Relocation Allowances and Damage Awards

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The object of damages in personal injury suits is to place the plaintiff in the position he or she would have been in but for the injury, so far as that is possible by the payment of a monetary sum. If the plaintiff is forced to relocate in order to obtain medical or other necessary services, the caleulation of an appropriate sum is more complicated because the cost of living may be different in the new place of residence. In this note, the author examines two methods of calculating adjustments to damages awards to reflect differences in tbe cost of living. The compensating cost approach examines differences in tbe *prices* of the various items upon which the plaintiff would spend his or her income (including taxes), and the award is adjusted to reflect these differences. The compensating income approach compares the *incomes* of persons performing similar functions in the two areas, and adjusts the award accordingly. The author argues that although the compensating income method is relatively simple to calculate, it does not always compensate changes in the cost of living aceurately. The compensating cost approacb is more difficult to calculate, but satisfactory statistical series do exist.

Dans une poursuite pour préjudice corporel, les dommages accordés visent à placer le demandeur dans la situation qu'il ou elle eût occupée n'eût été du préjudice, en tenant compte des possibilités offertes par une compensation monétaire. Si le demandeur doit être relocalisé pour bénéficier de soins médicaux ou autres services nécessaires, des différences dans le coût de la vie au nouveau lieu de résidence pourraient compliquer le calcul de l'indemnité. Dans cette note, l'auteur traite de deux méthodes de calcul des rajustements des indemnités en conséquence. La technique de « compensation des coûts » rajuste l'indemnité à partir des différences de *prix* pour divers postes de dépense du demandeur (incluant les taxes et l'impôt). La technique de « compensation du revenu » se base sur les différences de *revenu* pour des personnes occupant des fonctions semblables dans chaque lieu afin de rajuster l'indemnité. L'auteur soutient que, quoiqu'elle se calcule plus simplement, la méthode de compensation du revenu ne réflète pas toujours les changements dans le coût de la vie de façon exacte. Les calculs sont plus compliqués sous la méthode de compensation des coûts, mais il existe des bulletins statistiques adéquats pour les faciliter.

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Introduction

This paper examines the unique problems which arise in damage cases where the injured party, as a direct result of an accident, is forced to change location (place of residence). While perhaps reflecting the lack of readily available statistics, or simply the infrequency of such cases, the potential importance of locational cost differences as an element of damages appears to have attracted little attention. This situation sharply contrasts with traditional concerns over estimating price changes over time, where damage awards by utilizing real rates of discount provide allowances for intertemporal cost differences.[1]

The rationale for relocation allowances and their implications for damage awards are presented in Section I. In Sections II through IV, two alternative frameworks (a compensating cost approach and a compensating income approach) are developed to estimate spatial differences in the cost of living. Both frameworks also attempt to address the constraints under which legal processes operate. The methodologies to the extent possible must not only generate accurate estimates, but also must provide for time-efficient estimation given the current state and availability of data bases. The concluding section of the paper presents a comparative evaluation of the two approaches.

To assist in the development of the general arguments, as well as to provide illustrative estimates of the various spatial costs, the following hypothetical case will be considered.

> An Ottawa teacher has been rendered a quadriplegic as a result of an injury. The Court, after consideration of the evidence on pecuniary and non-pecuniary losses (including contingencies), has arrived at a judgement as to their present values, that is, the lump-sum awards for each head of damage. One remaining potential head of damage has yet to be evaluated. The injured individual will be required to move to Vancouver so as to access the necessary medical facilities and support services.

At the outset, two points require emphasis. First, the magnitude of the resulting cost estimates are not in themselves significant. Given that damage estimates must be as case-specific as possible, this illustration is only intended to serve as a guide or case example. Application of the methodologies and data bases to cases involving different occupations or locations will necessarily produce different relocation allowances. Second, in the interests of brevity, the examination of pecuniary damages has been deliberately restricted to losses involving prospective income. However, the spatial arguments, and the significance of such allowances, also apply to other pecuniary losses in personal injury cases (for example, health care costs), as

[1]See S. Waddams, *The Law of Damages* (Toronto: Canada Law Book, 1983) at 248-50.

well as to pecuniary losses in fatal accident cases (where dependants have been forced to relocate).

I. Relocation Allowances: Rationale

As outlined by Bruce,[2] when personal injury damages solely involve lost income, the standard objective is to estimate a single self-extinguishing lump-sum payment which, along with interest earnings, will replace the stream of lost income (the earnings the individual would have received had the damage not occurred). If the intent of such awards is to provide to the degree possible an equivalent standard of living, then spatial differences in the cost of living cannot be ignored. Damage payments, by utilizing statistics and estimates which are location-specific, presume the injured party will continue to live in the location from which the data were drawn. In terms of the above example, the estimate of the growth rate in the base-period income loss would employ salary information on Ottawa teachers. Similarly, the estimate of the discount (real interest) rate would employ Ottawa-specific price data. The resulting award assumes the individual would continue to live in Ottawa, purchasing goods and services at Ontario prices. However, if a move to Vancouver is now required, and if British Columbia prices exceed Ontario prices for a comparable bundle of commodities, then the lump-sum award would not provide an equivalent standard of living. In this case, the purchasing power of the payment for lost wages would only allow a smaller basket of goods and services to be purchased through time.[3]

The need to assess locational price differences is not only stressed by economists, but also by jurists. As Cooper-Stephenson and Saunders state:

> Again, increased costs of living incurred because of the necessary relocation of the plaintiff will be allowable. A required move from a rural to an urban location close to hospital and medical facilities might give rise to substantially increased costs ... . In short, all post-trial home and living costs incurred by the plaintiff's accident are properly assessable under this head.[4]

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[2]C. Bruce, "The Calculation of Foregone Lifetime Earnings: Three Decisions of the Supreme Court of Canada" (1979) 5:2 Can. Pub. Pol. 155 at 156; *Assessment of Personal Injury Damages* (Toronto: Butterworths, 1985) c. 2.

[3]The use of Canada average statistics would not solve the problem of spatial price differences. Such statistics would not account for cost of living differences when a change of residence involved at least one location either above or below the national average. Furthermore, failure to use location-specific and occupation-specific data would place in question the lost income estimate. Possible distortions are introduced if the underlying wage and priee statistics fail to reflect the particulars of the damage case under consideration.

[4]K. Cooper-Stephenson & I. Saunders, *Personal Injury Damages in Canada* (Toronto: Carswell, 1981) at 316-17.

II. Compensating Cost Versus Compensating Income

Before detailed presentations are made of the compensating cost and compensating income frameworks, it is useful to outline briefly the two methodologies. The compensating cost approach directly examines the various factors which give rise to cost of living differences. Estimates of the cost differences are then used to derive the relocation allowance. In contrast, the compensating income approach employs a proxy measure of the cost differences. If regional wage levels reflect the underlying costs of living, then income differentials for comparable employees in each location provide an indirect estimate of the relocation allowance.

III. The Compensating Cost Approach

In terms of design, not estimation, the compensating cost approach is relatively straightforward. First, the major factors contributing to spatial differences in the cost of living are identified. In this paper, they are grouped under three headings:[5] annual consumption expenditures, shelter/housing costs, and taxation, transfers, and public goods. Second, estimates are then made of any cost differences. Finally, employing the spatial estimates, the award for lost income is adjusted to offset cost increases arising from the change of residence.

1. Annual Consumption Expenditures

This component of the relocation allowance examines variations in the prices of goods and services, specifically, annual expenditures on consumption items. Two relationships must be estimated. First, a cost estimate is required of the difference in consumer prices across the two locations. Second, the relative importance of the cost estimate must be determined. Since expenditures on goods and services only account for a fraction of total family expenditures, a calculation of the proportion of income directed toward consumption is required.

To examine the extent to which prices of goods and services vary by location, use is made of the Statistics Canada series entitled "inter-city retail price differentials."[6] These statistics provide place-to-place comparisons of the absolute differences in retail prices. Excluding shelter (expenditures to

[5]The cost groupings were determined by the structure and coverage of existing data bases.

[6]It may be useful to note that the Statistics Canada data on consumer price indices for major Canadian cities are not helpful when evaluating spatial price differences. These statistics provide city-specific measures of price changes through time. They allow comparisons of the rates of price change across cities, not comparisons of their relative price levels. See generally Statistics Canada, *Consumer Prices and Price Indexes* (Ottawa: Minister of Supply & Services) (62-010; Quarterly) app. 1.

own or rent accommodations),[7] this expenditure-weighted series utilizes price data on approximately eighty percent of the items surveyed by the consumer price index. The surveys are constructed such that similar qualities of goods and services are compared at a common moment in time.[8] Inter-city price differentials have been published since 1975 and are reported in index form, that is, each city's value is expressed relative to an all-city average equal to 100.[9]

Table 1 reports values of two composite indices for the Ottawa/Vancouver example. Percentage differences are also provided over the 1975-1985 time period. The estimate of cost of living differences should not be dominated by possible aberrations in any given year's statistics. Just as the other data underlying damage awards (the estimates of wage rate changes, rates of price change, and interest rates) are to reflect their expected values during the period of lost income, spatial estimates also are to be representative of the expected differences in price levels. In the present case, employing the eleven years of available data, Vancouver prices on average

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[7]While household operation and furnishings are included in the surveys, the omission of shelter costs (on average accounting for 27.6% of total expenditures) is significant. Separate treatment will be given to the 19.0% share associated with rent, mortgage, and property tax payments. See below, Part III, Sections 2 and 3.

[8]Fixed basket indices contain weighting biases. If consumers substitute away from commodities which become relatively more expensive, then indices which employ base period (Laspeyres) weights will tend to overstate the impact of price changes. An opposite result will hold if current period (Paasche) weights are employed. Recent studies, however, suggest that the biases will be minimized if the underlying weighting structures are frequently updated. The upward bias in the consumer price series has been estimated to be in the order of 0.1% per year. See: P. Genereux, "Impact of the Choice of Formulae on the Canadian Consumer Price Index" in W. Diewert & C. Montmarquette, eds, *Price Level Measurement* (Ottawa: Minister of Supply & Services, 1983) 489; Statistics Canada, *The Consumer Price Index Reference Paper, Updating Based on 1982 Expenditures* (Ottawa: Minister of Supply & Services, 1985) (62-553) at 95-108.

[9]The indices are constructed for major urban centers throughout Canada; they do not provide for urban-rural comparisons. For a listing of the surveyed cities, as well as the commodity groupings covered, see notes a-c of Table 1. Inter-city price differentials were available in two prior years (1969 and 1971); Winnipeg, however, was employed as the base equal to 100.

The Conference Board of Canada also surveys living cost differentials for selected Canadian cities. Apart from differences in objective and methodology (in particular, the Board's treatment of shelter costs/capital appreciation and their omission of transfer payments and public goods), the Conference Board estimates provide point-in-time cost comparisons for two stylized households. See J. Frank, *Provincial Differences: A Challenge to Compensation and Relocation Policies* (Ottawa: Conference Board of Canada, 1981); M. Daniel, "Comparative Living Costs: Who's Ahead?" (1982) 9:1 Can. Bus. Rev. 44; L. Threlfall, "How Have Comparative Living Costs Changed Since 1981?" (1983) 10:3 Can. Bus. Rev. 29.

exceeded Ottawa prices by 5.0% per year.[10] Therefore, to provide for similarity in living standards, the consumption share of the annual income losses (the proportion of income spent on consumption items) requires an upward adjustment in the order of 5.0% per year.

At this point, it is useful to identify two requirements of the consumption share estimate. First, the estimate should capture the intertemporal nature of consumer decisions. Consumption expenditures not only refer to monies spent on current year consumption, but also include expenditures which will serve to maintain or supplement consumption levels in the future, for example, annual savings for retirement. Second, the estimate should be case-specific, reflecting the plaintiff's expenditure patterns as determined by such variables as income and family size.

Representative data on the apportionment of income by expenditure category are also published by Statistics Canada.[11] Numerous cross-tabulations are provided in these statistics — expenditure distributions by family size, age of head, income level, and form of shelter accommodation. Therefore, in order to provide an illustrative consumption estimate, additional detail must be given to the hypothetical accident case.

> Assume the teacher held an Ontario Class 2-3 designation (one year of teacher training and a four-year university degree).[12] Also, at the date of accident (1985), the individual was thirty-nine years old, married with two dependent children (minors). Finally, a home was being purchased and ten years remained before expected mortgage payout.

Table 2 reports the Statistics Canada data specific to the above case. These statistics are based upon the most recent (1982) survey of family

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[10]Comparative data on rates of price change suggest that this estimate of price level differences has remained relatively stable through time. For the 1975-1985 time period, the annual rates of change in the consumer price index for Ottawa and Vancouver were very similar, equalling 8.14% and 8.07% respectively. If the time period is expanded to include 1965-1985, the percentage change statistics continue to exhibit only marginal differences: Ottawa (6.69%) and Vancouver (6.66%). See also M. Denny & M. Fuss, "Regional Price Indexes: The Canadian Practice and Some Potential Extensions" in Diewart & Montmarquette, *supra*, note 8, 783.

While this estimate represents a simple average of past cost differences, it does not preclude the use of more sophisticated estimation approaches, for example, distributed lag models (Box-Jenkins techniques).

[11]Statistics Canada, *Family Expenditure in Canada (1982)* (Ottawa: Minister of Supply & Services, 1984) (62-555). Notwithstanding questions of availability, the consumption share estimate does not preclude the use of information drawn directly from the plaintiff's accounting records.

[12]Qualifications Evaluation Council of Ontario, *Teachers' Qualifications Evaluation Programme 3* (1975) at 11; Ontario Secondary School Teachers' Federation, *Secondary School Teacher Certification* (1979) at 19. Also see *infra*, note 40.

TABLE 1

INTER-CITY RETAIL PRICE DIFFERENTIALS, 1975-1985 (COMBINED CITY AVERAGE[a] = 100)

Year	Composite Index Value C.P.I. Weights[b]		Composite Index Value Survey Weights[c]		Percentage Difference Ottawa Base	
	Ottawa	Vancouver	Ottawa	Vancouver	C.P.I. Wts.	Survey Wts.
1985	97.7	104.0	98.2	103.8	6.4%	5.7%
1984	98.1	104.3	98.2	104.0	6.3%	5.9%
1983	97.8	102.9	98.1	102.7	5.2%	4.7%
1982	97.1	102.3	97.4	102.0	5.4%	4.7%
1981	99.3	103.8	99.3	103.7	4.5%	4.4%
1980	99.8	102.0	99.9	101.8	2.2%	1.9%
1979	99.7	102.6	99.8	102.3	2.9%	2.5%
1978	98.4	104.5	98.3	104.1	6.2%	5.9%
1977	98.7	103.9	98.6	103.4	5.3%	4.9%
1976	98.7	105.1	98.7	104.7	6.5%	6.1%
1975	97.9	103.8	97.9	103.2	6.0%	5.4%
Annual Ave.:	98.5	103.6	98.6	103.3	5.2%	4.8%

[a]Statistics Canada bases the combined city average for each grouping of goods and services upon the following surveyed cities: St. John's, Charlottetown, Halifax, Saint John, Montreal, Ottawa, Toronto, Winnipeg, Regina, Edmonton, and Vancouver.

[b]The index values for the various commodity groupings were combined into a composite index by employing the representative expenditure weights underlying the consumer price index. In 1985, these Canada average weights were: food (20.0%), shelter (27.6%), household operation and furnishings (10.6%), clothing (8.4%), transportation (15.8%), health and personal care (4.0%), recreation, reading and education (8.3%), and tobacco and alcohol (5.5%).

[c]Due to non-comparabilities, the inter-city retail price statistics are not based upon a complete set of commodities representative of total consumer expenditures. To examine the impact of this partial sampling, the "illustrative" survey weights reported by Statistics Canada have been employed to construct a second composite index. In 1985, these weights were: food (14.9%), household operation and furnishings (10.6%), transportation (15.8%), health and personal care (4.0%), recreation, reading and education (8.3%), and tobacco and alcohol (5.5%).

Sources: Statistics Canada, *supra*, notes 6 and 8.

TABLE 2
ANNUAL INCOMES AND SELECTIVE EXPENDITURES, 1982[a]
(ALL FAMILIES AND UNATTACHED INDIVIDUALS)

	With Mortgage		Without Mortgage	
	$30,000-$34,999	All Inc. Classes	$30,000-$34,999	All Inc. Classes
Age of Family Head	38.6	40.9	48.7	57.2
Family Size	3.6	3.5	3.4	2.7
Total Family Income[b]	$32,427	$38,785	$32,345	$29,067
Income Taxes	$5,314	$7,077	$5,149	$4,777
Property Taxes	$905	$954	$881	$809
Mortgage Payments[c]	$6,160	$6,493	$97	$89
All Other Expenditures	$20,048	$24,260	$26,218	$23,392
Inc. Tax as a % of Income	16.4%	18.2%	15.9%	16.4%
Prop. Tax as a % of Income	2.8%	2.5%	2.7%	2.8%
Mort. Pay. as a % of Income	19.0%	16.7%	0.3%	0.3%
All Other Expend. as a % of Income[d]	61.8%	62.6%	81.1%	80.5%

[a]All income and expenditure estimates have been rounded to the nearest dollar.
[b]Total family income excludes other money receipts (inheritances and lump-sum insurance settlements) and account balancing difference.
[c]Includes principal and interest payments.
[d]Estimate of the "consumption share".
Source: Statistics Canada, *supra*, note 11.

expenditures in Canada.[13] A Class 2-3 Ottawa teacher would have earned a salary of $33,950 in 1982.[14] This would position the individual within Statistics Canada's $30,000-$34,999 income grouping. Therefore, excluding mortgage payments, property taxes, and income taxes,[15] the 5.0% allowance for spatial cost differences would be applied to 62% of the income losses during the period of house payments (see column 1, last line). Once the mortgage was repaid, that is, after ten years and until the date of expected retirement, the cost of living allowance would be applied to an 81% share of lost income (see column 3, last line).[16] To facilitate later comparisons, it is useful to express these two estimates in terms of a single statistic. The

[13]The use of dated 1982 statistics to estimate the "percentage" of income devoted to consumption does not appear to be a significant limitation. While the absolute values of income and expenditure will increase over time, percentage share statistics remain relatively stable. For a comparison of the expenditure distributions in the two most recent surveys (1978 and 1982), see Statistics Canada, *supra*, note 11 at 1.3-1.8.

[14]Ontario, Education Relations Commission, *Teacher Salary Grids by Experience and Qualifications, Ottawa Contracts* (Printout, 1986).

[15]See: *supra*, note 7; below, Part III, Sections 2 and 3.

[16]The 62% and 81% estimates also held for the "all income class" grouping, as well as for the income groupings immediately above and below the $30,000-$34,999 interval; see Table 2. If the damaged individual was a tenant, or if a switch to rental accommodations could be anticipated, the spatial estimate would be applied to 70% of the annual income losses.

relocation allowance for price differences on average equals 3.7% of the annual income losses.[17]

2. *Shelter/Housing Costs*

In the examination of shelter costs, primary attention will be given to the more difficult case of owned, as opposed to rented, accommodations. Two factors must be captured by this spatial estimate. First, if a move would result in higher prices for equivalent housing, then compensation for the cost difference would appear warranted. Failure to do so would force the individual to either accept inferior accommodations, or to incur the costs of an altered, that is, distorted consumption stream through time. In this latter case, if the housing price difference were to be financed by way of borrowing, the injured party would experience a series of unplanned repayment and interest charges. Alternatively, if the price difference were to be financed from personal resources, opportunity costs would be imposed; that is, the plaintiff would be forced to forego a number of pre-accident opportunities. Such costs may involve reduced consumption of goods and services, or unintended changes in wealth holdings, for example, a reduction in income-producing assets and the expected stream of investment income.

The second factor, which stresses the durable or asset qualities of owned accommodations, suggests that compensation based upon the difference in housing prices may result in either deficient or excessive awards. For example, if the rates of change in housing prices are uniform across the two locations, and if the award is based upon an equivalent but higher priced home, then the damaged individual would possess an asset which, when sold, would yield a higher market value. Relative to the pre-accident situation (continued ownership of the lower priced home), full price compensation effectively provides a future benefit which otherwise would not be received.

To incorporate both factors, a present value calculation of the net additional costs imposed upon the injured party is required. Specifically, the shelter estimate involves:

> —a current period evaluation of the price difference for equivalent housing in the two locations,
>
> —an evaluation of the future market values of the two homes (estimates of the length of tenure within the home and the expected rates of change in housing prices),

[17]To obtain this statistic, the 5.0% allowance was prorated by 62% for 10 years (mortgage period) and by 81% for 16 years (no mortgage period, expected retirement at age 65).

—a present value calculation of the "difference" in future home values (estimates of the discount rate would employ mortgage rates if the cost difference was financed through borrowing, or interest rates on income-earning assets if own finances were employed),

—finally, the net cost (amount of compensation) equals the current period difference in housing prices less the present value estimate of the difference in future home values.[18]

Given the limitations of information in this area, discussion and estimates are provided on each of these items.

To examine the current period difference in housing costs, use is made of Royal LePage's survey of Canadian housing prices.[19] This quarterly series provides expected selling prices on various forms of shelter accommodation in Canada. Market prices are listed for standardized units (homes possessing similar features and structural characteristics) and are published by city, and in the case of larger urban centers, by residential district. The illustrative estimate is based upon the cost of a detached three bedroom bungalow and upon a sale/purchase date of April, 1985.[20] Under these circumstances, the individual would experience a locational cost difference of $17,125. The average Ottawa price equalled $105,375, while the average price for a comparable home in Vancouver equalled $122,500.[21]

The second aspect of the shelter award requires an estimate of the future values of the two homes, and further, that the difference in these market evaluations be expressed as a present value. The following information is used:

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[18]This approach also places the individual in an equivalent asset position. The plaintiff finances any positive differential in the future values of the two homes. The defendant incurs the cost of any negative differential.

[19]Royal LePage, *Survey of Canadian House Prices* (Quarterly). The surveys are undertaken for over eighty cities throughout Canada. Both selling prices and rental costs are reported on six forms of shelter accommodation (detached bungalow, standard two-storey, executive detached two-storey, standard condominium apartment, luxury condominium apartment, and standard townhouse). Statistics Canada and Central Mortgage and Housing Corporation publish spatial statistics on rates of change in housing prices and shelter costs. However, absolute price data on standardized units by city are not reported.

[20]The specific characteristics of this medium-priced bungalow are: three bedrooms, one and one-half bathrooms, full basement, no recreation room/fireplace or appliances, one-car garage, 1,200 square feet, constructed partially of brick with wood, aluminum or stucco exterior, and 5,500 square foot lot.

[21]Average prices were calculated across the various residential areas of each city, Ottawa (East, Kanata, South, and West), and Greater Vancouver (Burnaby, East, Kerrisdale, North, Richmond, Surrey, Tsawwassen, and West). The average price difference over the four quarters of 1985 equalled $17,906.

If the precise address of the principal residence were known, the estimate of price differences would be restricted to comparable homes within similar residential areas of each city.

—length of home tenure (future evaluation date) of 35.7 years,[22]

—annual rate of housing price increase of 6.3%,[23] and

—annual rate of interest (nominal discount rate) of 8.9%.[24]

On the basis of these statistics, the present value estimate equals $7,225.[25]

Therefore, the resulting shelter allowance is $9,900 — the current price difference of $17,125 less the present value estimate for the higher priced Vancouver home of $7,225. Again for comparative purposes, it is useful to express this spatial estimate in terms of the lost income award. The difference in shelter costs[26] equals 1.1% of the annual income losses.[27]

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[22]The most straightforward calculation would base the length of home tenure upon the life expectancy of the injured party. If a shorter time period were to be selected, then an additional allowance may be required to offset any difference in the costs of rental accommodations. In the present case, the life expectancy tables for Ontario males were employed. See Statistics Canada, *Life Tables: Canada and Provinces, 1980-1982* (Ottawa: Minister of Supply & Services) (84-532) at 36.

[23]Since the Royal LePage data have only been available since 1975, use was made of Statistics Canada's housing price/shelter index over the 1965-1985 time period. For both cities, the annual average rates of change were very similar: Ottawa (6.36%) and Vancouver (6.32%). If a comparison is made of the two data bases over the 1975-1985 time period, a common rate of change is present in both series. The respective Royal LePage and Statistics Canada estimates are: Ottawa (7.96% and 8.06%), Vancouver (7.77% and 7.48%). See Royal LePage, *supra*, note 19; Statistics Canada, *supra*, note 6; *The Consumer Price Index* (Ottawa: Minister of Supply & Services) (62-001; Monthly); *Prices and Price Indexes* (Ottawa: Minister of Supply & Services) (62-002; Monthly).

[24]Assuming the plaintiff's own resources are employed, this 1965-1985 estimate is based upon the annual average rates of return on long-term Government of Canada securities (five to ten year maturities, Cansim no. B14011). See Bank of Canada, *Bank of Canada Review* (Monthly).

[25]Given the nominal rates of interest and housing price increase, this estimate is based upon a real rate of discount of 2.4%. See Waddams, *supra*, note 1. Similar to other present value calculations, the plaintiff's share of the current period difference in housing costs will increase with a higher rate of change in housing prices, a lower rate of interest, and a shorter period of home tenure.

[26]This estimate does not include any allowances required to offset real estate and legal fees, the costs of transporting the household to British Columbia, or any initial difference in the mortgage rates on the home sold versus the home purchased.

[27]To obtain this statistic, an annuity is constructed such that the annual payments increase at the same rate as Ottawa teacher salaries (8.0% scale increase over the 26 years of lost income), a discount rate appropriate for lost wages is applied (8.9% nominal rate), and finally, the present value of the annuity equals the $9,900 shelter allowance. The 1.1% estimate is then obtained by expressing the 1985 annuity payment as a percentage of the 1985 income level. An identical estimate would result if the total shelter allowance is expressed as a percentage of the lump-sum award for lost income. The data are compiled from the following Statistics Canada series: *Education Statistics* (Ottawa: Minister of Supply & Services) (81-002; Monthly); *Canadian Statistical Review* (Ottawa: Minister of Supply & Services) (11-003E; Monthly). See also Bank of Canada, *supra*, note 24; below, Table 4.

3. Taxation, Transfers, and Public Goods

A further source of possible cost of living differences arises from the public sector. Governments, by way of taxes, transfer payments, and expenditures (provision of public goods), expose individual households to a broad array of non-market benefits and costs. In Canada, the most comprehensive studies of net fiscal incidence have been undertaken by Gillespie. His most recent analysis,[28] employing base year data for 1969 and extrapolations until 1976, examined the distributional impacts of federal, provincial, and municipal government policies. Expressed as a percentage of income, the incidence of public sector benefits and costs are evaluated across income groupings and across provinces.

Table 3 presents Gillespie's estimates of fiscal incidence specific to the damages example. Following Gillespie, one must emphasize that the tax and expenditure allocations represent averages across all households within each income grouping, in this illustration, the $10,000-$14,999 interval.[29] Further, given the inherent difficulties in allocating public sector benefits and costs, in particular, the use of shifting hypotheses and proxy assignment variables,[30] any interpretation of individual estimates must be qualified. In this case, the 1.0% estimate is suggestive of the relative differences in net fiscal incidence across the two locations (see column 3, last line). Benefits less costs equalled −9.3% in Ontario (see column 1, last line) and −8.2% in British Columbia (see column 2, last line).

Given the extensive data requirements for such studies, as well as their necessary qualifications, no attempt was made to update the Gillespie analysis. However, to provide some indication of possible divergencies in government policies over time, comparative levels of income tax (federal and provincial) and municipal property tax are reported in Tables 4 and 5 respectively. These 1975-1985 estimates for Ottawa and Vancouver are based upon a common income stream (the earnings of a Class 2-3 Ottawa teacher) and upon the assumed shelter accommodations (three bedroom detached bungalows).

Expressed as a percentage of income, these estimates also reflect no significant differences across the two locations. Through time, both income and property taxes consistently differed by less than 1.0%.

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[28]W. Gillespie, *The Redistribution of Income in Canada* (Ottawa: The Carleton Library, 1980).

[29]An Ottawa Class 2-3 teacher would have earned a salary of $12,898 in 1969. See Statistics Canada, *supra*, note 27; below, Table 4.

[30]For a sensitivity analysis of these factors, as well as a discussion of the government neutrality assumption, see Gillespie, *supra*, note 28, at 17-25, 60-64, and 117-24; R. Boadway & H. Kitchen, *Canadian Tax Policy*, 2d ed. (Toronto: Canadian Tax Foundation, 1984) at 7-15 and 162-68.

Therefore, in view of the negligible variations present, as well as the confidence intervals on estimates of fiscal incidence, no allowance is provided in this case for spatial differences in public sector benefits or costs.[31]

4. *Summary of Compensating Costs*

The consumption, shelter, and fiscal incidence estimates yield a total allowance in the order of 5.0% of annual income. To offset the locational cost differences of this example, a similar percentage increase would be applied to the lump-sum payment for lost income.[32] More generally, the significance of relocation allowances will increase with the value of the annual income losses, the time period over which the damages extend, and the degree to which costs vary across locations (relocation to non-comparable cities).

TABLE 3
FISCAL INCIDENCE, 1969 BASE YEAR, $10,000-$14,999 INCOME GROUPING[a]

	Ontario	British Columbia	Difference (Ontario Base)
Expenditures & Transfers as a % of Income (Benefits):			
Federal Government	12.6%	13.3%	+0.7%
Provincial Government	10.7%	11.3%	+0.6%
Local Government	7.4%	6.4%	−1.0%
Total Government[b]	30.7%	31.1%	+0.4%
Taxes as a % of Income (Costs):			
Federal Government	21.9%	22.4%	+0.5%
Provincial Government	12.8%	12.5%	−0.3%
Local Government	5.1%	4.2%	−0.9%
Total Government[b]	39.8%	39.1%	−0.7%
Net Fiscal Incidence as a % of Income (Benefits less Costs):			
Federal Government	−9.4%	−9.1%	+0.3%
Provincial Government	−2.3%	−1.4%	+0.9%
Local Government	+2.3%	+2.3%	0.0%
Total Government[b]	−9.3%	−8.2%	+1.1%

[a]Defined on the basis of a "broad income" concept, that is, total income from all sources before taxes and less transfer payments.

[b]Due to rounding, the government components may not add to totals.

Source: Gillespie, *supra*, note 28, at 58, 114, and 141.

[31]This locational consideration is independent of any tax adjustments arising from changes in the form and time stream of income, for example, present value differences in the taxes to be paid on the interest income from the lump-sum award, as opposed to the taxes which would have been paid on the strcam of lost wage ineome.

[32]Employing the base data of Table 4 and note 27, the absolute value of the relocation allowance equals $44,140. This present value calculation does not incorporate any actuarial allowance for the probabilities of death occurring during the period of lost income.

TABLE 4
INCOME TAXES, 1975-1985[a]

Year	Total Income[b] (Ottawa Teachers)	Taxes Payable[c] (Ottawa)	Taxes Payable[c] (Vancouver)	$ Difference (Ottawa Base)	% Difference[d] (Ottawa Base)
1985	$39,687	$7,110	$7,087	−$23	−0.1%
1984	$37,958	$6,630	$6,419	−$211	−0.6%
1983	$36,368	$6,251	$6,019	−$232	−0.6%
1982	$33,950	$5,660	$5,497	−$163	−0.5%
1981	$31,115	$5,188	$5,112	−$76	−0.2%
1980	$28,518	$4,614	$4,614	$0	0.0%
1979	$26,599	$4,265	$4,297	+$32	+0.1%
1978	$24,961	$3,938	$3,998	+$60	+0.2%
1977	$23,430	$3,656	$3,712	+$56	+0.2%
1976	$21,555	$3,366	$3,394	+$28	+0.1%
1975	$19,668	$3,356	$3,356	$0	0.0%
% Difference (Annual Avcrage):					−0.1%

[a]All income and tax estimates have been rounded to the nearest dollar.
[b]Total income refers to the average salary of Group 2-3 Ottawa teachers (maximum grid rates of pay, average of the three major Ottawa agreements: Boards 52, 129, and 187).
[c]Taxable income based upon the following deductions: employment expense allowance, Canada Pension Plan payments, Unemployment Insurance premiums, maximum retirement savings and pension plan contributions, basic personal exemption, deductions for dependent spouse with two children (minors), and standard medical/charity deduction. Taxes payable include all surtaxes and tax reductions; property/sales tax credits (Ontario) and rebates (British Columbia) are excluded.
[d]Expressed as a percentage of total income.
Sources: Coopers & Lybrand, *Tax Facts and Figures* (Annual). Education Relations Commission, Government of Ontario, *supra*, note 14. Revenue Canada, Taxation, *Taxation Statistics* (Annual).

TABLE 5
PROPERTY TAXES, 1975-1985[a]

Year	Total Income[b] (Ottawa Teachers)	Taxes Payable[c] (Ottawa)	Taxes Payable[c] (Vancouver)	$ Difference (Ottawa Base)	% Difference[d] (Ottawa Base)
1985	$39,687	$1,513	$1,401	−$112	−0.3%
1984	$37,958	$1,441	$1,381	−$60	−0.2%
1983	$36,368	$1,336	$1,377	+$41	+0.1%
1982	$33,950	$1,386	$1,381	−$5	−0.0%
1981	$31,115	$1,430	$1,333	−$97	−0.3%
1980	$28,518	$1,293	$1,213	−$80	−0.3%
1979	$26,599	$1,229	$1,161	−$68	−0.3%
1978	$24,961	$1,166	$1,113	−$53	−0.2%
1977	$23,430	$1,125	$1,092	−$33	−0.1%
1976	$21,555	$1,005	$988	−$17	−0.1%
1975	$19,668	$889	$826	−$63	−0.3%
% Difference (Annual Average):					−0.2%

[a]All income and tax estimates have been rounded to the nearest dollar.
[b]Total income refers to the average salary of Group 2-3 Ottawa teachers (maximum grid rates of pay, average of the three major Ottawa agreements: Boards 52, 129, and 187).
[c]Property tax estimates based upon the same shelter accommodations and residential areas specified in Section 2 (three bedroom detached bungalows in Ottawa and Greater Vancouver).
[d]Expressed as a percentage of total income.
Sources: Education Relations Commission, Government of Ontario, *supra*, note 14. Royal LePage, *supra*, note 19.

At least two concluding observations are required on the compensating cost framework. First, the resulting allowances are "estimates" in the strict

sense of the term. Given the present state of developments in this area, the evaluation of estimation errors is, in part, a qualitative exercise. It involves judgements as to whether the various sources of spatial cost differences have been adequately identified and included within the analysis, as well as judgements as to whether the employed data bases accurately reflect both the cost differentials and the circumstances of the damage case under investigation. The second qualification concerns intangibles, that is, non-monetary variables which also impact upon an individual's quality of life and standard of living. While a change of location would alter the array of social and physical intangibles, the analysis does not address this spatial consideration. This exclusion was not only based upon the difficulties of "shadow pricing" these factors,[33] but also based upon the questionable transitivity of such estimates. It is not obvious that *a priori* evaluations are applicable.[34] Households are unlikely to assign either equal weights, or indeed, similar signs to a number of intangibles. Consider, for example, individual preferences as to climate, recreational and cultural facilities, or the proximity of one's relatives.

IV. The Compensating Income Approach

The second approach for introducing relocation allowances within damage awards may now be briefly examined. Based upon a compensating income concept, this alternative framework is by comparison very straightforward. However, in spite of the ease with which estimates may be obtained, the restrictive market requirements underlying this approach limit its usefulness within damage awards.

The compensating income framework requires that wages be determined within competitive and efficient labour markets. If these conditions are met,[35] "other things being equal", the regional structure of incomes will reflect locational differences in the cost of living.[36] Therefore, if damage awards were to be based upon the salaries of comparable employees in the new location, in this case Vancouver teachers with identical experience and

[33]For a discussion of methods to evaluate intangibles, see R. Boadway & N. Bruce, *Welfare Economics* (Oxford: Blackwell, 1984) at 313-15.

[34]This does not suggest that intangibles comprise an inappropriate head of damages, but rather that their assessment will depend upon the particular circumstances of the damage case under consideration.

[35]Markets are to be free of distortions, employers and employees cannot individually affect product prices or factor returns, labour and capital are fully mobile, information is complete, and transactions costs are minimal.

[36]See B. Fleisher, *Labor Economics: Theory and Evidence*, 2d ed. (Englewood Cliffs: Prentice-Hall, 1970) at 205; S. Ostry & M. Zaidi, *Labour Economics in Canada*, 3d ed. (Toronto: Macmillan, 1979) at 375.

qualifications, the resulting estimate would automatically include any required allowance for cost of living differences.

Examination of Labour Canada data provides casual empirical support for this argument.[37] For office occupations, Vancouver median rates of pay exceeded their Ottawa counterparts in 32 of the 36 reported classifications. The average salary differential in 1985 equalled 6.8%. While this estimate follows the historical pattern of higher Vancouver incomes,[38] it does not provide a reliable guide for individual salary adjustments. Vancouver/Ottawa differentials are neither stable over time, nor uniform across occupations.[39] Furthermore, if non-office classifications were to be included, wages would differ by an average of 17.5%.

A more exact application of the compensating income approach does not overcome these problems. For example, in terms of the present accident case, where use was made of specific contract information and where pay grids were matched to the individual's qualifications and experience,[40] no significant difference was present in the 1985 salaries of Vancouver and Ottawa Class 2-3 teachers. Their base incomes equalled $39,330 and $39,687 respectively. This single year comparison does not conform to traditional relationships. Vancouver rates of pay, as late as 1984, have normally ex-

[37]The use of Labour Canada statistics represents a "second best" choice of data bases. This information, while comprehensive, is subject to possible composition problems. The surveys report October pay scales and apply to all establishments with twenty or more employees. Therefore, unlike data drawn from collective agreements, the statistics not only reflect locational differences in rates of pay, but also may capture other intervening variables, for example, differences in industrial structure or the state of labour negotiations (expired contracts). See Labour Canada, *Wages and Working Conditions in Canada, October 1985* (Ottawa: Minister of Supply & Services, 1986).

[38]See Frank, *supra*, note 9 at 5-18.

[39]For office occupations, a standard deviation of 9.4% applied to the 1985 wage differentials.

[40]The classification structures for Ontario and British Columbia teachers are not identical. When recognizing post-secondary education, in this case a four-year degree and an additional year of teacher training, the Ontario system employs grade thirteen as the base, while British Columbia uses grade twelve. Ontario pay scales also differentiate between degrees with pass standing (Class 2), as opposed to an honours designation (Class 3). This distinction is not present in British Columbia.

The above comparisons are based upon the average pay scales for Ottawa Class 2 and 3 teachers, maximum grids for years of experience (contracts for School Boards 52, 129, and 187), and their equivalent Category 5 teachers in Greater Vancouver (contracts for School Districts 35-45). The one-year difference in secondary schooling has been ignored. In both provinces, the next highest pay ranges (Class 4 and Category 6 teachers) apply to individuals with masters degrees or equivalent qualifications. See above, Table 4; Qualifications Evaluation Council of Ontario, *supra*, note 12; Ontario Secondary School Teachers' Federation, *supra*, note 12; Ontario, Education Relations Commission, *supra*, note 14; British Columbia Teachers' Federation & British Columbia School Trustees' Association, *Summary and Analysis of 1985-86 B.C. Teachers' Salaries and Working Conditions Agreements* (1986).

ceeded the pay scales of Ottawa teachers.[41] The relatively recent erosion of this differential can be traced, in part, to labour market policies of the British Columbia government. Since 1982, a series of wage restraint programs have been applied to public sector employees.[42]

The Vancouver/Ottawa comparisons illustrate two basic limitations of the compensating income framework. First, the interpretation of regional wage differentials must be qualified. If markets are distorted, if adjustment lags are present, or if labour and capital mobility are constrained, then the "real" incomes of comparable labour groupings at particular moments in time are unlikely to be uniform across locations. Regional wage comparisons may not solely capture cost of living differences. The peculiarities of local economies, whether permanent or transitory, also impact upon individual wage settlements — differences in resource endowments, industrial structures, and intangibles, as well as differences in current bargaining environments (unemployment levels, employer finances/abilities to pay, and government policies).[43] The second qualification concerns estimation requirements. Comparable labour classifications may not exist across locations. Furthermore, the structure of employee benefits may not be similar across employers. Given the possible tradeoffs among salary levels, pension plans, and other non-salary items, estimates which solely examine the wage component may fail to fully reflect the individual's employment benefits or standard of living in the base location. This latter point further complicates the interpretation of wage differentials. Do they reflect cost of living differences, variations in regional prosperity (real income differences), or simply the structure of wage payments as opposed to non-wage benefits?

V. Summary Comment

This paper argues that, in damage cases involving relocation of the injured party, potential differences in the cost of living must be examined. If awards for pecuniary losses are to employ a "no accident" paradigm, then relocation allowances may be required so as to maintain the individual's former standard of living in the new location. The significance of such allowances will increase with the value of the annual losses, the time period over which the damages extend, and the degree to which costs vary across locations. Of the two methodologies examined, the compensating cost ap-

[41]The comparable 1984 salaries are $39,037 (Vancouver) and $37,958 (Ottawa).

[42]See M. Thompson, "Restraint and Labour Relations: The Case of British Columbia" (1985) 11:2 Can. Pub. Pol. 171. Since 1982, wage scales for Class 2-3 Ottawa teachers have increased at an annual rate of 5.3%. Vancouver increases equalled 1.5% per year.

[43]See D. MacAllan, "Should Wage Rates Vary Across Canada?" (1980) 7:1 Can. Bus. Rev. 40; J. Melvin, "Regional Income Disparities in Canada: What They Mean" (presented at University of Regina, June 1986) [unpublished].

proach was considered to be superior. It not only provides direct estimates of each spatial factor (consumption expenditures, shelter costs, and taxation, transfers, and public goods), but also avoids the interpretation and estimation ambiguities of the compensating income framework. This does not imply that the spatial estimates are free of estimation errors or qualifications. In addition to the questions raised on data bases, cost sources, and intangibles, spatial estimates are also bounded by uncertainties as to the future. One cannot reject the possibility that structural changes within the economy may alter past cost relationships. However, as Cooper-Stephenson and Saunders state:

> The difficulty of assessment is magnified not only by the nature of the losses sustained but also by the period over which those losses may stretch. Thus, the impossibility of proving those losses with certainty is no bar to the plaintiff's claim ... . However, it is still incumbent upon the plaintiff to adduce evidence which will supply a basis on which the probabilities can be estimated. He must lay the appropriate framework for application of the simple probability standard of proof.[44]

In this context, the estimates and arguments of the compensating cost approach should assist in the evaluation of spatial damages.

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[44]Cooper-Stephenson & Saunders, *supra*, note 4 at 40-41.