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RETIREMENT INCOME SECURITY: WHY INDIVIDUAL ACCOUNT DC PLANS ARE NOT THE ANSWER (BUT ALSO WHAT IS)

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Much of this article depends heavily on a paper recently written by the above author and a co-author, Tyler Meredith; namely: Brown, R. L. and T. Meredith (2012). Institute for Research on Public Policy. Study No. 27: Pooled Target-Benefit Pension Plans.

WHAT TO AVOID IN DESIGNING A RETIREMENT INCOME SECURITY SYSTEM?

A simple statement is that one must design a retirement income security system in a manner that absolutely minimizes the expense burden on the participants and the risks that the participants must assume. That being the case, it becomes rapidly apparent that the worst way to design a retirement income security system is as an “Individual Account Defined Contribution” system.

Such a system makes a number of assumptions that are just patently false.

1. Workers are capable of optimal investing and asset management.
2. If they are not capable themselves, then they can purchase asset management at a very low expense ratio.
3. Workers, if given investment fund options, will choose wisely and will also follow a life-cycle model of investing where they slowly move from a high equity portfolio to more fixed income as they near retirement (or, even better, they buy deferred annuities as they near retirement).
4. Workers can buy individual life annuities as a fair actuarial price.

Each of these assumptions is false.

1. Workers are capable of optimal investing and asset management.

How can an individual worker who has no training or education in business or economics be expected to invest wisely and manage their assets prudently?

As the following graph shows the choice of one’s investment portfolio and the timing of the cash flows can clearly have a huge impact on one’s standard of living upon retirement.

In the graph above, we see replacement ratios as high as 90 percent and as low as 14 percent. And the only variable is the period over which one is working and saving.

Clearly, the worker can decrease the investment risk by choosing less volatile investments such as government bonds. While it is true that the volatility decreases markedly, so too do the Replacement Ratios as seen in Figure 2.

That is, the worker has two choices. Invest heavily in stocks and face a level of

FIGURE 1
Replacement Rate
(Annuity /Final wage)



Source: Burtless, (2009)

volatility that is probably unacceptable. Or, invest more heavily in bonds and fixed-income securities and mitigate the volatility risk but guarantee living at a much lower standard of living in retirement.

The replacement ratios in the above graphs also indicate the impact of the timing risk. This is the risk of being forced to liquidate your assets at depressed values while also buying an annuity when interest rates are low and annuity prices are, therefore, high (as in 2009).

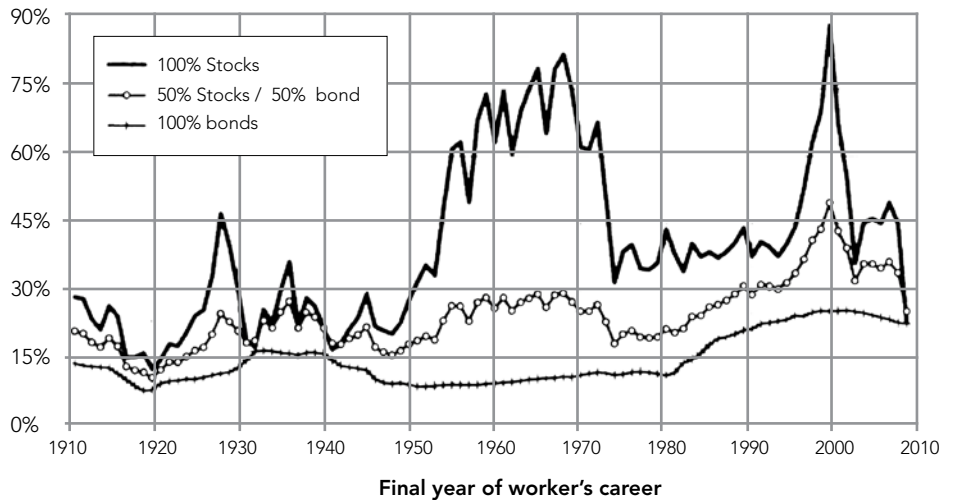
The responsibility of investing and liquidating one's assets is one for which the average worker has little capability. The literature indicates that if individuals are responsible for managing their own capital accumulation, they do so conservatively and achieve lower rates of return.

2. If they are not capable themselves, then they can purchase asset management at a very low expense ratio.

One can legitimately argue that there are professionals who can be paid to manage the funds even in the de-accumulation phase. While that is true, it comes at a high cost. It is not unreasonable to assume that a professional fund manager will charge 2 percent of assets each year as their management fee. A 2 percent per annum fee decreases the ultimate retirement fund (assuming a 35-year experience) by 31.7 percent (Ambachtsheer, 2008).

Looked at in a slightly different manner, Table 1 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.

FIGURE 1
Replacement Rate
(Annuity /Final wage)



Source: *ibid.*

Table 1: 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, 2008.

Munnell et al (2013) found that:

“fees have a significant effect on how much an individual will have at retirement. An additional 100 basis points over a 40-year period reduces final assets by about one fifth. Many studies have also shown that actively-managed funds underperform index funds, even before accounting for the higher fees charged by the former. But broker-sold mutual funds

perform worst of all. One estimate is that broker-sold funds underperform average actively-managed stock funds by 23 to 255 basis points a year. The problem is big because the number of people rolling over into IRAs has increased dramatically.

...

The rollover of balances from 401(k)s to IRAs is extraordinary given that participants are typically passive in their interactions with their 401(k) plans. They rarely change their contribution rate or rebalance their portfolios in response to market fluctuations or as they age.

Some households may be attracted by the opportunity to obtain a wider menu of investment options or to consolidate their account holdings. But others may be seduced by advertisements from financial service firms urging participants to move their funds out of their “old,” “tired” 401(k) plan into a new IRA.”

Finally, if we are going to depend upon a DC system, at the least it should be run as a large, “collective” fund. This is because size matters.

Table 2: 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

Ambachtsheer, 2008.

Further, and importantly, a large collective fund can invest more widely than any Individual Account, in, for example, private equity or infrastructure. This effectively gives the worker a less risky portfolio.

3. Workers, if given investment fund options, will chose wisely and will also

follow a life-cycle model of investing where they slowly move from a high equity portfolio to more fixed income as they near retirement (or, even better, they buy deferred annuities as they near retirement).

There is no support in the literature for this contention (see Munnell (2013) above). The more choice you give as to investment funds for Individual Accounts, the more likely it is that savings end up in the default option. In Australia, 80 percent of participants went to the default investment option. This does not have to be totally negative. For example, in Sweden, which offered 456 investment options, the majority of participants ended up in the default fund, but the default fund out-performed nearly all of the other funds, so the story ended well.

Nor is there any support in the literature for any evidence that workers use a life cycle approach to the management of their portfolio. (ibid)

Finally, buying fair market value life annuities may be very difficult.

4. Workers can buy individual life annuities at a fair actuarial price.

When we move into the de-accumulation phase, the worker can always manage the longevity risk by buying a life annuity. Simple enough, until we look at the cost, especially given today’s very low interest rates. However, wherever interest rates happen to be at a given moment, a consistent cause of the high price of life annuities is the factor that the insurance company must include to cover anti-selection (James et al, 2008). Anti-selection occurs because the insurance company can never know as much about the annuitant’s health and life expectancy as does the annuitant purchaser (the Principle of Information Asymmetry). Under this Principle, workers who know they are in good health are more likely to buy life



annuities or to buy larger amounts. Those who know they are in poor health will not buy life annuities at all. Thus, the insurance company must price the annuity assuming a five-star risk. That is, they price the annuity assuming the purchaser will have very high life expectancy.

In most countries, there is no risk classification for annuities (except in extreme cases where the seriously ill or injured can purchase a Settlement Annuity). Thus, the norm is that a coal miner who is over-weight and smokes pays the same price for an annuity as a non-smoking school teacher who jogs. Clearly they are not equivalent risks, but they are normally priced as if they are both five star applicants.

This has the further negative impact of being regressive. There is clear data (Brown and Prus, 2004, Whitehouse and Zaidi, 2008) that wealthier people live longer. And this is not because healthier people make more money. It is because of the stability, socialization and access to care that result from wealth and education (Brown and McDaid, 2003). Thus, if you charge the same rate for all life annuities, you are penalizing the poor who, it might be argued, are those in most need of being able to transfer the longevity risk. It is thus debatable as to whether a poorer worker should annuitize at retirement.

If the worker does not buy an annuity, effectively, they must self annuitize. That is, they must determine a program of income withdrawal that is optimal for them. Depending on their desire to leave a bequest (which we ignore here), they will want to take out the maximum income possible without creating the threat of outliving their assets. That is a lot to ask. Who knows their life expectancy? And covering your life expectancy is not enough. One would be wise to cover at least one's life expectancy plus one standard deviation. So, if workers want to be sure that they will not outlive their assets, they make conservative withdrawals. That means they live at a lower standard of living than is necessary. If they take more aggressive withdrawals, then they increase the probability of outliving their assets and thus becoming dependent on government programs for their continued consumption. (This should also be a concern to taxpayers who will pay those welfare benefits).

Individual Accounts also create a counter-cyclical macro-economic bias. For example, when a country's economy is hot, one would expect asset values to rise but also one would expect increased demand for labor. When the stock market is hot, holders of Individual Accounts will see an ability to retire and will then leave the labor force, exactly what the economy does not want. The reverse holds when the economy cools. Individual Account values go down and the account holders see that they must remain in the work force, just when you would like them to leave. (MacDonald and Cairns, 2007).

In short, in the case of a system based on individual accounts where the workers invest their funds, inadequate education of the public, lack of any smart default option and inadequate regulation and supervision of the investment managers may result in poor investment choices, high transaction costs, and thus lower than expected net returns. To

“THERE NOW APPEARS TO BE GENERAL ACCEPTANCE THAT NEITHER A PURE DB NOR DC PLAN IS OPTIMAL FOR THE FUTURE.”

conclude, there appears to be little economic support for Individual Accounts retirement income security systems (see also de Mesa, 1997, Gill, Packard and Yermo, 2004, Sinha and Yanez, 2008, Diamond, 2004 and Diamond and Orzag, 2004).

FINDING A MIDDLE GROUND: POOLED TARGET BENEFIT PENSION PLANS

There now appears to be general acceptance that neither a pure DB nor DC plan is optimal for the future. Can an innovative pension plan design be found which would maximize the advantages of these two classical systems and still address the range of challenges we have outlined?

In this effort four government panels have reported in as many years with proposed changes to Canada’s retirement income system. 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)¹
- Nova Scotia Pension Review Panel, a new Province-wide plan that would be a DC Target Benefit plan administered by an independent agency (2009).

While these reports differ in their detailed recommendations, each suggests new mechanisms to expand coverage, improve pension incomes and achieve more effective savings and pension options for Canadians.

This paper draws from many parts of the body of ideas put forward by the expert reports mentioned above. It attempts to distill from these various models a practical application of the key principles for reform set out below that could conceivably be implemented in the current legislative and policy framework for pension reform. Many of the features put forward in this paper also build on the real-world examples of Ontario traditional MEPPs and JSPPs and the TIAA-CREF pension model in the United States.

THE CONCEPT

The paper’s answer to these principles is the Pooled Target Benefit Pension Plan (PTBPP). In broad terms, it is a target benefit pension plan that blends the elements of pooled risk often found in traditional MEPPs with the cost predictability of a DC plan. This hybrid design yields a pension vehicle in which participants gain an expectation as to their retirement income (within a reasonable range), greater portability across the labor market and professional third-party investment management in a cost-efficient and effective saving alternative.

It is important to note, however, that the proposal entails gains and losses for both employers and workers. This is consistent with the intent of the PTBPP to more effectively balance the allocation of risks than current classic DB and DC pensions permit. But whatever gains and losses the proposal may create for the parties in moving to the PTBPP model, it is designed to balance them out overall and be acceptable to both sides. This section describes each of the elements and key assumptions central to the proposal. How the model can best be implemented

within current federal and provincial legislative frameworks is discussed in the next section.

POOLING

This model is premised on the pooling of assets and risk on a comprehensive basis. This means accounts would exist only notionally—assets would be booked by respective plan and participant, although no assets would be segregated per se. Assets would be invested and managed globally across the pool. By operating with such a high degree of comingling, the plan will be able to leverage relatively low management expense ratios and a collectivization of risk that should provide for smoother actuarial costs. Such pooling, while mitigating investment risk, will not eliminate it. For example, a market fall of the significance of 2008/09 would still have a measurable negative impact on these pooled funds.

Both employers and individual investors would be able to participate in the plan either by registering new pensions or transferring existing assets (including RRSP accounts) to the pool(s). This would include access for self-employed individuals. For current single-employer pension plans, particularly those of small and medium-sized enterprises where plan membership is small, participation in the PTBPP would provide the cost-efficiency of larger pension funds. In this context, it is important to emphasize that having a comingled asset portfolio does not mean that all participant plans need to be identical. The participant plans could, as necessary, operate with differing contribution rates and target benefit ranges. Larger participating plans would also have the discretion to define a portion of their investment portfolio within established parameters.

The plan itself is therefore a large umbrella under which a number of different plans and investments are comingled to realize size ef-



ficiencies. Provincial and federal regulators would also be able to make use of this vehicle by transferring in “orphaned” pensions in the event of wind-up or bankruptcy. While several provinces² already have the power to designate a particular agency to “receive or hold” the assets of a registered pension plan under extenuating circumstances, by virtue of its design as a pooled entity the PTBPP could be an ideal host. This would ease administrative burdens during the transition process and provide greater protection of pension benefits in provinces where such powers do not currently exist.

To ensure an efficient scale is reached, pool(s) operating under the plan would be required to maintain a minimum portfolio of, for example, \$10 billion, a size generally considered large enough to generate significant cost-efficiency (see Table 2) and to allow for specialized investments (e.g., private placements). It should also be noted that, in contrast to other proposals for pension reform, the PTBPP would not require

mandatory enrolment of employers or workers—it is a voluntary pension. Many studies have shown that a system where participation is the default option and where workers (and employers) must take an action to opt out does produce higher participation levels. While we favor this design characteristic, we do not believe it is necessary for achieving the required economy of scale.

CONTRIBUTION RATES AND COST MINIMIZATION

Pooling provides a useful structure in which to mitigate some of the actuarial risks and management costs related to a pension fund, but it is not an end-point. The effectiveness of a pension plan depends on a number of factors, including: whether contributions are to come from both employers and employees, what rate of income replacement is provided, who is responsible for supplementing the under-performance of assets, and what policies exist with respect to management expenses.

For the plan's sponsor (employer), the PTBPP appears as a traditional DC plan. In this respect, contributions would be mandatory for both parties, but the employer's contribution would be known and fixed within certain limits. The minimum contribution rate would be tied to a level appropriate for the target benefit set out in the plan, with contributions being matched by the employer up to a set rate (which may vary by plan). Similar to most DC plans, employee contributions would be permitted above this level but within the limits of the Income Tax Act.³ The employer would not be responsible for any additional funding of the plan should asset values fall below the target range of benefits. As described further on in the paper, this responsibility would fall either to employees or be reconciled through a corresponding reduction in benefits. For existing DB sponsors this framework releases them from significant liabilities inherent in a classic DB plan.

While the plan is pure DC to the employer in the short term, in an extended period of low investment returns, one would anticipate that workers would wish to renegotiate the level of the employer contribution. Similarly, in an extended period of high returns, it would be expected that employers might wish to lower their required contributions.

One should not expect PTGPP plans to exist with low employer/employee contributions. As Mintz (2011) has suggested, an important source of under-saving behavior is related to inadequate minimum contribution rates among DC plans. The aim of the PTBPP, therefore, is as much on improving income replacement as it is on cost-efficiency. The intent is not to reduce costs to allow lower rates of saving, but rather to achieve greater saving efficiency and generate higher rates of income replacement. What, then, is an appropriate contribution rate for participating plans?

Work by the Organization for Economic Cooperation and Development (OECD 2009) indicates that a contribution rate of 5 percent would provide an income replacement ratio of 25.3 percent, while a contribution rate of 10 percent would double that to 50.7 percent (a one percent rate increase therefore raises the replacement ratio 5 percentage points, *ceteris paribus*). These figures assume 40 years of contributions and a balanced growth portfolio split between 40 percent domestic government bonds and 60 percent domestic equities. Although plans will differ based on the needs of workers, combined contribution rates would ideally range between 10 percent and 18 percent of pay (i.e., within the existing Income Tax limits), thus providing between 50 to 90 percent income replacement in retirement. The 50 percent replacement rate would satisfy the needs of an average worker who also gets a 39 percent replacement from OAS plus CPP. The 90 percent would apply only to the very wealthy where OAS and CPP provide a very low replacement ratio.

According to the 2009 Capital Benchmark Report the average combined employer/employee contribution rate to Canadian DC plans was 8.7 percent last year, having grown steadily over the previous three years (Great West Life 2010). Compared to these figures participation in the PTBPP would represent at least a modest uptick in contributions for many sponsors.

While additional contributions would likely be required on the part of some participants the cost-efficiency of corresponding investments would be vastly superior to the current mutual fund type offerings in the financial services marketplace (Exchange Traded Funds, or ETFs, are more competitive, but not well understood). Much has been said already about the drain that management fees impose on capital accumulation. To address this concern, management fees would be capped at 40 basis points after a pool has reached critical mass and an established start-up period has been completed. The MER cap ensures that a plan's assets grow efficiently over the course of a member's working life. This would represent a material advancement for many investors.

In suggesting a 40 basis points cap, it is worthwhile noting that the BC public sector pension plans (Public Service, Colleges, Teachers and Municipal) run at a total expense ratio (investment management and pension administration) of 25 basis points (i.e., 0.25 percent) (Kennedy 2011). Thus, we believe that the 40 basis point limit is fair and achievable as it allows a 15 basis point profit margin.

TARGET BENEFITS

The PTBPP entails a target benefit structure in which, as described earlier in the paper, participants make contributions over the course of their career with the purpose of receiving a retirement benefit within a pre-set range. The initial "target benefit" or its required contribution rate will, of course, depend on the age of the entering participant. A

45-year-old entrant cannot hope to achieve as high a potential benefit as a 25-year-old entrant making the same contribution. For workers who contribute to their retirement solely through personal investments or as part of a traditional DC plan, this moves retirement income beyond mere hope to expectation, but it does not provide the guarantee of a traditional defined benefit. In this respect, the model reflects a more equal sharing of risks than is the case with either traditional DB or DC plans.

After a target benefit range has been established and the plan set up, members would receive an update at least once annually as to the performance of their "account". This would include an indication of the benefit, based on a recent snapshot of plan valuation, that can be expected upon normal retirement, expressed as projected monthly retirement income. For those familiar with traditional DC plans this would relieve the informational burden on members to extrapolate a notional retirement benefit from the present market value of their investment accounts. With this information, members can then establish what replacement ratio their plan would provide and determine what, if any, need exists for supplementary personal savings. There are moves in the United States as this paper is being written to make these projections mandatory for 401(k) plans.

Obviously asset values will go up and down based on market performance, but this need not have a full or immediate impact on the benefit schedule. This is now true with respect to Ontario traditional MEPPs thanks to changes in solvency funding requirements. One must be aware, however, that this flexibility can create conflicts-of-interest. Retirees or those close to retirement will push for solutions that do not decrease benefits (but push the problem onto future generations of participants). Younger workers will want solutions that will not increase contributions. In an environment of prolonged low investment returns, such as today, par-

participants must understand that their benefits are not guaranteed. If, over the medium term, asset values do not keep pace with the plan's target benefit range the plan's trustees would address deficiencies either through supplementary contributions on the part of employees or, as is the case with traditional MEPPs, a reduction in benefits. Conversely, any "excess" returns above the target benefit schedule would be used to improve benefits for those still paying into the plan and provide inflation-protection for the payouts to those in retirement.

To help mitigate potential funding shortfalls, the plan would use a more conservative method for calculating target benefits than is common in classical DB plans. One example is to set the target benefit based on Career Average Pay where income replacement is calculated on the basis of an employee's average salary throughout their career rather than over the highest earning period. This approach is arguably more consistent with a target benefit model as it spreads benefit costs across the working life more evenly and recognizes, implicitly, that the purpose of the pension plan is not to provide a maximum, fixed benefit upon retirement but rather a reasonable expectation of retirement income.

RISK MANAGEMENT

Having already described the contingency for shortfall in investment performance, any pension plan must also accommodate potential risks arising from extended longevity of retirees, and the sensitivity of benefits to changes in inflation over time. How would the PTBPP respond to these risks within the pension design set out above?

The longevity risk can be addressed in either of two ways. First, the plan could purchase deferred life annuities for plan participants as they near retirement. This would start at a relatively early stage in a member's working life (e.g., age 40), allowing sufficient preparation and vesting of assets. The proportion

of an individual worker's plan assets allocated to purchasing deferred annuities would then increase gradually to 100 percent as they near retirement age (not purchasing annuities all at once mitigates the interest rate risk). The Group Annuity market in Canada today is highly competitive and provides good value for this need (personal memo from Dr. M. Milevsky using data from <http://www.ifid.ca/payout.htm>)

Alternatively, the plan could elect to manage the payout of benefits itself; under this scenario the plan would still benefit from having the investment risk collectivized in a manner vastly superior to a typical DC plan where investment funds are segregated across member selections. We view this as a parallel to the systems used in the United States by the TIAA-CREF. In either eventuality, worker/participants are freed from managing these risks themselves.

Inflation is a major threat to any pension plan in which benefits are fully indexed to changes in CPI. The model we propose would use slightly conservative actuarial assumptions (e.g., taking a financial economics view of the equity risk premium⁴ to determine the "target benefit" for members). Again rather than a guarantee of full indexation of benefits, the plan proposes only a "target" in this regard. If actual rates of return exceed actuarial assumptions it would allow for benefit improvements. The approach could be similar to that recently introduced by the Ontario Teachers Pension Plan whereby future accruals (on or after January 1, 2010) are indexed at half the rate of CPI, with the other portion conditional on the funding viability of the plan (OTF 2009). This is also consistent with the approach used in Quebec's MFPP, with the BC public sector pension plans and the Nova Scotia Teachers pension plan.

INVESTMENT MANAGEMENT

A final, unique element of the PTBPP model relates to the plan's management and

oversight functions. As compared to self-directed DC plans, where the individual bears the responsibility for investing funds, the plan would rely exclusively on professional, arms-length investment managers. These managers would be responsible both for the day-to-day management of invested funds as well as any pay-out responsibilities undertaken by the plan. Taking over the onus from individual members will significantly improve the investment capabilities of the plan, and provide a significant advantage for participating workers and small businesses as they no longer would be expected to manage their own assets and the associated investment and actuarial risks.

CONCLUSION

The least desirable design for a retirement income security system is an Individual Account Defined Contribution system. A much better approach is the Pooled Target Benefit Pension Plan outlined in detail in this paper.

It is the expectation of the author that many of the points made in this paper will prove to be contentious. By debating our different viewpoints, it is hoped that we can all arrive at a more complete understanding of how to design a retirement income security system that truly provides retirement income security.

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ENDNOTES

¹ The ABC Plan would have operated as DC supplement to pillar two workplace pensions. Although the program would have been based on auto-enrolment, both employers and employees would have been able to opt-out. Saskatchewan had shown some interest in participating, though for the moment Alberta has backed out until results of the PRPP initiative can be discerned (Baldwin 2010; Joint Expert Panel on Pension Standards 2008)

² This includes: Manitoba, Newfoundland and Labrador, Nova Scotia, and Ontario

³ Currently 18% of income including both employer and employee contributions up to a maximum of \$22,970 (for calendar year 2012).

⁴ Under the principles of Financial Economics, the required contribution to achieve the target benefit would be determined using a risk-free rate of return, such as that paid on Federal government bonds, rather than a portfolio average rate of return.