

THE INTRODUCTION OF ECONOMIC FACTORS INTO LITIGATION CASES: ONTARIO'S 2½ PERCENT SOLUTION

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Introduction

In the past, British and Canadian courts were reluctant to accept actuarial and economic evidence in litigation cases. The general view was that the contributions which economists and actuaries could make were insufficient to justify the cost.¹ However, with the recent growth in the value of settlements in mortality and serious injury cases, the courts have begun to recognize their lack of economic expertise. Indeed, in *Lewis v. Todd* Dickson J. made such a strong recommendation for the use of expert witnesses that their testimony has become virtually mandatory.²

But this plea does not obviate the fact that expert testimony can be expensive. As some items of evidence are common to all litigation cases, one method of circumventing this expense would be to establish legislative guidelines or rules with respect to the economic factors which the courts may employ. This procedure has been adopted in Ontario with respect to the "real" discount rate³ to be used in the calculation of lump-sum awards. In particular, as of October 1st, 1980, the following new rule has been added to Regulation 545 of the Revised Regulations of Ontario:⁴

267a. The rate of interest to be used in determining the capitalized value of an award in respect of future pecuniary damages, to the extent that it reflects the difference between estimated investment and price inflation rates, is 2½ percent per annum.

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¹ See Beverley M. McLachlin, *What Price Disability? A Perspective on the Law of Damages for Personal Injury* (1981), 59 Can. Bar Rev. 1, at pp. 19-21.

² (1980), 115 D.L.R. (3d) 257, at p. 267 (S.C.C.). See also the discussion surrounding footnotes 7 and 8, *infra*.

³ The real discount rate is the rate of return on investment *net* of the rate of price inflation. The use of real discount rates to determine the present values of future streams of earnings or expenses is often referred to as the "Lord Diplock approach". (See *Lewis v. Todd*, *ibid.*, at p. 269).

⁴ Chitty's Ontario Annual Practice 1980, 2nd Cumulative Supplement, p. 3.

The purpose of this article will be to contrast this legislative approach of introducing economic factors with the evidentiary approach envisaged by Dickson J. This I will do using the real rate of discount as a concrete example. The article will be divided into three main sections. In the first I will contrast the theoretical advantages and disadvantages of both the legislative and evidentiary approaches. In the second I will present compelling evidence to indicate that the 2½ percent figure chosen by the Ontario Rules Committee is inappropriate. And in the final section I will derive the practical implications which replacement of the 2½ percent figure would have on a "typical" settlement.

I. *The Theoretical Issues.*

The evidentiary approach: In the past it was argued that the evidence of actuaries and economists should not be called as:⁵

. . . it would increase the length and expense of trials and would unduly complicate matters which might have to be considered by juries. . . .

particularly in light of the view that:⁶

. . . there are so many intangibles that it [expert testimony] might not be found particularly helpful.

Two recent decisions delivered by Dickson J., however, clearly reject this view. In *Andrews* he stated that:⁷

Although a useful aid and a sharper tool than the "multiplier-multiplicand" approach favoured in some jurisdictions, actuarial evidence speaks in terms of group experience. It cannot and does not purport to speak to the individual sufferer. So long as we are tied to lump-sum awards, however, we are tied to actuarial calculations as *the best available means of determining amounts.*

And in *Lewis v. Todd* he went on to add that the evidence of actuaries and economists:⁸

. . . is of increasing importance as the niggardly approach sometimes noted in the past is abandoned, and greater amounts are awarded, in my view properly, in cases of severe personal injury or death. If the courts are to apply basic principles of the law of damages and seek to achieve a reasonable approximation to *restitutio in integrum* expert assistance is vital.

This new view appears to be based upon three premises. The first of these is that if economists or actuaries or both are in widespread agreement concerning a particular issue the costs of expert testimony will be very low and, therefore, easily justified. In this situation, after only a few cases have been decided, it will become clear that the issue

⁵ *Taylor v. O'Connor*, [1971] A.C. 115, at p. 135 (H.L.).

⁶ *Watson v. Powles*, [1968] 1 Q.B. 596, at p. 723 (C.A.).

⁷ *Andrews v. Grand & Toy Alberta Ltd* (1978), 83 D.L.R. (3d) 452, at p. 458, [1978] 1 W.W.R. 577, at p. 581 (S.C.C.), italics added.

⁸ *Supra*, footnote 2, at p. 267.

has been resolved. Thus, in subsequent cases, detailed, expensive testimony will no longer be required. Counsel will be able to introduce evidence directly from precedent and experts will only need to be called either to confirm that the precedent is relevant or to indicate how the evidence applies to the case at hand.⁹

Alternatively, if economists or actuaries or both are not in widespread agreement concerning a particular issue, the courts provide an excellent forum in which the views of the various factions can be debated. For, unlike most other forums, the courts provide significant financial inducements to both sides to a dispute (i) to obtain the best possible advice concerning the issues at stake and (ii) to explore and expose every weakness in the arguments which have been raised by the other litigants. Thus, although justice may not be done in any particular case, as more cases of a similar nature are decided the issues will receive an increasingly thorough airing and the possibility for error, or deviation from the norm, will be minimized, until a commonly-accepted position is achieved. Furthermore, if we define "excessive expenditure" in this context as expenditure which is large relative to the gains which it brings, the court system may be said to contain built-in constraints to prevent such expenditure; for the inducement to litigants to invest in expert testimony will decrease both as the size of the potential settlement decreases and as the degree of acceptance of the body of precedent increases.

Dickson J., in entering the decision in *Lewis*, expressed guarded confidence that this process of iteration towards a common outcome would occur with respect to the choice of a real discount rate:¹⁰

This does not mean that there will never be any uniformity in the selection of discount rate. As litigants in these cases produce more thorough and rigorous economic data and as the judiciary becomes more familiar with this data, a certain uniformity will no doubt emerge.

That this confidence would be justified is seen in a number of decisions which have been reached subsequent to the Supreme Court's selection of a 7 percent discount rate in the "trilogy" cases. Whereas a number of settlements reached immediately following those decisions adopted the 7 percent rate,¹¹ more recent settlements have adopted a rate between 3 and 4 percent.¹²

⁹ An example of an economic issue concerning which there is widespread agreement is the use of "real" interest rates to discount future streams of earnings. To my knowledge there has been no disagreement concerning this approach, among economists, since it was first introduced.

¹⁰ *Supra*, footnote 2, at p. 269.

¹¹ See *Hamburg v. The Queen* (1978), 7 B.C.L.R., 113 (B.C.C.A.); *Lindal v. Lindal*, [1978] 4 W.W.R. 592 (B.C.S.C.); and *Lucas v. Antoniuk* (1978), 7 C.C.L.T. 209 (B.C.S.C.).

¹² A figure of 4 percent has been accepted in *Malat et al. v. Bjornson et al.* (No. 2), [1979] 4 W.W.R. 673, (1978), 9 C.C.L.T. 162 (B.C.S.C.) and in *Lewis v. Todd*, *supra*,

Finally, there is also the feeling that it would be unjust to deny litigants the right to call testimony which would bear materially on the outcome of a case. Again, we bow to Dickson J. who, in *Lewis v. Todd* commented that:¹³

The evidence of actuaries and economists is of value in arriving at a *fair and just result*.

On the other hand, the major drawback to the use of the evidentiary approach is that in the interregnum between the recognition of a new issue, such as the need to define a real discount rate, and the resolution of that issue, grave injustices may be done. That such an injustice was done in the "trilogy" cases, and in those cases which consequently adopted the approach used in the "trilogy", is clear from the instant, overwhelming rejection of the 7 percent rate by the academic community.¹⁴ McLachlin, for example, commented that:¹⁵

. . . the award in *Teno* is *manifestly inadequate* largely as a result of the use of an inappropriate discount rate.

This general criticism, that the evidentiary approach may leave the courts unable to adjust quickly enough, has led to the suggestion that real discount rates might be set by legislative action.¹⁶ It is to an analysis of this approach to which I now turn.

The legislative approach: Two advantages derive from a policy of introducing economic factors through legislative or quasi-legislative action rather than through the normal rules of evidence. The first of these is that the delays inherent in the evidentiary approach *can* be avoided if the problem is recognized quickly enough and the legislative bodies can be stirred into action.¹⁷ And secondly, the

footnote 2. A 3 percent figure was adopted in *Sheppard v. Wells*, unreported, June 21st, 1978 (Ont. C.A.); *Dupuis v. Melanson* (1978), 24 N.B.R. (2d) (N.B.Q.B.); *Fenn et al. v. Corporation of the City of Peterborough et al.* (1978), 9 C.C.L.T. 1 (Ont. C.A.); *Lamont v. Pedersen et al.* (1981), 15 C.C.L.T. 216 (Sask. C.A.); and in *Julian v. Northern and Central Gas Corp.* (1978), 5 C.C.L.T. 148 (Ont. H.C.). In the latter case the court ultimately employed a net rate of 2 percent which was obtained by deducting a 1 percent allowance for brokers' fees from the 3 percent real discount rate: *ibid.*, at p. 160.

¹³ *Supra*, footnote 2, at p. 267, italics added.

¹⁴ Cf. C.J. Bruce, *The Calculation of Foregone Lifetime Earnings: Three Decisions of the Supreme Court of Canada* (1979), 5 Can. Pub. Policy 155; Dale Gibson, *Repairing the Law of Damages* (1978), 8 Man. L.J. 637; Bruce Feldthusen and Keith McNair, *General Damages in Personal Injury Suits* (1978), 28 U.T.L.J. 381; Michele Braniff and Alan Pratt, *Tragedy in the Supreme Court of Canada* (1979), 37 U.T. Fac. L.J. 1; and J.B. Patterson, *Effective Presentation of Actuarial Evidence in Permanent Disability Cases, Part Two* (1979), 37 Advocate 13.

¹⁵ *Op. cit.*, footnote 1, at footnote 107, italics added.

¹⁶ This suggestion is made by Braniff and Pratt, *op. cit.*, footnote 14, at p. 28; and is implied by McLachlin, *op. cit.*, footnote 1, at footnote 99.

¹⁷ It should be noted, however, that Ontario's Rule 267a—prescribing a 2½ percent real discount rate—did not take effect until October, 1980, more than 2½ years

legislative approach will generally be much less costly. Only one set of "experts" need be approached and there will be little incentive for these experts to spend a disproportionate amount of time questioning one another's assumptions, as there might be in a courtroom.

Balanced against this, however, are two major drawbacks to the legislative approach. The first of these is that the individual who genuinely feels that application of the legislated rule will do him an injustice is denied the right to have that complaint heard by the courts. In short, to use the words of Dickson J., there is no assurance that the courts will reach "a fair and just result".¹⁸ Secondly, if the issue which is to be resolved by a legislative dictum is one concerning which economists and actuaries are not in general agreement, the rule which is chosen will only represent the consensus of the profession if, by chance, those selected to set the rule are representative of a broad cross-section of opinion. Furthermore, if the rule established in this way does not reflect the consensus of opinion within the profession there will be no formal forum in which dissenters can make their views known—as there would be under the evidentiary approach—nor will dissenters have the same pecuniary incentive to speak out that they would have if their views could be heard in court. As a result, it is possible that an unjust solution will become entrenched. I believe that Ontario's selection of a 2½ percent discount rate provides an excellent example of these drawbacks to the legislative approach. It is to an examination of this issue to which I now turn.

II. Selection of a Real Discount Rate.

The Ontario Rules Committee appears to have based their selection of a 2½ percent discount rate on a report made to it by two actuaries and an economist.¹⁹ The basic approach taken by Messrs Carr *et al.* was, first, to calculate the difference between the interest rate on long-term Government of Canada bonds and the rate of increase of the consumer price index for each of the years 1930-1979. The resulting "annual real interest rates" were then averaged, resulting in the finding that the "real interest rate" in Canada averaged 1.86 percent for the fifty year period 1930-1979, and 2.17 percent for the twenty-five year

after the decisions in the "trilogy" cases were announced, more than 6 years after the *Andrews* case was first decided in the lower courts (*Andrews v. Grand & Toy Alberta Ltd.*, [1974] 5 W.W.R. 675), and well after the courts had largely resolved the issue (see *supra*, footnote 12).

¹⁸ *Supra*, footnote 2, at p. 267.

¹⁹ J. Carr, M.A. Segal and R.M. Walker, Report to the Committee of the Supreme Court of Ontario on Fixing Capitalization Rates in Damage Actions, Toronto, February 14th, 1980, hereinafter referred to as Carr *et al.* Although the report of the Rules Committee itself is not available to the public, it should be noted that the discount rate selected by that Committee is identical to one of the two rates proposed by Carr *et al.*

period 1955-1979.²⁰ From this information Messrs Carr *et al.* then concluded that:²¹

Based on our understanding of present economic and actuarial theory, our recent consultations and discussions with other economists and actuaries reputed to be experts in the field, the analyses we made of past experience and our best judgement of current conditions and emerging future events, we have reached the following conclusions:

- 1) The real rate of interest in Canada (*i.e.* the excess of the rate of interest on long term Government of Canada bonds over the long term rate of price increases) will be in the range of 2% to 3% per year for the foreseeable future. Our best single point estimate is 2½% per year.
- 2) The real rate of interest on a properly structured and safe mixed portfolio . . . would be somewhat higher, at around 3% per year.

Two inferences are immediately apparent from this statement. First, the 2½ percent rate selected by the Rules Committee appears to be based upon the assumption that victims will invest their awards in Government of Canada bonds, and not in a "properly structured and safe mixed portfolio". And, more importantly in my view, these conclusions were clearly not based on the kind of formal analysis which would stand up to a rigorous cross-examination in a court of law. Rather, after finding that the historical real rate of interest had been on the order of 2 percent, the *Report* concludes, without any additional evidence whatsoever, that the long-term real rate of interest on Government of Canada bonds will be 2½ percent and on a safe mixed portfolio will be 3 percent. It is my intention in this section to show that a more formal analysis will provide strong support for the contention that the real rate of interest is actually higher than both the 2½ and the 3 percent figures suggested by Messrs Carr *et al.*

My first criticism of Messrs Carr *et al.* is that, although they recognize that an individual who was investing a large lump-sum in order to generate a secure stream of earnings would diversify that investment among a number of different instruments,²² they make no attempt to estimate the rate of return available on such a portfolio. It may be that they felt that no reliable statistics were available to allow them to estimate this rate. But if that is so they were, in my view, mistaken; for, as Patterson²³ has argued, the type of portfolio mix which we would expect a broker to recommend to a victim who wished a secure stream of earnings is reflected very closely in the mix which

²⁰ *Ibid.*, p. 10.

²¹ *Ibid.*, pp. 4-5.

²² In 1973 private sector pension funds invested only 32.9 percent of their capital in bonds, 37.9 percent was invested in stocks, 9.2 percent in mortgages, 7.7 percent in real estate lease-backs, 12.1 percent in pooled funds, and 0.2 percent in mutual funds: J.E. Pesando and S.A. Rea, Jr., *Public and Private Pensions in Canada*, Ontario Economic Council (1977), p. 36.

²³ *Op. cit.*, footnote 14, at p. 18.

trust companies use to generate the interest rates on five-year guaranteed investment certificates. As the Bank of Canada has published information concerning the rates of return on these certificates since 1964, a reliable series of data, of sufficient length to allow us to draw valid inferences, now exists. In the analysis which follows, I propose to use this series in place of the Government of Canada series used by Messrs Carr *et al.*

My second objection to the approach taken by Messrs Carr *et al.* is that in calculating the real rate of interest in any particular year, they deducted the *current* inflation rate from the average yield (interest rate) *to maturity* on long term Government of Canada bonds. Clearly, this is an inappropriate methodology. Assume, for example, that although the current rate of inflation is 12 percent investors expect it to average 15 percent over the next ten years. Then the expected *real* rate of return on a bond which offered a *nominal* rate of interest of 17 percent would *not* be 5 percent (17 percent-12 percent) but 2 percent (17 percent-15 percent). In short, the expected real rate of return is equal to the average yield to maturity net of the *expected*, rather than the current, rate of inflation.

In Table 1, I calculate the real rate of interest on both long-term Government of Canada bonds and trust company five-year investment certificates for each year from 1964 to 1980 using two different measures of expected inflation.²⁴ The first of these is simply the rate of inflation of the consumer price index lagged one year—on the assumption that this year's expectations are determined solely by last year's experience—while the second is derived from a formula developed by the Bank of Canada.²⁵

The results of these calculations are summarized in the last two lines of Table 1, where it is seen that the real rate of interest on Trust Company certificates was approximately 2.6 percent from 1964-1980 and approximately 3.6 percent from 1964-1973. Although the former of these results corresponds closely to the 2½ percent figure chosen by the Ontario Rules Committee, it is highly suspect as an indicator of the long-run real rate of return on secure investments. The reason for this,

²⁴ Technically, it is incorrect to calculate the real rate of interest by *subtracting* the expected rate of inflation from the relevant interest rate. In calculating the interest rates net of inflation in Table 1, I have used the formula:

$$r = \frac{(1 + i)}{(1 + p)} - 1$$

where *r* is the interest rate net of inflation (the "real" interest rate), *i* is the actual, or nominal, interest rate, and *p* is the expected rate of price inflation.

²⁵ Bank of Canada, *The Equations of RDX2 Revised and Estimated to 4Q72* (1976), p. 155.

as a number of commentators have noted,²⁶ is that the rates of return earned in the mid-1970's were biased downwards by the unexpected increases in inflation which occurred in 1973 and, particularly, 1974.²⁷ It is generally believed that such a sudden increase in inflation will cause the expected rate of inflation to lag behind the actual rate while investors adjust their expectations. That this lag will be temporary, thereby leading to only a temporary fall in real interest rates, is indicated by the figures for 1979 and 1980 in Table 1, where it is seen that the real rate of interest on five-year trust company certificates had begun to rise towards the levels of 1964-1973.

To conclude this section, the statistics presented in Table 1 provide strong evidence for a 3½ percent real rate of interest.²⁸ I do not wish to imply from this that the Ontario figure of 2½ percent should immediately be replaced by 3½ percent, although I will continue to argue as such when giving testimony outside Ontario. Rather, my main point is that as a strong case can be made for using a figure other than 2½ percent, there is good reason to believe that justice is being denied to those who are prevented from challenging that figure in the Ontario courts.

III. *Some Further Considerations.*

An interesting aspect of the 3½ percent rate which I have derived above is that it is *net* of brokers fees. That is, the cost to the trust companies of investing their funds is deducted from the return on those funds *before* the trust companies set the interest rates on their guaranteed investment certificates. Thus, if that rate of return is used to discount the stream of earnings in the calculations of a lump-sum award, no additional allowance need be made for brokers fees. Yet it is now a well-established practice in the Canadian courts that such allowances should be made.²⁹ Assuming that this practice will con-

²⁶ See especially, Bruce, *op. cit.*, footnote 14, p. 161; and Gibson, *op. cit.*, footnote 14, at p. 651. This view also seems implicit in the conclusion of Messrs Carr *et al.* (*op. cit.*, footnote 19, p. 5) that the long-term interest rate will be 2½ percent, rather than the 2 percent which they actually observed.

²⁷ Whereas the annual rate of inflation had not exceeded 4.77 percent from 1952 to 1972, it suddenly rose to 7.61 percent in 1973 and to 10.86 percent in 1974.

²⁸ As I have based my argument for a 3½ percent discount rate on data from only ten years, 1964-1973, there is naturally some concern that those years may have been unrepresentative. Some evidence that this is not so is found by calculating the average real rate of interest on long-term Government of Canada bonds for the decade 1954-1963 and comparing that figure with the comparable rate for 1964-1973. The two figures prove to be 3.19 and 3.20, respectively. Thus, we can conclude that if Government bond rates and trust company certificate rates moved in concert in those two decades, as we would expect, the 1964-1973 rate on trust company certificates is representative of most of the post-Korean War period.

²⁹ \$35,000.00 was made available in *Arnold v. Teno* (1978), 83 D.L.R. (3d) 609 (S.C.C.); and in *Dupuis v. Melanson*, *supra*, footnote 12: \$25,000.00 was awarded in

Table 1

Calculation of the Real Rate of Interest: Canada, 1964-1980

Rate of Inflation				Interest Rates				
Year	Lagged One Year	Expected	Actual ^a	Long-Term Gov't. of Canada Net of Inflation:			5-Year Trust Co. Net of Inflation:	
				Lagged	Expected	Actual ^b	Lagged	Expected
1964	1.75	1.37	5.18	3.37	3.76	5.26	3.45	3.84
1965	1.79	1.93	5.20	3.35	3.21	5.53	3.67	3.53
1966	2.46	2.53	5.68	3.14	3.07	6.07	3.52	3.45
1967	3.74	2.86	5.90	2.08	2.96	6.31	2.48	3.35
1968	3.57	3.68	6.73	3.05	2.94	7.02	3.33	3.22
1969	4.09	3.98	7.56	3.33	3.44	8.03	3.79	3.89
1970	4.51	3.93	7.97	3.31	3.89	8.52	3.84	4.42
1971	3.37	3.64	6.95	3.46	3.19	7.72	4.21	3.94
1972	2.84	3.99	7.23	4.27	3.12	7.62	4.65	3.49
1973	4.77	4.58	7.55	2.65	2.84	8.21	3.28	3.47
1974	7.61	6.72	8.87	1.17	2.01	9.71	1.95	2.80
1975	10.86	8.75	9.00	-1.71	0.23	9.56	-1.19	0.75
1976	10.81	9.47	9.22	-1.46	-0.23	10.10	-0.64	0.58
1977	7.51	9.45	8.69	1.10	-0.70	8.95	1.34	-0.46
1978	7.99	8.56	9.24	1.16	0.63	9.27	1.19	0.65
1979	8.96	8.23	10.22	1.16	1.53	10.42	1.34	2.02
1980	9.11	9.29	12.48	3.09	2.92	12.31	2.93	2.76
1964-1980				2.15	2.28		2.54	2.69
1964-1973				3.20	3.24		3.62	3.66

^a Source: Carr *et al.*, *op. cit.*, footnote 19, p. 9.^b Source: Bank of Canada, Bank of Canada Review, and Bank of Canada Statistical Summary, various issues.

tinue to be followed in Ontario after the introduction of Rule 267a, and adopting the conservative assumption that brokers fees will be set at ½ percent,³⁰ the *effective* discount rate which will now be applied is 2 percent, little more than half the figure derived from Table 1.

The importance of the difference between a 3½ percent discount rate and the 2-2½ percent rate which will now apply in Ontario can best be seen by using those rates to calculate the lump sum award in a "typical" personal injury case. For these purposes, assume that a thirty-year old male, who would otherwise have worked until age sixty-five, has been left unable to work. If his income was \$25,000.00 at the time of the accident and if it was expected that his income would have risen at a real rate of 2½ percent per year, the present value of his

Lan v. Wu, [1979] 2 W.W.R. 122 (B.C.S.C.); and \$15,000.00 in *Webber v. Lowrie* (1979), 15 B.C.L.R. 289 (S.C.C.). In *Julian v. Northern and Central Gas Corp.*, *supra*, footnote 12, however, management fees were set at 1 percent of the fund invested, thereby reducing the *net* discount rate from 3 percent to 2 percent.

³⁰ This is the *minimum* allowance recommended by Patterson, *op. cit.*, footnote 14, at p. 16.

lifetime earnings would be approximately \$1,110,000.00 with a 2 percent discount rate, \$1,000,000.00 with a 2½ percent rate, and \$825,000.00 with a 3½ percent rate. That this amount of money is at stake makes it all that much more important that the rights of litigants to bring evidence not be limited.

IV. *Concluding Comments.*

The main contention of this article has been that the courts represent a more efficient forum for the airing of economic and actuarial evidence than do quasi-legislative bodies, such as the Ontario Rules Committee. Not only does the court system encourage a more open and frank discussion of the issues than does the quasi-legislative system, it also possesses built-in constraints which discourage excessive expenditure on testimony and provides both the incentive and the means by which inefficient rules can be challenged.

This is not to say, however, that the courts *qua* forums for debate cannot be improved. In particular, if the validity of past decisions is to be challenged and questioned on an informed basis, more care will have to be taken to ensure that the evidence which forms the basis of major decisions is made accessible to the expert witnesses appearing in subsequent trials. For example, the now infamous study by Dr. John Deutsch,³¹ which formed the basis of the Supreme Court's decision to set a 7 percent discount rate in the "trilogy" cases, was so poorly referenced (both in the original testimony and in the court's decisions), that many researchers, including the woman who originally introduced it as evidence,³² were later unable to locate it. This was particularly distressing in light of the fact that it subsequently became apparent that Dr. Deutsch's findings had been badly misinterpreted.³³ To avoid a repetition of this kind of difficulty, which is common in the field of economic testimony,³⁴ I would recommend (i) that copies of

³¹ Report of the Commission of Inquiry appointed by the Minister of Labour relating to an agreement reached on Increased Pension Benefits by the Unions and Railroad Companies, December 27th, 1973.

³² See the testimony of Dr. John Murray in *Lan v. Wu*, *supra*, footnote 29, at p. 128.

³³ Feldthusen and McNair, *op. cit.*, *supra*, footnote 14, at p. 392, conclude, after reading Dr. Deutsch's report, that: ". . . Dr. Deutsch *did not* forecast that the rate of inflation would be an average of 3½ percent per annum." (Italics added.) It is clear from that report, however, that Dr. Deutsch forecast that the funds invested in railway pension funds would earn a real rate of interest of 3½ percent—the same conclusion which I reached, *mutatis mutandis*, in section 2 of this article.

³⁴ For example, in an important case recently decided in Ontario, evidence was heard concerning a research report purportedly published by the U.S. Department of Commerce. Yet the librarian at the Department of Commerce informs me that, despite an extensive search, she has been unable to find any reference to this paper; and no reference to it is made in the U.S. Government listing of Official Publications. Clearly, the original citation was so misleading as to be of no use to subsequent researchers.

reports and research papers which the court feels have contributed significantly to its decision be reproduced in a form which is easily accessible to the participants in future cases; and (ii) that both expert witnesses and the judiciary be encouraged to document their references in a manner which makes them easy to locate.