THE ACCIDENT COMPENSATION SCHEME AND UNFUNDED LIABILITY

A Paper

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by

Professor Lewis Evans

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New Zealand Institute for the Study of Competition and Regulation.

Victoria University of Wellington

PO Box 600, Wellington, New Zealand.

Phone: (64) 04 4625562 Facsimile: (64) 04 4625566

1. Introduction

The ACC is currently funded on a pay-as-you-go (pay-go) basis. This means that levies on participants in the scheme cover only its current period operating costs. In the past, these costs have been lower than the amount required to fully fund the cost of the new claims being added to the ACC each year. This has created a $7.5 billion unfunded liability that the government must address as part of any long term reform of the ACC.

The introduction of competitive private delivery of the Employers' Account of the ACC requires that all future participation by employers be on a fully funded premium basis. What should the government do with the unfunded liability of the Employers' Account at the time that competition is introduced? This paper argues that if the government wants to create an efficient accident compensation market for employers, it should not levy current employers for this unfunded liability. The government should not in any way entangle the funding of past liabilities with the operation of the ongoing competitive market.

2. Pay-go vs Full Funding and the Unfunded Liability

2.1 Alternative Funding Arrangements

We can distinguish conceptually between three different approaches to funding social welfare, superannuation and insurance schemes.

- Full funding: Premiums are set at a level that will fully fund all expected liabilities associated with the claims arising from accidents in the period covered by the premium. This means that premiums levied for insurance coverage in year *j* will provide a pool of funds that has, at the prevailing market interest rates, a present value equivalent to the present value of the expected future payments that will be made in respect of these new claims incurred in year *j*. It also implies that if an insurance scheme operating on such a basis for *k*

years were to cease operations at the end of year *k*, it would have a pool of funds sufficient to meet the expected costs of claims incurred in years 1 to *k* even though some of those claims might continue for many years into the future beyond *k*.

- Pay-go funding: Current and future premium rates are set at levels that will meet the annual cost of the payments made by the scheme, regardless of the year in which the accident upon which each claim is based occurred. Pay-go funding requires that the premiums set for year *j* must be equivalent to the expected value of payments made in respect of new claims arising in year *j*, plus the expected value of payments made in year *j* in respect of claims originating from earlier years 1 to $j - 1$. A key feature of a pay-go scheme is that it requires compulsion and the ability to tax. The ability to tax ensures that individuals can be required to meet the current period costs of the scheme even if this establishes a premium rate that is greater than the expected value of the current period insurance benefits received.

- Partial funding: Premium rates are set at levels that provide less than the full present value of liabilities arising from the claims made in the current period, but sufficient to fund some of the future liabilities arising from these claims. Partial funding can be viewed as the provision of a capital sum the investment income from which offsets a full pay-go premium to some degree.

It is also necessary to distinguish between the aggregate funding of ACC schemes and the premiums that individuals pay. If premiums are set so that in aggregate they cover the current and future liability for new claims, then the scheme is fully funded. This only happens in two instances:

- Schemes in which individuals pay actuarially fair premiums. This implies full funding.
- If individuals do not face actuarially fair premiums, then the scheme will have to be cross subsidised between groups of individuals. The cross-subsidisation results in actuarially fair premiums in aggregate. As with pay-go schemes, explicit cross-subsidisation will require compulsory participation; otherwise only those who expect to receive a subsidy will participate.

It is important to note that:

- pure pay-go funding does not have actuarially fair premiums, even in the aggregate. Our use of the term "fully funded" means fully funded in the aggregate unless otherwise indicated.
- there would be negligible difference between funding methods if all accident costs occurred in the first year only. In fact, for most accidents this is the case, but there is a significant number of costly claims that run off over long periods.
- The credibility and efficiency of a fully funded scheme is difficult, if not impossible, to achieve unless the scheme is privatised. History in New Zealand and elsewhere implies that the investment capital of government fully funded schemes will be used for purposes other than funding claims.

2.2 Implications of Funding Arrangements on the Unfunded Liability

Each of the approaches to funding outlined in section 2.1 may provide a basis for a stable scheme and solvency, but the choice between them will have extremely important implications for the efficiency with which the scheme operates.

In schemes such as the ACC, liabilities arising from claims may continue for many years. This means that a large proportion of the payments made by the ACC each year are in respect of claims made in earlier years. The cost of a representative individual's claim is therefore the annualised value of the payments made, multiplied by the expected duration of the claim. For the ACC scheme as a whole, the average duration of claims is a key determinant of total costs, and thus of the assets required to fully fund claims. Small changes in average claim duration can have a substantial impact on the present value of the liabilities of such a scheme.

Under pay-go or partial funding, the scheme will have unfunded liability (assets whose present value is less than the expected future cost of existing claims). The existence of this liability will have important political and efficiency implications. The political implications arise from the fact that the unfunded liability may grow so large as to raise concerns about the willingness of government to impose, and the

electorate to tolerate, the tax rates that would be required to fund it if the scheme should be closed down. The efficiency implications arise from the fact that in the period before a pay-go scheme matures, the accumulation of unfunded liability in the scheme results from past participants in the scheme having received benefit levels that were in excess of those that could be provided (on a fully funded basis) from the premiums that they paid.

2.3 Magnitude of the Unfunded Liability.

The key trends in the unfunded liability of the ACC Scheme are set out in Table 1. Of particular importance is the fact that at the present time, the unfunded liability in the Employers' Account is in effect being reduced by a levy on existing employers. This is because the premiums for the Employers' Account are substantially in excess of those required to meet the current year's cost of claims. The efficiency of this approach in dealing with the unfunded liability in the ACC scheme is commented on below.

Table 1

Estimates of the Unfunded Liability in the ACC

1995	**1996**	**1997**	**1998**
$6.5 billion	$7.4 billion	$7.3 billion	$7.5 billion

Key Trends

- Recent reduction in new claims in the Employers' Account, but premiums kept high
- fall in the unfunded liability in the employers account.
- Unfunded liability in the other accounts is increasing
- ACC claims that more effective management of the tail of claims is being provided
    - ⇨ as yet no statistically convincing evidence that this is actually impacting on the unfunded liability

Overall, the total unfunded liability in the ACC is increasing more slowly than was implied by the 1995 to 1996 estimates.

3. Efficiency: The Requirement for Full Funding.

The different alternatives to funding will have distinct implications for efficiency, because efficiency requires that individuals and firms face actuarially fair premiums.[1] Actuarially fair premiums are those premiums that equate to the present value of expected benefits plus insurance-management costs and profits set in a competitive market. There will entail some cross subsidisation within risk pools that are designed to efficiently separate agents into different risk classes. It will not be possible, or efficient, to separate at the individual or firm level.

Only under special conditions will the premiums set in pay-go schemes be actuarially fair (ie equal to full funding premiums). It follows, therefore, that pay-go schemes will rarely give us the efficient outcome. Let us explain this further.

3.1 Actuarially Fair Premiums : Compulsion and Taxation

The premiums of pay-go accident insurance schemes do not in general equal the present value of expected benefits and hence they are not actuarially fair. Because premiums that are not actuarially fair are inherent to pay-go schemes, participation in these schemes is necessarily compulsory and relies on the ability to tax. This is why they are government schemes. [2] Because they are government schemes their assets and liabilities are the property of government.

The setting of actuarially fair premiums results in fully funding the scheme in the aggregate, and eliminates intra- and inter-cohort cross subsidisation. When this is not done, full funding eliminates inter-cohort transfers only. (See Section 3.2)

3.2 Cross –Subsidisation and Intergenerational Problems

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1 This is because in the absence of significant externalities among insurers and the insured, efficient contracts will be those where individuals purchase insurance to the point that their expected welfare from the last unit of insurance equals the cost to society of its provisions. This cost is the actuarially fair value of the insurance plus some competitively determined insurance delivery margin. (It is presumed that it is most efficient to conduct re-distribution through the taxation system.)

2 Full funding in the aggregate without premiums for individuals that are actuarially fair also requirescompulsion.

In a pay-go scheme there are two broad methods of cross subsidisation which impair the link between the premium an individual pays, and the benefits they receive.

Inefficiency occurs through transfers between different age cohorts. Even given a stable demographic structure and accident exposure, the transition to a steady state in a pay-go scheme will provide certain cohorts with benefits at the expense of others. For example, upon the introduction of a pay-go scheme the premiums may be lower for a given level of benefits, but will grow as the scheme matures and its cost increases approach a steady state. This entails a transfer from future to present age cohorts. Indeed, inter-cohort transfers can take place in a steady state if cohorts of the insureds have different proclivities for risk that are not reflected in the premiums or benefits. In addition to equity considerations, these transfers are inefficient to the extent that the cohorts that are subsidised consume more insurance than they would if they were not subsidised.

Pay-go schemes are based on an implicit inter-cohort contract. As in Samuelson (1958) each cohort pays for the costs of the benefits received by the previous cohort on the assumption that the next cohort will do the same for them. In effect, therefore, each cohort meets the current costs of ACC benefit payments on the assumption that the costs of their claims will be funded by pay-go premiums levied on a future cohort. Again this is why pay-go requires government mandated compulsion and the ability to tax.

Intergenerational equity can also require that each generation bear the same expected (ex ante) costs and receive the same expected benefits. In the ACC scheme this may be defined by the intergenerational constancy of benefit and premium rates as a proportion of income. Ex ante intergenerational transfers within the scheme (differences in expected benefits and / or premium growth rates) will threaten the sustainability of the scheme by removing the perception of equity that is central to the enforcement of the implicit contract between cohorts.

Pay-go schemes typically embody transfers within cohorts by using the terms of the scheme to transfer expected benefits of higher premium contributors to those who

contribute less. Any such transfers reduce the efficiency of both pay-go schemes and schemes that are fully funded in the aggregate but in which individuals are not assessed actuarially fair premiums. They are not present in fully funded schemes except to the extent of normal insurance risk pooling.

The transfer of wealth (which is present in pay-go schemes) between participants not only within the scheme, but also between present and past participants, weakens the vital link between individuals' premiums and benefits. The weaker this link, the more the premium will be regarded as a general tax that simply contributes to a consolidated fund, and the larger the consequent economic inefficiency. This source of inefficiency will be of less significance in schemes that are fully funded in the aggregate.

3.3 The Importance of the Interest Rate

In a steady state pay-go scheme with no cross-subsidisation, premiums can be identical to those associated with an equivalent fully funded scheme only if the real interest rate is equal to the population growth rate.

Expenditure and hence the premium rate in a pay-go scheme is determined by past claims and the first-year costs of claims. It is not directly influenced by the interest rate. However, it is affected by the population growth rate. All other things being constant, the premium income relative to liability for claims incurred in the past, grows by the population growth rate. That is, under pay-go the larger population of today meets claims incurred in the past when the population and its concomitant claims were lower.

In contrast, the full-funding premium rate is directly determined by the interest rate. For any given level of income, an increase in the interest rate will leave the pay-go premium rate unchanged but will reduce the full-funding premium rate. This effect

occurs because some of the premium income of fully funded schemes will be invested until paid out in benefits in future periods.[3]

For real interest rates that exceed the population growth rate, the income obtained from these invested funds will ensure that steady-state fully funded schemes have lower aggregate premiums than pay-go schemes with the same benefits. The longer the period over which accident victims may claim benefits, the larger will be the impact on premiums that results from the compound interest return on funds invested. It has generally been the case that the real interest rate exceeds the population growth rate and this is expected to continue. This ensures that even in the steady state, a pay-go scheme may not provide actuarially fair premiums.[4]

4. Who should pay the Unfunded Liability?

4.1 Considerations

There are two components of the unfunded liability of the ACC: the liability incurred for existing claims that will run off in the future, and the unfunded liability arising from future claims made while the ACC continues to operate as a pay-go scheme under current terms and conditions. Both types of liability can be funded by some combination of capital sums placed to the credit of ACC and higher levels of premiums and changed benefits now or in the future. Unfunded liability is an inherent part of the ex ante design of a pay-go scheme and as such does not present funding problems which need to be resolved.[5]

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3 There is a growing literature (see Feldstein (1995) and Feldstein and Samwick (1996) and Kotlikoff (1996)) suggesting that there are very significant economic efficiency gains to be made when switching from pay-go to fully funded superannuation schemes. The gains arise from: (a) compounding at the marginal product of capital rather than the rate of growth of the economy; and (b) more tightly aligning expected benefits with contributions. Both these points are applicable to accident compensation schemes.

4 It is conceptually possible for a pay-go scheme to be undone or partially undone by the actions of individuals and converted to a fully (or partially) funded scheme. This occurs when individuals invest the present value of expected claims costs and regard the concomitant interest earnings as offsetting the pay-go premium. Whether or not there are extra transactions costs entailed in such actions, there will be no efficiency advantage over a purely fully funded scheme.

5 This statement refers only to the issue of funding the liability. The stable pay-go funding basis will still raise the issues of the actuarial fairness and efficiency of the premiums discussed elsewhere in this paper.

The size of the unfunded liability depends to a large extent on the duration profile of claims. The efficient management of these claims requires providing the contractual benefits of the claimants at least cost. Management can be separated from funding, and in this discussion it is assumed that the appropriate institutional arrangements are put in place for efficient management to occur.

Given efficient management of claims, the unfunded liability associated with the existing claims of a pay-go scheme is, in economic terms, "sunk." It is an unavoidable fixed cost that has been incurred from the past operation of the business. Current and future ACC premiums and benefits will affect decision making and hence influence the efficiency of the accident insurance and related markets, but past premiums and benefits will not. The only efficiency consideration flowing from immutable commitments resulting from past decisions and events is - what is the efficient way to fund them?

Unfunded liability is a significant problem when there is either:

(a) a decision to switch to full funding in the aggregate; or

(b) a solvency problem arising from a situation where current and prospective premium income will not cover the expected future costs of ongoing past claims and new claims incurred.

In this connection, note that a pay-go scheme takes a long time to mature, and that over the build up the premium income of pay-go will be less than that of a fully funded scheme.

The choice between different approaches to funding needs to be considered on grounds of efficiency, equity and credibility, and in the light of an economic analysis of the nature of the unfunded liability. Efficiency considerations must include the effects of different sources of funds as well as the potential for different approaches to funding to influence the behaviour of the individuals and firms covered by the insurance contract itself. Credibility means that participants in the scheme must believe that funding arrangements are such as to provide the assurance that the current benefit levels can be maintained. Given the present economic and

demographic fundamentals, it is at least open to question whether the ACC scheme can continue to provide the current level of benefits on a pay-go basis.

Questions about sustainability are intertwined with two important intergenerational (age cohort) issues, as discussed in section 3.2 and suggest that one generation may be forced to bear the costs of restructuring or abolishing the scheme. This generation may have to meet the costs of ongoing claims from the past and, in addition, fully fund the expected present value of their own claims. This need to fully fund the cost of new claims may arise from a restructuring of the funding basis of the ACC, or from the abolition of the ACC and the consequent need to purchase coverage from the private sector. Hence, analysis must be focused on identifying the most efficient means of paying the unfunded liability in respect of past claims.

4.2 Options

The introduction of competition will require that the Employers' Account be put on a fully funded basis. The options for doing this include:

1. **Levying surviving past participants in the scheme for a pro rata share of the liability.**

For it to be efficient to levy past participants in the ACC scheme for a share of the unfunded liability it is necessary that:

- those individuals who have participated in the scheme in the past at pay-go premium rates less than those required to fully fund the liabilities accumulated each year have anticipated their ultimate liability to fully fund the scheme and invested the necessary funds to provide for this contingency;
- those individuals and firms who have participated in the scheme in the past are able to be identified and levied to the appropriate extent;
- the efficiency loss of the loading on the premiums to meet the unfunded liabilities is less than that of funding by general taxation.

2. Levying current participants in the scheme, as was done in the State of Victoria.

The unfunded liability of the Victorian WorkCare Scheme that existed up to 1992 was funded by a levy on employers from the time that the policy of fully funding WorkCover was adopted. There are two features of the Victorian scheme which are crucial to the funding solution adopted and which do not apply to New Zealand. WorkCover incorporated structural differences from WorkCare that were perceived by employers as being advantageous to them in the long run, including the prospect of the ultimate privatisation of the scheme once it was established on a fully funded basis. This meant that employers were prepared to bear the short-term costs associated with fully funding the liability for existing claims and the ramp to full-funding premiums for new business because they anticipated the lower premiums in the future.[6] The political acceptability of this solution should not, however, be confused with questions of efficiency in the funding of the existing liability. Second, the Victorian tax base placed constraints on the feasible set of solutions that do not apply in New Zealand.[7]

3. Fund the liability from a broad based tax

In our view there are no efficiency gains to be obtained from attempting to impose liability on past participants, and there are considerable costs associated with levying current participants in the scheme. Funding the liability from the most broad based tax is the most efficient solution to the treatment of the liability. To establish this claim, consider the following five propositions:

Proposition #1: There are large transactions costs associated with levying past participants.

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[6] At the beginning of 1992 WorkCare charged average premiums of 3% of payroll, whereas the 1996 premiums for WorkCover are less than 2%.

[7] Because the Victorian Government lacked any income or sales tax, its choices were limited to increasing accident compensation premiums or increasing the rates associated with even more narrowly based (and therefore inefficient) taxes.

Levying past participants will require that the period of coverage for each individual and firm is established. This will require a very large investment in administration time. We are not even aware (but are doubtful) that it is feasible to identify in this way past participants in the ACC. Even assuming that identifying past participants is feasible, the collection of the levies would also require administrative effort, since many firms and individuals would not have liquid funds available to pay their share of the levy (even assuming that they had accumulated savings commensurate with the difference between full funding premiums and the premiums that they actually paid in the past) and some payment schedule would need to be negotiated. We believe that these costs would be very high.

Proposition # 2: It will not be possible to identify and levy many past participants

Many individuals and firms who participated in the ACC in the past will have died, emigrated or been wound up, so that it will not be possible to levy them for their share of the accumulated liability. One possibility will be to apportion their share of the liability among those past participants who can be identified, but the economic effects of this will be perverse. To levy surviving firms to cover the obligations of those (presumably unsuccessful firms) who have been wound up effectively translates the levy for unfunded liability into an efficiency tax. Alternatively, the share of the unfunded liability associated with past participants who cannot be traced must be levied on the current and future cohorts of ACC participants or on taxpayers more generally.

Proposition #3: It will be difficult to decide what levy to place on past participants

Any levy of past participants in the ACC will require the calculation of the full funding rate for the coverage they obtained, less the premiums that were actually paid, for each year of coverage. Calculation of these rates will be far from

straightforward. First, it is arguable whether the rates should be calculated on the basis of the benefits provided today, or the benefits provided in the year in which the participation occurred. While the latter might seem appropriate, assuming that subsequent benefit changes are endogenous to the operation of the scheme would provide a basis for the claim that current coverage is the appropriate basis for this calculation. Second, there are no formal actuarial estimates of full funding rates for coverage in years before 1994, and even those for the period 1994 - 1996 are so different as to make clear the difficulties of these calculations.

Proposition #4: Equity does not require that past participants meet the cost of the unfunded liability

It might be argued that treating the unfunded liability of the ACC as a sunk cost is inequitable because it will result in the write-off of the obligations of:

(a) past generations who paid low premium rates while the scheme was maturing, and
(b) past participants who have imposed the highest levels of claims on the ACC.

Government management of equity considerations takes a variety of forms, mostly through taxation and social welfare programmes. These entail ex-ante specified arrangements and rules that have been put in place for the purpose of achieving redistributive goals. The terms and conditions of ACC constituted just part of these arrangements. The fact that these economy-wide arrangements for the redistribution of income are in place at the time individuals make decisions is critically important for the efficient functioning of the economy. Ex post, retrospective actions will reduce the credibility of government arrangements and thereby adversely affect the operation of the economy. They should simply be avoided.

To retrospectively target past premium payers for the payment of claims incurred in the past, would violate the past pay-go insurance contracts. First, the ACC contract involves the payment of a (compulsory) premium in return for coverage over a defined period. The future costs of any claims arising from that period of coverage are explicitly to be covered by premiums paid by future participants. There is no basis on which it could be claimed that the future liabilities for the existing claims of a pay-

go scheme are implicitly or explicitly assigned to the participants in the period in which the claim arose. When individuals emigrate, and when firms are wound up, they do so without any need to provide contingencies for future ACC premiums that they will not pay. Second, the higher risk of any individual past participants in the scheme could have been recognised in the premiums that they paid if it was efficient to have them recognise this higher level of risk to the ACC and take increased care. No ex post adjustment of those premiums from the past can induce them to undertake more care in the past - all of those actions have already been taken.

Proposition #5: Efficiency does not require that past participants fund the cost of the unfunded liability

The adoption of a full funding regime for the ACC will, under conditions of competition, result in participants paying actuarially fair premiums for the coverage that they receive. The efficiency of this regime flows in part from the link between the insurance contract and the actions of the insured party over the period for which the insurance is purchased. If these conditions are achieved, no improvement in the efficiency of current insurance contracts can be obtained by levying participants for unfunded liabilities from the past.

With an instantaneous switch the premiums for full funding will fully reflect the present value of the expected claims and the scheme will be self-funding. Provided that these premiums are at their efficient level given the no-fault and other safety-modifying institutions, it will not be efficient to fund the outstanding liability of existing claims with higher premiums for current participants or levies on past participants.[8] Because this argument is valid with respect to each individual account in the ACC, there is no basis in efficiency for funding the liability for existing claims by any means other than the most broadly based tax.

5. Conclusion

[8] The only case for such funding would be if premiums were not high enough to properly modify risk exposure in the New Zealand environment. However, we know of no evidence that would justify other than a self-funding scheme.

Efficiency requires that

- The unfunded liability associated with all ACC accounts be treated as a sunk cost. Even were it possible to identify the beneficiaries of past low premium rates it would be inefficient to have the unfunded liability influence future decision-making.
- The government fund the unfunded liability for existing claims from the broadest possible tax base.

Funding the unfunded liability through government debt will create a large capital sum for investment, and the institutional structure within which these funds are managed is likely to influence the investment performance. Our review of the literature on management of public superannuation schemes in the US and Canada suggests that there is widespread support among economists and policy advisors for disaggregated and private sector management of funds (Canada, 1996, p. 30). This means that in practice it is likely to be efficient for the government to sell to the private sector the pool of existing (and fully funded) claims.

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