the national pension system in the Netherlands works.)

In that regard, it is interesting to note a recent amendment to the Ontario Teachers Pension Plan (OTPP). For future accruals (on or after January 1, 2010), only 50% of indexation of benefits will be guaranteed. The other 50% will be conditional on the funding health of the plan.

VIII A Report Card

Section III of this paper created five principles that our new plan design should satisfy. How well have we done with the Jointly-Governed Target-Benefit Pension Plan (JGTBPP)?

1. Overall economic risk (variance) must be shared and shared in a manner that is appropriate to the participant (e.g., a blue collar worker should not be expected to be an investment expert nor to understand life cycle investing).

We believe that we have achieved proper risk sharing with the JGTBPP concept. We have the advantage now of having large commingled asset pools that should operate efficiently, effectively and with low MERs. No longer would the blue collar worker be expected to have investment expertise.

2. Size matters. There are efficiencies and opportunities that are a function of size and are worthy of pursuit.

The intent is that through the commingling of plan assets, no fund smaller than $10 B will exist. If that is the case, then Principle 2 is satisfied.

3. Consistent with Principles 1 and 2, there should be a collective approach to risk sharing. That is, we should put to work the "Law of Large Numbers" to statistically minimize risk (variance) whenever and wherever possible.

Again, through the commingling of plan assets, we achieve the collective advantage of the Law of Large Numbers. This is especially important if the "fund" manages the pay-out phase of the process.

4. In the transition from today's polarized DB and DC plans, whenever we ask a participant to cede a right or privilege, we should attempt to replace that lost attribute with a new right or privilege.

We believe the new JGTBPPs do this for the majority of existing plan members. For those in Individual Account DC plans, the collective advantages are obvious. For those in small to mid-size Employer-Sponsored DB Plans, we think the intended size of the commingled funds also provides greater security to the plan members. For those in larger plans, in exchange for moving to "Target Benefits" the plan participants receive Joint Governance. One might ask, however, what value these participants would place on this change. That question is left unanswered.

Finally, for those who are already in Jointly-Governed large DB Plans with virtually guaranteed benefits (this really only describes those in Public Service plans) we see no net gain. In fact, moving from a virtually guaranteed benefit to a "Target Benefit" would have to be seen as a depreciation of security for these members. However, it might save these plans from serious taxpayer push back in the future.

Plan sponsors cede the right to unilaterally control the plan in the move to Joint Governance. In return, they move from the vagaries of a traditional DB plan to the advantages (to them) of a DC plan. We believe that this will be viewed as a big win.

5. Any new plan design should be cognizant of market realities. Any plan that requires assumptions that cannot be expected to be met in a competitive market place should not be considered.

We think our JGTBPPs do "follow" rather than "lead" the free markets. We think they can operate efficiently and effectively in the open market. Finally, we would repeat that while the government will have to facilitate the move to commingled asset funds, these funds can be managed by the private sector so long as the total expense fees are less than 40 basis points (after a short transition period).

IX Conclusion and Summary

There are two aspects to the proposed JGTBPPs.

First, for the plan sponsor, these will have the characteristics of a DC plan. Once the Defined Contribution is made, the responsibility of the plan sponsor ends.

For the worker/participant, actuarial projections will inform them of an "expected" target benefit. These projections will use mildly conservative assumptions (e.g., no projected equity premium) and any positive variance from these assumptions will be used to adjust benefits upward both pre and post retirement. Prior to retirement, this will mean the plans will move toward a final average equivalent versus career average. Post retirement, this will mean some level of indexation of benefits. However, neither is guaranteed.

The second essential aspect is the commingling of plan assets into funds, none of which would ultimately be less than $10B. This will provide workers with the important advantages of professional management at low expense ratios and the advantages inherent in any large collective. This will be especially important if the fund is responsible for the payment of retirement income.

It is the position of this paper that no pension plan is risk free. In fact, no pension plan is risk free even if only the worker's perspective is taken.

Thus, we are not introducing risk. Instead, we are trying to mitigate the existing risk by forming large collective pension fund pools. In this way, the total risk of the overall pension system will decrease dramatically, to the point that we believe it will be viewed as manageable to all players.

That, certainly, is our sincere hope.

Bibliography

Ambachtsheer, Keith, and Rob Bauer. 2007. "Losing Ground: Do Canadian Mutual Funds Produce Fair Value for their Customers?" *Canadian Investment Review*. Spring issue.

Ambachtsheer, Keith (2007). *Pensions Revolution: A Solution to the Pensions Crisis.* John Wiley and Sons, Inc.

_____ (2008). *The Canada Supplementary Pension Plan.* The C. D. Howe Institute Commentary, No. 265

Burtless, G. (2009). *Lessons of the Financial Crisis for the Design of National Pension Systems.* CESIFO Working Paper No. 2735, July.

Canadian Institute of Actuaries (2007). *Planning for Retirement: Are Canadians Saving Enough?*

Informetrica Limited (2007). *Occupational Pension Plan Coverage in Ontario (Statistical Report).* Prepared for the Ontario Expert Commission on Pensions.

Organization for Economic Co-operation and Development, OECD (2009). *Private Pensions and the Financial Crisis: How to Ensure Adequate Retirement Income from Defined Contribution Pension Plans?* Working Party on Private Pensions.

Shilton, E., 2007. Current Issues Concerning Multi-Employer Pension Plans in Ontario. A Research Report prepared for the Ontario Expert Commission on Pensions.

Number	Title	Author(s)
(2008)		
No. 227:	Using Statistics Canada LifePaths Microsimulation Model to Project the Health Status of Canadian Elderly	J. Légaré Y. Décarie
No. 228:	An Application of Price and Quantity Indexes in the Analysis of Changes in Expenditures on Physician Services	F.T. Denton C.H. Feaver B.G. Spencer
No. 229:	Age-specific Income Inequality and Life Expectancy: New Evidence	S. Prus R.L. Brown
No. 230:	Ethnic Differences in Health: Does Immigration Status Matter?	K.M. Kobayashi S. Prus Z. Lin
No. 231:	What is Retirement? A Review and Assessment of Alternative Concepts and Measures	F.T. Denton B.G. Spencer
No. 232:	The Politics of Social Policy Reform in the United States: The Clinton and the W. Bush Presidencies Reconsidered	D. Béland A. Waddan
No. 233:	Grand Coalitions for Unpopular Reforms: Building a Cross-Party Consensus to Raise the Retirement Age	M. Hering
No. 234:	Visiting and Office Home Care Workers' Occupational Health: An Analysis of Workplace Flexibility and Worker Insecurity Measures Associated with Emotional and Physical Health	I.U. Zeytinoglu M. Denton S. Davies M.B. Seaton J. Millen
No. 235:	Policy Change in the Canadian Welfare State: Comparing the Canada Pension Plan and Unemployment Insurance	D. Béland J. Myles
No. 236:	Income Security and Stability During Retirement in Canada	S. LaRochelle-Côté J. Myles G. Picot
No. 237:	Pension Benefit Insurance and Pension Plan Portfolio Choice	T.F. Crossley M. Jametti
No. 238:	Determinants of Mammography Usage across Rural and Urban Regions of Canada	J.T. McDonald A. Sherman
(2009)		
No. 239:	Negative Effects of the Canadian GIS Clawback and Possible Mitigating Alternatives	D. Chisholm R.L. Brown

SEDAP RESEARCH PAPERS: Recent Releases

Number	Title	Author(s)
No. 240:	Basic Living Expenses for the Canadian Elderly	B.-J. MacDonald D. Andrews R.L. Brown
No. 241:	Financial security of elders in China	Y. Cheng M.W. Rosenberg
No. 242:	The Impact of Skill Mismatch among Migrants on Remittance Behaviour	J.T. McDonald M.R. Valenzuela
No. 243:	Car Driving and Public Transit Use in Canadian Metropolitan Areas: Focus on Elderly and Role of Health and Social Network Factors	R.G. Mercado K.B. Newbold
No. 244:	Where Would You Turn for Help? Older Adults' Knowledge and Awareness of Community Support Services	M. Denton J. Ploeg J. Tindale B. Hutchison K. Brazil N. Akhtar-Danesh M. Quinlan
No. 245:	New Evidence on Taxes and Portfolio Choice	S. Alan K. Atalay T.F. Crossley S.H. Jeon
No. 246:	How should we support pharmaceutical innovation?	P. Grootendorst
No. 247:	Cohort Working Life Tables for Older Canadians	F.T. Denton C.H. Feaver B.G. Spencer
No. 248:	Cancer-related health behaviors and health service use among Inuit and other residents of Canada's north	J.T. McDonald R. Trenholm
No. 249:	Older Aboriginal Peoples in Canada - Demographics, Health Status and Access to Health Care	M.W. Rosenberg K. Wilson S. Abonyi A. Wiebe K. Beach R. Lovelace
No. 250:	Patents, Public-Private Partnerships or Prizes: How should we support pharmaceutical innovations?	P. Grootendorst
No. 251:	Les besoins non comblés de services à domicile chez les aînés canadiens	M.A. Busque

SEDAP RESEARCH PAPERS: Recent Releases

Number	Title	Author(s)
No. 252:	La «migration de remplacement» au Québec: à quel point peut-on compter sur l'immigration pour contrer les problèmes démographiques appréhendés?	G. Marois
No. 253:	Le vieillissement de la population carcérale sous responsabilité fédérale au Canada: Vers de «pénitenciers-hospices» ?	A.L. Tesseron
No. 254:	International Differences in Longevity and Health and their Economic Consequences	P.-C. Michaud D. Goldman D. Lakdawalla A. Gailey Y. Zheng
No. 255:	Understanding the Economic Consequences of Shifting Trends in Population Health	P.-C. Michaud D. Goldman D. Lakdawalla Y. Zheng A. Gailey
No. 256:	Population Aging, Older Workers, and Canada's Labour Force	F.T. Denton B.G. Spencer
No. 257:	Patterns of Retirement as Reflected in Income Tax Records for Older Workers	F.T. Denton Ross Finnie B.G. Spencer
No. 258:	Reproductive Contributions of Foreign Wives in Taiwan: Similarities and Differences among Major Source Countries	K.-L. Liaw J.-P. Lin C.-C. Liu
No. 259:	Chronic Health Conditions: Changing Prevalence in an Aging Population and Some Implications for the Delivery of Health Care Services	F.T. Denton B.G. Spencer
No. 260:	Portfolio Allocation in the Face of a Means-Tested Public Pension	D.A. Cobb-Clark V. Hildebrand
No. 261:	Income Replacement in Retirement: Longitudinal Evidence from Income Tax Records	F.T. Denton R. Finnie B.G. Spencer
No. 262:	A New Bismarckian Regime? Path Dependence and Possible Regime Shifts in Korea's Evolving Pension System	M. Hering

(2010)

SEDAP RESEARCH PAPERS: Recent Releases

Number	Title	Author(s)
No. 263:	Strengthening Fairness and Funding in the Canada Pension Plan: Is Raising the Retirement Age an Option?	M. Hering T.R. Klassen
No. 264:	Understanding the Outcomes of Older Job Losers	M. Brzozowski T.F. Crossley
No. 265:	Issues in the Issuance of Enhanced Annuities	R.L. Brown P. Scahill
No. 266:	Criteria for the Optimal Design of a Social Security Retirement System	R.L. Brown
No. 267:	Retirement 20/20: Innovation in Pension Design	R.L. Brown