

# RECORD OF SOCIETY OF ACTUARIES 1976 VOL. 2 NO. 4

## PENSION PLAN PROBLEMS OF STATE, PROVINCIAL, AND LOCAL GOVERNMENTS

*Moderator: SAMUEL ECKLER. Panelists: JAMES S. RUBIE, JR.,  
WILLIAM DAVID SMITH, WILLIAM S. THOMAS.*

1. What are the benefit levels, financing and retirement provisions of these plans? How are the assets invested and who does the investing?
2. How do these features differ from those of pension plans in the private sector?
3. Review of the New York pension situation.
4. What are the responsibilities of actuaries involved in these situations? If they are not involved, should the actuarial profession actively encourage their intrusion into these situations?

MR. SAMUEL ECKLER: Although this subject catapulted to public interest with the financial difficulties of New York City, most of us here who have been involved with public sector pension plans have been conscious of and sensitive to these problems for a long time. We all know that they have arisen from very generous benefits, usually inadequate financing, exceptional retirement provisions and a limited investment portfolio. Another reason that this subject might be of current interest is the prospective legislation in the United States covering public sector pension plans. The legislation now covers only private sector pension plans.

In Canada we have a somewhat different picture with regard to pension legislation. We have had in some of our provinces, and for employers under federal jurisdiction, pension benefits legislation for many years. The major provinces have had such legislation since 1965 or 1966. In Canada the legislation, which is substantially the same as ERISA but with some important differences, covers employers in both private and public sectors. In some provinces the legislation has a somewhat different set of rules for public sector employers, but generally it applies equally to private and public sector employers.

MR. JAMES S. RUBIE, JR.: We will begin by reviewing the reasons why this subject is considered so important. First of all, the public retirement systems cover a significant portion of the working population, and consequently deserve our attention. In 1975 there were in the United States over 6,000 state and local government retirement systems covering almost 11 million employees and recipients of benefits, with approximately \$94 billion in assets. Undoubtedly these numbers have increased since 1975. The distribution of plans by state ranges from a low of a single state wide plan in Hawaii to a high of 1,414 plans in Pennsylvania.

More important reasons are the prospect of federal legislation and regulation of these plans, and the highly publicized fiscal crisis in New York City, for which the city's pension plan costs were cited as an important contributing factor.

I would like to address myself to the first two topics on the program, and both can be considered at the same time.

I could provide a summarized survey of benefit levels, etc. of public pension plans. However, the subject of this session is "Pension Plan Problems of State, Provincial and Local Governments" and I will concentrate on the problem aspects of public plans, drawing your attention to those features which differ from those found in typical private plans and which cause or contribute to those problems.

Before I get into specific problem areas, I would like to point out that some public systems are not in trouble, and in fact are as well, or even better, funded than the average plan in the private sector.

There are also some general features of public plans which I would like to point out:

- (a) Approximately 75% of the state and local plans are contributory. Of the private plans with which I am familiar, less than 10% are contributory.
- (b) The proportion of public plans integrated with Social Security is much lower than for private plans. This is partially due to some systems not electing Social Security coverage for their employees.
- (c) Roughly 80% of the plans cover employee groups of less than 100. In this respect they are similar to private plans.
- (d) Approximately 2/3 of the plans cover either policemen or firemen exclusively. The needs of this group differ substantially from those of the average employee covered by a private plan.

In talking about the pension plan problems of state and local governments, what we are really talking about is the problem of meeting the commitments they have made to provide certain benefits. Meeting the commitment becomes a problem when either benefit levels are too high or the funding is inadequate. Firstly I will discuss benefit levels and retirement provisions.

Benefit levels, that is, the amount of monthly pension benefit per year of service, are generally higher for public plans. In Robert Tilove's book "Public Employee Pension Funds", he stated that in 1972 benefit levels were, for most typical public employees, approximately double those prevailing in private industry plans. In a substantial proportion of public plans the typical employee will receive a retirement benefit, which when combined with Social Security, will approach a 100% replacement ratio. Employee contributions provide much of the excess in some of the plans. In the past, salary levels of public employees were lower than those prevailing in private industry and this was used as a justification for higher pensions for public employees. Currently the situation with respect to salary levels has reversed.

Whether or not the higher levels of benefits are justified, they do add to the cost of and the problem of financing the plan.

In addition to the higher benefit levels, public plans usually provide for a much lower retirement age. The most common normal retirement age in pri-

vate plans is age 65. In contrast, age 60 is typical for general employees and teachers, and age 55 for firemen and policemen. Normal retirement requirements in plans covering uniformed employees, such as age 50 or after 20 or 25 years of service regardless of age are not uncommon. The average normal retirement age for policemen and firemen is between 50 and 55. The lower retirement age adds greatly to the costs of most public plans.

Another area of significant difference between public and private pension plans which results in a higher level of costs for public plans is the length of the averaging period used in determining the final average salary. I should first point out that virtually all public plans in the U.S. are salary related, and the proportion is much lower for private plans. In industry, a 5 year final average salary period is typical, with a period shorter than 5 years being unusual. However, in public plans a 3 year period is widespread, and plans basing benefits on the final year's compensation or final rate of pay are not uncommon. The increase in cost resulting from the shorter averaging period is compounded by the practice found almost exclusively in public plans of including lump sum payments of unused sick leave in the compensation base used to determine the final average salary. In the public sector it is common practice to pay off unused sick leave when an employee terminates. In many public plans, this practice results in a higher level of benefits than were intended by the plan's designers.

Closely related is the practice of including overtime in the earning base, although this is not a practice restricted to public plans. Basing benefits on the final rate of pay solves the two previous problems, but invites a different form of abuse, that of the last minute promotion.

Another form of abuse, especially prevalent in police and fire plans, is the use of disability retirement as a means of increasing retirement income. Disability benefits are usually greater than early retirement benefits and receive favorable federal income tax treatment. As a result, some plans have more disability retirements than normal or early retirements.

All of these practices tend to make life more difficult for the actuary. They invariably will result in actuarial losses and, thus, postpone proper recognition of current cost accruals. While some of these practices do occur in private industry, they are not so nearly as widespread as they are in public retirement systems. You may wonder why those running the plans don't do something. One reason is simply that on the retirement boards of many of these plans the employees have significant, and in some cases majority, representation. In other words, the employees are running the plan.

There are several other areas of significant difference between public and private plans which add to the costs of funding a public plan, namely, automatic post-retirement adjustments in pensions, portability between systems, purchase of prior service credits, and more generous death and disability benefits.

A large proportion of public retirement systems provide some form of automatic post-retirement adjustment (some estimates run as high as one-half) and many of the rest regularly provide ad hoc adjustments. By contrast, very few, probably not more than 3%, of the private plans have any form of automatic post-retirement adjustment of pensions. I strongly suspect that the most common method of funding these post-retirement increases is the current disbursement method. This produces another layer of costs to deal with.

Portability is probably a misnomer for the type of provision I am familiar with, so I'll use a term I feel is more descriptive — system reciprocity. Under the typical system reciprocity type of arrangement, an employee may leave system A, have his service under system A frozen, join system B, retire several years later, and receive benefits from both systems A and B. The benefit from system A will be based on his service under system A, his final average salary at the time he retired under system B, and the benefit formula in effect under system A at the time of his retirement, rather than his termination. Obtaining complete and accurate data on employees who have left the system, but are effectively still accruing benefits, is one of the most difficult problems for the actuary posed by this type of benefit.

Another type of provision found only in public plans is the purchase of prior service credits under certain circumstances. This type of provision allows an employee, or his employer, to purchase service credit for service rendered in public employment, or the military, for periods when the employee was not a member of the retirement system. Usually the purchase rates are favorable to the employee, and result in an actuarial loss to the system whenever the option is exercised. Obviously, this type of benefit is difficult to fund for in advance.

The final area of difference between benefit provisions of public and private retirement plans is the level and type of death and disability provisions. Eligibility requirements for death and disability benefits are usually minimal in public plans, particularly in police and fire plans. The benefits are usually higher and in the case of death benefits paid in the form of an annuity to the widow and dependent children. Disability benefits are normally of the joint and contingent annuitant type with benefits for dependent children, in addition to the widow's pension.

All of these features make public plans generally much more expensive than their counterparts in private industry. This brings us to the subject of financing.

Unfortunately, too often public plans have had their benefits determined by "policy makers," who choose to ignore such details as how to finance the benefits. In general, public retirement systems are not as well-funded as private pension plans. As a result of ERISA, we can expect virtually all private pension plans to be funding at a level which both meets current costs and amortizes a portion of the supplemental liability. In the public sector, there are, and, in the absence of any federal legislation on funding, will continue to be many plans operating on a current disbursement basis. There are some well-funded public pension plans, but they are the exception, rather than the rule. Furthermore, the smaller the system, the less likely it is to be funded properly, if it is funded at all.

Certainly, ignorance of the costs is not the only cause of poor funding. Often the costs are known, but not met for a variety of reasons. Political pressure on legislators, and others involved in the decision-making process, often results in inadequate funding. The pressure may stem from a reluctance to raise taxes or from a lobbying effort on the part of organized groups of public employees. This lack of fiscal responsibility is apt to be handed down from one group of legislators to the next. One of the arguments most frequently advanced against funding public plans is the unlimited taxing power of the state or city. The argument is weak, in my opinion, because the reality of the situation is that the current group of legislators,

being politicians, are reluctant to increase taxes to pay the costs of benefits for which their predecessors received the credit for granting. As a result, if they do increase taxes, they usually do so concurrently with some increase in benefits. I strongly believe that public plans should be funded on a basis which does more than just meet current costs.

There are several difficulties encountered by the actuary in fulfilling his duty to a public plan. Often either the actuarial assumptions, the actuarial cost method, the level of funding or all three, are determined by law. In many instances, the actuary is under considerable pressure to make the results come out "right". Meetings at which results of the actuarial valuation or a cost study are presented are usually open to the public, and well attended by representatives of the employee group. In these situations, the actuary is often cross-examined and must be careful to properly communicate his results. For example an interesting, but trying, assignment is explaining to a group of retired teachers why the contribution rate needs to be increased, but their benefits cannot be, in spite of the fact that current earnings on the fund exceed the disbursements for benefits.

My experience is that, although the large systems get the publicity when they have a financing problem the real problems are experienced by the small local plans. They don't have unlimited taxing power. Older cities may have their salary related pension plan financed by a tax levy based on a declining assessment base. Thus benefits continue to go up while revenues either decrease or the tax rate escalates dramatically. Funding is thus most needed where it is most difficult to obtain. Small plans are also less likely than the larger state and municipal plans to have a Board of Trustees or administrator who is knowledgeable in pension matters. Communication can be even more difficult than at the state plan level.

To summarize, with respect to financing public plans the two primary problems are (1) benefits are often not determined with a concurrent provision for proper funding, and (2) many plans created financial problems in the past which are difficult to deal with today.

Fortunately, there are signs of a growing awareness of the need for proper recognition of costs, the need to fund properly, and the need for restraint in increasing benefits.

The final question I have to deal with is: "How are the assets invested and who does the investing?"

Historically, public retirement systems were restricted by statute to a very narrow range of fixed-income securities. The restrictions were similar to those placed upon insurance companies. Many systems were forbidden to invest in common stocks. Thus, assets consisted primarily of corporate bonds, U.S. government obligations, municipal bonds, and occasionally mortgages. Investment policy was very conservative and generally implemented by the system's board of trustees or administrative staff. Outside advice was the exception.

Today, things are quite different. Statutory restrictions have been loosened considerably, with the "prudent man rule" being the common form of restriction. As a result, the range of investments has broadened considerably. Common stocks now represent a significant form of investment for public funds, and represent 20% to 25% of total assets. Corporate bonds and mortgages are

much more significant and U.S. government securities and municipal bonds comprise a very small portion of total assets. Full-time professional investment managers, either in-house or outside, are employed and often given wide discretion in the choice of investments.

Problems still exist, of course. Some plans still have a portion of their assets invested in non-interest bearing accounts, or unmarketable or worthless securities, or in low interest municipal bonds.

In conclusion, I've painted a fairly bleak picture, but then I was asked to deal with the problems. Public plans do have problems, but the growing awareness on the part of those involved and on the part of the public will go a long way toward finding a solution.

MR. ECKLER: I would like to make one or two comments about Canada. The problems that Mr. Rubie has described in the United States with respect to municipal plans and, although he has not referred to the State plans I think they are probably alike, are very much the same in Canada with some important exceptions. In the municipal area we in Canada have had a greater centralization of pension plans. We have in at least two provinces, British Columbia and Ontario, a mandatory system of municipal pensions operated by the province which are reasonably well financed. We have, I believe, in every province which does not have a mandated municipal plan, an authority which may demand some reasonable funding in the municipal pension system.

On the provincial level the financing is mixed. Some provinces operate on what I call "current cost" financing. I stay away from the term "pay as you go" because I have learned to my astonishment that, outside the actuarial community, pay as you go is a conservative method of financing. Pay as you go in public finance is good financing, pay as you go in actuarial parlance is poor financing. In terms of presenting methods of financing to the community we should avoid the expression "pay as you go" because other people may think that is a very fine method of financing, and we should use concepts such as "current cost financing" which might better describe that kind of financing. In some provinces financing is greater than "current cost".

Perhaps the major difference is that in most of the Canadian situations the actuary plays a pretty important role, in both municipal and provincial pension systems, and his opinion, while not necessarily accepted in every case, is listened to with some respect.

MR. WILLIAM S. THOMAS: I will review some of the highlights of the recently completed study of New York City's pension systems. This study was undertaken by the Mayor's Management Advisory Board which appointed an eleven-man Pension Task Force, of which I was the Chairman. It was also an answer to the commitment which Governor Carey made to President Ford that a realistic estimate of the cost of the New York City pensions system would be made. It is interesting to observe that five of the eleven members of the task force were actuaries.

The Task Force met 18 times over a six-month period. The 94 page Report is a result of intensive work by a highly professional group and has received favorable comments from the press and other interested parties.

The primary mission of the Task Force was the development of a realistic cost

estimate of the future financing of the City's retirement systems. We decided it was most important to consider the future and not belabor the events of the past.

#### New York City Pension Systems

There are five principal pension systems (called the Actuarial Pension Systems) covering New York City employees and employees of several quasi-public agencies, with each system containing its own formula for the determination of retirement benefits. These systems are:

<u>New York City Systems</u>	<u>Enrollment at 6/30/74</u>	
	<u>Active Members</u>	<u>Beneficiaries</u>
Employees' Retirement System	208,455	51,638
Teachers' Retirement System	81,349	25,065
Board of Education Retirement System	6,370	2,028
Police Pension Fund	32,299	8,999
Fire Department Pension Fund	<u>13,382</u>	<u>3,337</u>
Total Enrollment	<u>341,855</u>	<u>91,067</u>

The New York City Employees' Retirement System (NYCERS) can be further divided into four sub-systems, each with its separate benefit formula providing benefits for the following groups of employees:

	<u>Active Members</u>
Career Employees	145,652
Transit Operating Employees	39,266
Uniformed Sanitation Employees	13,564
Transit Police, Housing Police, and Uniformed Correction Force	<u>9,973</u>
	<u>208,455</u>

The retirement plans of all these systems fall into the following four broad categories according to the benefits provided and years of service required:

1. The 50% benefit after 20 years of service plan with unreduced benefits payable commencing at date of retirement with no minimum age requirement. For periods of service after 20 years, additional pension benefits are accrued at a specified rate per year of service in excess of 20, increased by any annuity purchased by the member's contributions for such excess years and by any pensions purchased by contributions made by the City under the Increased-Take-Home-Pay provision.

This plan is applicable to police, fire and sanitation department employees, transit police, housing police and uniformed correction force.

2. The 50% benefit after 20 years of service with minimum retirement age plan with unreduced benefits payable commencing at the later of date of retirement or the specified age with additional benefits as specified above for periods of service after 20 years.

This plan is applicable to transit workers and teachers. The earliest age for commencement of benefits is age 50 for transit workers, and age 55 for teachers with 25 years of service.

3. The 55% benefit after 25 years plan with unreduced benefits commencing at the later of date of retirement or age 55 with additional benefits for periods of service in excess of 25 years.

This plan is applicable to non-uniformed employees and employees of the Board of Education not referred to in (1) and (2) above.

4. The No Minimum Service Plan providing unreduced benefits commencing at retirement at age 55 or later. These provide for specified percentages for each year of service increased by annuities purchased by the employees' contributions and by pensions provided by contributions made by the City under the Increased-Take-Home-Pay provisions.

These are primarily alternative plans for teachers, non-uniformed employees, non-teaching employees of the Board of Education, and transit workers who are unlikely to meet the minimum periods of service specified in 2 and 3 above.

With the exception of the Transit operating employees, the guaranteed retirement allowance for the minimum period of service is provided by both City and employee contributions.

The specified rates of pension provided by the City for each year of current service after the minimum period of 20 or 25 years are: 1.67% for the police, fire, transit police, housing police and uniformed correction forces; 1.5% for transit and sanitation department employees; and 1.7% for all other employees including teachers.

Each year the City's Chief Actuary certifies to each of the five different retirement boards the cost of their respective plans. These costs are based on the aggregate cost method with adjustments for amortization of the extra cost of recent liberalization and also the gains and losses due to asset losses and gains. The funding method is prescribed in the State law, which also prescribes the interest rate to be used (4%) and that the actuarial assumptions should be as determined by the trustees of the systems. There had been some calculations made over the years by the City Actuary which indicated that the use of a conservative interest rate offset the use of unconservative factors for other actuarial assumptions. Our study indicated that this was no longer applicable to the calculations involving active employees but was within limits of 10% or less applicable to pensioners over 55.

The Pension Task Force decided that it would be best to use a factor for each contingency reflecting the up-to-date experience which would result in better cost estimates not only for the present but also in the future as the distribution of the employees and pensioners will most likely change substantially.

The highlights of our study are as follows:

1. Actuarial Assumptions

The Task Force reviewed present actuarial assumptions and made recommendations for changes in them. The factors being recommended for modification are:

- (a) The anticipated interest earnings--recommended it be increased from 4% to 5%.

- (b) The probability of death both during active employment and after retirement--the recommended factors are based on the most recent experience for the various classes of employees.
- (c) The future salary rates of plan participants during the remainder of their employment with the City. A pay scale was developed on the concept the average salaries by attained age at a given point in time are representative of future pay increases (other than general pay increases). The results averaged out to 1% to 1½% over an individual's career. For future general wage increases a uniform addition of 3% per year, and
- (d) The rates of retirement and rate of disability in some systems.

## 2. Method of Funding

The present method of funding was on the Aggregate Cost method with amortization of recent liberalizations over a thirty-five-year period. The recommendation is to adopt the Entry Age Normal Cost method, with 40 years funding of supplemental liability which is widely used in pension plans of private industry and is one of the acceptable funding standards permitted under ERISA for private pension plans for liabilities accrued prior to January 1, 1974.

## 3. Level of City Contribution

The City's yearly contribution for the actuarial systems for the fiscal year commencing July 1, 1976, as determined by the City Actuary on present assumptions and present funding methods, is \$1.22 billion. The adoption of the two recommendations on actuarial assumptions and method of funding would increase the \$1.22 billion to \$1.428 billion or an increase of \$208 million per year or roughly one-sixth. In light of the major changes in actuarial assumptions and funding method being recommended, the Task Force also recommended that the yearly increase of \$208 million be phased in over a five-year period.

## 4. Ratio of Assets to Accrued Liabilities

The ratio of the assets of the City's systems to their accrued liability is approximately 43%, which compares favorably with some private employer plans. We estimate that the U.S. Civil Service system has a ratio of 21%.

## 5. Analysis of Degree of Funding

Another measure of the degree of pension plan funding is the extent to which the assets on hand cover the accrued liability distributed into four major categories according to nearness to retirement age. The assets fully cover the retired life category and more than one-third of the "eligible to retire" category.

## 6. Unfunded Accrued Liability vs. Underfunding

The existence of an unfunded accrued liability does not necessarily mean the plan is underfunded. The entry age normal cost method identifies a supplemental liability. Periodic liberalizations of the benefit structure create additional supplemental liability components which are generally amortized over a 20 to 40 year period. A responsibly funded plan will show an unfunded accrued liability until the supplemental liability has been fully amortized. If contributions are made in accordance with cost estimates based on realistic assumptions, there is in fact no underfunding for a continuing plan.

7. Cash Flow Projections

Cash flow projections for the next five years indicate that the existing assets will not have to be liquidated to cover pension payments. However, in order for the retirement systems to fulfill their commitments to purchase City-related securities in the fiscal year commencing July 1, 1976, it will be necessary to liquidate a portion of the assets.

Comparison of the City's cost with that of pension plans in private industry

The cost of the New York City's retirement plans, on the revised cost basis, is approximately 30.7% of payroll. In addition to the cost of the retirement systems which are funded on an actuarial basis, the City is also spending approximately \$200 million per year for additional pension obligations and special annuity funds, which amounts to an additional 4.3% of payroll, for a total City pension cost of approximately 35%. Over and above this expenditure the City's contribution of 5.85% of covered payroll for its share of Federal Social Security Benefits results in a combined cost of over 40% of payroll. The Advisory Board believed that this level of cost is too great a financial burden to the City and made recommendations as to benefits and controls so as to decrease this cost.

The cost of pension plans in private industry is usually in the range of 5% to 12% of payroll. For an employer who maintains a savings or profit sharing plan in addition to a pension plan, the combined contribution could be in the 7% to 15% range.

The difference between the cost of the NYC pension plans and those of private employers is partly the result of different patterns of employment and differing retirement provisions.

The extent to which unreduced pensions for 20 years of service contribute to present levels of City pension costs is suggested by the following comparison of illustrative career employees. For this purpose, the same pension benefit is provided for each employee so as to keep out differences in pay scales and pension formulas. Costs were calculated on the mortality and interest assumptions used in the basic valuation.

Annual Cost Per Year of Service  
for Total Pension of \$1,000 Yearly

	<u>Case 1</u>	<u>Case 2</u>	<u>Case 3</u>	<u>Case 4</u>
Retirement Age	45	60	65	55
Entry Age	25	40	25	25
Annual Contribution	\$372	\$273	\$57	\$145

Case 1 is the typical employment pattern of the police, fire and sanitation department employees.

Case 2 is the employment pattern of about one-half of the City employees other than teachers and uniformed personnel.

Case 3 is typical of conventional plans in private industry.

Case 4 represents liberal plans in private industry.

A second factor contributing to the higher City cost is the use of the com-

pensation in the last year or the salary rate at the date of retirement (including overtime pay, if any) in determining the retirement allowances.

Thirdly, the benefit rates per year of service are generally somewhat higher under the City plans than those in the private sector.

The ability of an employer in private industry to finance a pension plan is directly related to his ability to generate sufficient earnings from current operations in order to put into the pension plan the amount required by realistic actuarial assumptions and the appropriate method of funding. One of the objectives of ERISA, the pension reform act, was to put into place a mechanism, the PBGC, for guaranteeing a reasonable amount of pension benefits even though the plan were discontinued during a period when the funding was not completed. An employer should have as his desired goal to charge to each year's operation a proportionate share of the pension cost. To charge too little in the early years would of course, result in larger payments required in later years which would mean that the price of his product might become uncompetitive in the later years. Similarly a governmental body should charge as a part of the budgetary process, the amount of pension costs as determined by a long-haul estimate basis. Not to charge the appropriate amount will require an increase in taxes in later years, which, in turn, could increase the cost of doing business in that locality to an extent that business will move out and decrease the tax base.

The problem of financing public pension plans is not limited to New York City or New York State. The Governor of Pennsylvania vetoed a bill which would have liberalized Allegheny County's (Pittsburgh area) pension system. He indicated that the unfunded liabilities for all local communities combined exceeded \$1 billion. Despite a warning by the Governor that the revisions would threaten the solvency of the County's pension system, the legislature overrode the veto. The Governor now proposes the appointment of a Commonwealth Public Employee Retirement and Pension Study Commission.

A critical situation exists in Massachusetts too, where the funding is on a pay-as-you-go plan. In fact, it seems very appropriate to review most public pension plans.

MR. WILLIAM DAVID SMITH: As can be seen from Bill Thomas' discussion of the New York situation, or from analysis of almost any public pension problem, politics color every aspect of the funding decisions for a public plan. Obviously, rational decisions can be made only if adequate cost estimates are produced, communicated, and believed. Unfortunately, the political realities are not conducive to rational consideration of the cost problem.

From the standpoint of the public employees, the task of achieving increased benefits is made easier if the true cost is ignored, postponed, or underestimated.

The elected representatives of the taxpayers are often motivated by the political power of the employee block to ignore, postpone, or underestimate benefit cost. The economic impact of postponed cost is usually after the expected term of office of the elected representative which increases the temptation to ignore, postpone, or accept underestimates of cost.

Civil servants in responsible positions should be motivated to recognize costs properly, but are often not in a position to make final decisions even on what information is to be provided.

At the municipal level, the most usual situation is that voters determine the law and any changes in the pension plan for public employees, however minor, must be achieved by a proposition before the voters in an election. Thus, in the final analysis, information given to the voters in the voter's pamphlet, and otherwise, determines which changes will be made. In the past such information has usually been incomplete and incomprehensible, and very often misleading, sometimes criminally so. Cost are usually underestimated, sometimes properly estimated but almost never over-estimated. There was recently a situation in a major city where the cost estimate the voters were led to believe in the voter's pamphlet implied a cost well under 10%, probably even under 5%, of that which appeared to be an appropriate cost which would not increase as a percentage of payroll.

Thus, the political system which determines what will be said in the voter's pamphlet becomes an important tool in search for truthful disclosure to the voters of important legislative changes such as public employee pension benefits. Municipalities differ from each other in the manner in which that control is exercised. The information offered the voters for pension legislation has rarely been sufficient for informed judgment. This is undoubtedly due in part to the complexity of the subject. In addition the press has, in the past, not always been able to determine appropriate cost, nor fully understood the implications of proposed changes. This has led to editorial recommendations by the press which have not always been rational.

At the state or provincial and federal levels, final decisions are usually made by legislators, where adequate information should have more chance of being heard. Offsetting this advantage, it appears easier to apply lobbying pressure at critical points in the legislative system.

A government system attempting to obtain information concerning the cost of a proposed pension plan change for its employees might do one of four things:

1. request no actuarial cost information, leaving the cost impact to the imagination;
2. provide a cost estimate of the cash outlay (current cost) for the change; (Hopefully actuaries are never involved in providing such information allowing the implication such estimates appropriately reflect cost.)
3. obtain and provide actuarial information, but because of the somewhat loose definition of the word "actuary", obtain such information from a person not fully qualified to understand and calculate an appropriate cost; or
4. obtain and provide actuarial information from a fully qualified actuary.

The actuarial profession has a definite responsibility and each member of the profession has a responsibility, both as a professional and as a concerned and knowledgeable citizen, to achieve as a goal the situation where all significant pension plan changes are accompanied by adequate cost estimates for proper funding. "Proper funding" should mean a contribution level which has a low probability of requiring increases under the assumption, if appropriate, of continuation of the same plan. Methods and assumptions should be such as to provide a reasonable chance of achieving that goal.

When a fully qualified actuary is asked to provide information for a public

pension system to be used by the voters or legislators in the decision process, he is clearly required by professional duty to provide accurate, appropriate information uncolored by political bias. It would be well for each actuary to read periodically the Guide to Professional Conduct and the pertinent opinions. In order for the actuary to fully discharge his responsibility, the following appears required:

1. an accurate understanding of the law and proposed changes;
2. accurate information;
3. accurate analysis of experience and other sources leading to appropriate assumptions for the future;
4. appropriate methods;
5. clear thinking analysis; and
6. clear understandable writing and other forms of communications.

It appears that the very best of the abilities of our profession is required in such a job. The recipients of the information often do not wish to hear the complete message. The recipients are usually untrained in actuarial matters, and especially unused to thinking in the long time frames required for adequate pension funding, and the political complexities of most situations add measurably to the difficulty of gaining accurate information and communicating it clearly.

It appears important in such situations that the actuary not act as an adversary for any side or position. Since plans for public employees are a matter of law, he should clearly not interpret or reinterpret laws in the way in which he believes they ought to be interpreted, or in which some pressure group feels they ought to be interpreted. Instead, he should ascertain that the interpretation he uses is in agreement with that of the appropriate authorities. Extraordinary measures might be required by the actuary in situations where the authorities are misinterpreting the law for political purposes. As is the case in any pension situation the actuary should determine as closely as possible that the information given on which he bases his valuation is accurate and he should carefully analyze experience and all other pertinent considerations to produce appropriate assumptions for all variables which would affect the contribution level.

Public employee plans involve some problems unique to them. Some of the more important appear to be the following:

1. Benefits are usually codified into law. Changes, therefore, must generally be made by vote of either the electorate or legislators, and are therefore achieved only with some difficulty.
2. It is difficult, even impossible in some jurisdictions, to decrease benefits once promised to employees. Thus, any lesser benefit can be applied only to employees hired in the future.
3. Automatic escalators related to inflation measures are common, resulting in sensitivity of such plans to correct assumptions and methods concerning inflation.

There are unfortunately some sad examples of situations where members of this profession have provided valuations not consistent with the authority's interpretation of the law and have used inappropriate assumptions. Even worse, supposedly qualified members have clearly misunderstood the implications of

methods, assumptions, and of the law. Our profession has a clear duty to prevent, as much as possible, such unfortunate results. We must each work both as professionals and citizens to see that responsible actuarial information is given at the appropriate point in the decision process. The current flood of pension funding problems at all levels of government is clear proof that we have not been very successful in the past at achieving that goal.

There are recent cases involving public controversy between members of the profession where publicly provided information has been spotlighted and which differed so markedly that our credibility with the public was damaged. So long as our members are involved in such public controversy, our claim that only we are qualified to provide such information sounds hollow. It is necessary that actuarial information be both provided and believed. Therefore, we must work diligently toward agreement amongst ourselves on systems, assumptions, and methods. Then, whatever actuary provides information, the results would be sufficiently close to that of other actuaries that the public would accept the estimates as credible.

MR. JONATHAN SCHWARTZ: The following additional points with respect to New York City's retirement systems would appear to be in order.

The book value of the assets of the five retirement systems as of June 30, 1976 amounted to roughly \$9 billion. Of this, some \$1.8 billion was in City-related securities, and approximately \$475 million was in short term paper. With respect to these retirement systems, income is expected to exceed disbursements by roughly \$1 billion in the fiscal year ending June 30, 1977. Therefore, even though the five systems have made a commitment to purchase \$1.5 billion of City-related securities in this fiscal year, it should be noted that (1) their portfolio is by no means exclusively securities of the employer and (2) very little forced selling will be required in order to meet their commitment.

The benefit structure as described by Bill Thomas covers all City employees who joined a public retirement system prior to July 1, 1973. Those who joined between July 1, 1973 and June 30, 1976, are covered by benefits which are basically similar to the pre-1973 benefits, with the following differences: (1) The salary base for benefit computation purposes is the average salary in the last three years, rather than the salary in the last year or the final rate of pay, (2) with the exception of the police and fire plans, the 20-year and out plans entail benefit reductions if retirement precedes the completion of 25 years of service, and (3) for non-uniformed employees, normal retirement has been deferred from age 55 to age 62, i.e., retirement prior to age 62 results in a reduction in benefit. City employees hired after July 1, 1976 are covered by a plan which offsets their pensions by one-half of the primary Social Security benefit payable at age 62.

Finally, the City systems have incurred much criticism because of having continued to value their liabilities with archaic actuarial assumptions. However, until 1968, when most City employees came under benefit plans embodying a one-year salary base instead of the five-year average that had previously been in use, the actuarial assumptions produced results that were reasonable in the aggregate, as can be verified from the fact that as of June 30, 1967, the systems had virtually no unfunded supplemental liability other than that attributable to recent benefit improvements. The results were reasonable in the aggregate because, on the one hand, the conservative valuation interest

rate of 4% balanced the understated life expectancies produced by the 50-year old mortality tables, and furthermore, the salary scales, even though they are virtually flat after age 40, did not generate large experience losses when used to value plans based on a five-year average salary. This is so because a flat salary scale, even though it understates future salaries, also tends to overstate past salaries. Since, for a member eligible to retire, the five-year average salary for valuation purposes was generated by the salary scale rather than as a separate input item, the liability for those eligible to retire (i.e. those aged 55 and older) was overstated. Since the liability on account of such members is proportionately significantly higher than the liability attributable to members not eligible to retire, no significant understatement arose because of the salary scales. Of course, this countervailing effect was lost when the salary base was changed to earnings in the last year.

MR. THOMAS D. LEVY: Massachusetts is the only state that is by statute on a current disbursement funding basis for its state pension plan and indeed for all local pension plans in the state. Earlier this year the Retirement Law Commission appointed a Funding Advisory Committee which included three actuaries and we were advisors to them. Their report recommends that a funding policy, which would phase into 40 year funding be adopted for the State of Massachusetts. What will become of the recommendations is a political issue.

Secondly, as actuaries, we tend to assume that funding is a pure and unfettered good. At a recent conference sponsored by the Federal Reserve Bank, one of the economists with the Federal Reserve Bank estimated that if all public pensions in the United States, excluding Social Security but including civil service and the military systems, were put on 40 year funding, the increase in contributions would be of the order of 1 1/2% of gross national product, and that that would come primarily from consumption and go into savings. There was disagreement with regard to whether or not that would be good or bad, but it was not taken for granted that it would be good because of the potentially disastrous effects on the employment level and the economy.

MR. SMITH: We really do face a problem in this area. The economists are saying that if everybody did what we think is good, namely to fund their plans properly, we would create an economic problem that the country could not stand. However, at least at the local level, pension plan sponsors must recognize the necessity of some funding or the implications for future taxpayers are immense. What is even worse is that in the past benefits have been allowed to be at a level which the taxpayers are not willing to pay for. We have a duty to tell taxpayers what the cost is, and this should be very realistic.

MR. ECKLER: The actuary has a responsibility to tell the client and the public what the cost is, without necessarily telling the employer how much funding to accumulate. At the minimum he should advise the employer, if for no other reason than for collective bargaining purposes.

MR. E. ALLEN ARNOLD: On the matter of responsibility of actuaries to the public retirement systems, I think that in many cases we need to assume responsibilities beyond those of just performing actuarial work under the instruction of the retirement board. Usually we are the only people who, by training and experience, understand how pension plans should be designed. If there is no one else giving the kind of advice needed regarding some

silly change in the system, then the actuary should speak up, whether or not he was hired for that purpose. It is not always easy to do, but I think that it is a responsibility that he should voluntarily assume.

MR. CHARLES L. WALLS: This seems to be an Alice in Wonderland discussion because in fact costs are not really known and to use the term "cost" for any pension plan or insurance scheme as if it were something that was brought down from Mount Sinai on stone tablets is simply incorrect. We seem to be listening to a series of moral judgments which have very little scientific basis.

MR. SMITH: If we knew precisely what was going to happen in the future, we have mathematical techniques to determine a cost which ought to be that which would not increase as a percentage of payroll. We don't know that, of course, and we are making estimates. If you have a hundred actuaries doing a job, you will get a hundred costs which will differ slightly. I am afraid that in the past we have had situations such as one in which one qualified actuary's estimate was more than ten times the previous estimate. That is the kind of thing which I do not think the public is going to accept and which I do not think they should accept.

MR. J. FREDERICK BITZER: I have served as a public member of the Connecticut State Employees Retirement Commission, and for the last five years as chairman.

The commission administers a compulsory plan for state employees and two voluntary plans for municipalities. My comments relate to some of the differences between public pension plans and pension plans in the private sector.

The value of the level of benefits in typical state employee plans in the United States, when more favorable normal retirement ages are taken into account may be 2½ to 3 or more times as liberal when measured by an acceptable actuarial yardstick such as entry age normal cost plus 30 year amortization. Using as a comparison this cost as a percentage of payroll, the cost of more liberal private plans might be from 7% to 12% of payroll. A state plan for employees (other than state police plans, which can be much higher) could cost in the vicinity of 30% of payroll on the same funding basis.

A number of factors have combined to produce this result. Legislators in the past have tended to take a short term view of the cost of a liberalization by looking at the cash effect on the next year's budget, although, in fact, the annual cash payments will be made in increasing amounts over a generation so that the accumulated effect on budgets is gigantic compared to the relatively small appropriation in the first year budget. A statute requiring advance actuarial estimates of the value of all plan liberalizations has had the effect of furnishing a more rational cost approach and has resulted in a suspension of irresponsible pension legislation in the state with which I am most familiar.

Another factor which seems to ease the way to high cost public plans is the high rate of employee contribution, 5% or more in most cases. This seems to the public to justify the higher benefits but to the student of pensions an increase from 5% to 6% in employee contribution which reduces the employer's actuarially determined cost from 30% to 29% plus is showy, but ineffective. Many employee contributions are eventually returned at death or termination of employment, and hence, are diverted from offsetting the cost of pension

benefits. In New York City the real excesses were not seriously touched by a 1% increase in employee contributions.

On another point, as a simple and practical matter, it can be stated without reservation that any move to restrict the final average salary upon which the pension is based to fewer than three years can readily lead to abuse.

New York City pensions based on the final single year's earnings proved to be convenient for manipulation by artificially increasing the salary based for computing the pension through abnormal overtime during the final year. This kind of factor is not found in private plans because of specific Internal Revenue Service rules, and because of management's accountability to stockholders.

Theoretically, legislatures and public pension plan administrators are responsible to the taxpayers but matters of the kind just described get lost in the complexities of government and do not normally come to the notice of the taxpayer unless the news spotlight happens to be turned on them as in New York City. Even so, it is difficult to take any corrective action, at least with respect to present employees.

The maximum pension benefits under state plans can, when added to Social Security, be in excess of final average salary. When allowance is made for income tax, the difference is even greater. This is a systematic anomaly which applies in certain states at almost all salary levels except perhaps the very highest. An ERISA for public plans may take this into account and establish maximum pension rules. Here again, the taxpayer is lost in technicalities whereas the stockholder and security analyst combined with the management desirous of showing a profit, is able to control such anomalies in the usual private pension plan.

