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September 25, 2015

The Public Utilities Board of Manitoba  
Mr. Darren Christle, Executive Director and Board Secretary  
400 – 330 Portage Avenue  
Winnipeg, MB R3C 0C4

Dear Mr. Christle:

**Re: MPI 2016/17 GRA**

On behalf of CAC Manitoba, we are pleased to attach the evidence of Ms Andrea Sherry and Dr. Wayne Simpson relating to the MPI Rate Stabilization Reserve (Basic RSR) and Dynamic Capital Adequacy Testing (DCAT).

We can indicate that in addition to the material already on the record in this proceeding, our experts had access to two other sources of information:

- a survey of discussions related to the RSR which includes excerpts from the Kopstein Report and all prior board orders (roughly 80 pages);
- a report by Probe Research summarizing the results of two focus groups held on Wednesday, September 16, 2015 on issues relating to rate volatility and the RSR.

In terms of the survey of prior board decisions, our client intends to rely on prior board excerpts for the purposes of closing argument and perhaps cross examination. Derived as these materials are from public reports or regulatory decisions, this material does not constitute evidence and is more akin to legal precedent.

In terms of the Probe Research focus group, CAC Manitoba intends to use it for its own internal purposes including the taking of instructions from the CAC Manitoba Board.

Upon request, our client would be happy to share this additional information with MPI or with any intervenor in this proceeding in order to assist their deliberations.

Yours truly,

**BYRON WILLIAMS  
DIRECTOR**

BW/sk

**Attachments**

cc: MPI, Ms. Kathy Kalinowsky  
Board Counsel, Ms. Candace Grammond  
CAC, Ms. Gloria Desorcy  
All other interested parties by email only

**Discussion on the DCAT and the Need for a  
Rate Stabilization Reserve (RSR)**

**Manitoba Public Insurance  
2016/17 GRA**

**CAC Manitoba  
Submitted by the Public Interest Law Centre  
Co-authored by Ms. Andrea Sherry  
and Dr. Wayne Simpson**

**September 25, 2015**

## **Discussion on the DCAT and the Need for a Rate Stabilization Reserve (RSR)**

### **Terms of Retainer**

The Consumers' Association of Canada Manitoba (CAC Manitoba), through the Public Interest Law Centre has retained our services to provide evidence regarding the Manitoba Public Insurance (MPI) 2016 Rate Application. In particular, we have been asked to provide expert analysis on issues associated with risk, the DCAT report and the appropriate target for MPI's Rate Stabilization Reserve (RSR).

The evidence was prepared jointly by us and we are jointly responsible for the analysis and conclusions. Due to a scheduling conflict, only Ms. Sherry will be available to provide oral evidence.

### **Declaration of Impartiality**

Attached and marked as Exhibits A and B to our evidence are our declarations of impartiality. We understand that our duty is to the Public Utilities Board and that this duty overrides any obligation to the party who engaged us.

We understand our duty is to provide opinion evidence that:

- Is fair, objective and non-partisan;
- Relates only to matters within our expertise.

### **Qualifications of Andrea Sherry**

I am a Fellow of the Casualty Actuarial Society, a Fellow of the Canadian Institute of Actuaries, a Certified Management Accountant and a Fellow Chartered Insurance Professional. I am currently the Vice President, Actuarial Pricing at The Wawanesa Mutual Insurance Company. I have worked there since January of 2011. Prior to that I worked for Aviva Canada Inc. in the areas of Capital and Solvency. I was also the Appointed Actuary for one of the Aviva companies. I have worked in Property & Casualty insurance since 1990 when I started work for MPI.

I have served as a consultant to CAC Manitoba through the Public Interest Law Centre for the last four years. I have participated in informal processes of the Public Utilities Board relating to the RSR and DCAT and collaborated with Dr. Simpson on his past evidence relating to the RSR.

My curriculum vitae is marked as Exhibit C.

## **Qualifications of Wayne Simpson**

I have a PhD from the London School of Economics (1977). I am a Full Professor in the Department of Economics at the University of Manitoba, where I have taught since 1979. My areas of academic expertise include labour economics, applied econometrics, applied microeconomics, and economic and social policy analysis. I have authored or co-authored three books and more than fifty peer-reviewed articles on these and related topics, including two papers on the impact of risk on the behaviour of the firm. I am currently on the editorial board of Canadian Public Policy, Canada's foremost peer-reviewed academic journal for economic and social policy, and the executive council of the Canadian Economics Association. I was a 2014 recipient of the McCracken award for the development and analysis of economic statistics from the Canadian Economics Association.

In addition to my academic career, I have worked at the Bank of Canada, the federal Department of Labour, and the Economic Council of Canada. I have also served as a consultant to the private sector and government, primarily in the areas of labour economics and policy evaluation. In recent years, I have served as an expert advisor to Prairie Research Associates (PRA) Inc. and Human Resources and Skill Development Canada as well as to CAC Manitoba through the Public Interest Law Centre. I have provided expert opinion to the Public Utilities Board on behalf of CAC Manitoba at the 2007 Hearing to Cap Payday Loan Fees, at the 2007, 2010 2013 and 2014 MPI Rate Applications on the RSR and investment strategy, and at the 2014 Needs for and Alternatives to Review of Manitoba Hydro's Preferred Development Plan.

My professional expertise in applied microeconomics and applied econometrics<sup>1</sup> provides a foundation for the analysis of issues related to the management of risk by firms and to the assessment of risk using modern economic and statistical techniques. My expertise also provides a framework to assess the contributions of equities, bonds and interest rates to investment risk.

My curriculum vitae is marked as Exhibit D.

### **1. Use of Dynamic Capital Adequacy Testing (DCAT) by Private Federally Regulated Insurance Companies**

Dynamic Capital Adequacy Testing is a required exercise for any insurance company in Canada regulated by the Office of the Superintendent of Financial Institutions. As per the Standards of Practice of the Canadian Institute of Actuaries the "appointed actuary should make an investigation at least once during each financial year of the insurer's recent and current financial position, and financial condition, as revealed by dynamic

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<sup>1</sup>Applied microeconomics is the study of the behavior of individual agents (e.g., firms and households) in the market using modern theory and empirical methods. It seeks to apply the analysis to practical problems such as risk management and investment strategies. Applied econometrics uses specific statistical techniques, particularly regression methods, to analyze and predict economic behavior and apply it to practical social problems.

capital adequacy testing for selected scenarios.” (Section 2520.01) The results of this investigation have to be reported to the insurer’s board of directors by the appointed actuary.

Section 2520.07 of these standards state that “Dynamic capital adequacy testing examines the effect of selected plausible adverse scenarios on the insurer’s forecasted capital adequacy. It would be one of the actuary’s primary tools for investigation of an insurer’s financial condition.”

The standards go on to state that “The insurer’s financial condition would be satisfactory if throughout the forecast period, under the base scenario and all plausible adverse scenarios, the statement value of the insurer’s assets is greater than the statement value of its liabilities and under the base scenario, the insurer meets the supervisory target capital requirement” in section 2520.10. The industry-wide supervisory target capital requirement is set by the Office of the Superintendent of Financial Institutions (OSFI). It is a Minimum Capital Test (MCT) ratio result of 150%. This provides a cushion above the minimum MCT of 100% and facilitates OSFI’s early intervention process.

The *Dynamic Capital Adequacy Testing Educational Note* from the Committee on Risk Management and Capital Requirements (CIA) dated November 2013 states that “It is expected that each of the adverse scenarios selected would be in the range of a 95<sup>th</sup> to 99<sup>th</sup> percentile outcome.” (Page 10) This suggests a range of 1-in-20 year to 1-in-100 year events.

The Educational Note also suggests that “the DCAT can be used by insurers to set internal target capital ratios.” (Page 5) The internal target capital ratio is the MCT level at which the company prefers to be in the normal course of business.

Private companies use the DCAT exercise to quantify their largest risks in order to ensure that they would remain solvent if the worst plausible adverse event considered was to occur. They look at their largest risks and examine what can be done to mitigate those risks. Potential mitigation actions include increasing the amount of capital held, purchasing reinsurance, reducing concentration in certain areas, changing the rating structure and changing the product structure.

## **2. The use of Dynamic Capital Adequacy Testing in a Government Monopoly Environment**

The DCAT exercise is beneficial to a monopoly insurer, just as it is for private companies. It forces a company to examine the risks that it faces, look at solvency if those risks materialize and determine what mitigation activities can be taken to reduce the severity of the risk. It also helps the company look at what management actions

could be taken if an adverse event, considered in the DCAT, occurs. These benefits alone make the DCAT exercise a worthwhile one for MPI.

It is important to note that private companies use the DCAT results to ensure their continued solvency in the case of an adverse scenario materializing. Board Order 161/09 page 57 points out that “Insolvency is not a plausible risk for MPI, a Crown corporation, incorporated and supported by the Government and legislation.”

In regards to the maximum risk tolerance that should be employed for RSR purposes the Board states, in Board Order 156/06 page 48, “Mr. Christie suggested that the RSR should be sufficient to meet the risk of being overwhelmed by an unforeseen non-recurring negative even that could be expected once in a hundred years. The Board is of the view that accumulating an RSR to handle anything might be acceptable in a society where all its members have no immediate personal fiscal concerns and are fine with having their service agencies hold their funds in reserve; this society is not in this situation.” This suggests that the use of the 1-in-100 year scenarios to decide on the level of the RSR would not be acceptable to the Board.

Private companies can use the DCAT results to examine their internal capital target level. This is the level at which the company wants their capital to remain above. If their capital level drops below their target they will take action to increase their capital above the target. This is the area that has been debated – whether MPI should use their DCAT to set their target RSR (or target capital) level.

If a RSR is required we believe that the DCAT, as used by actuaries across Canada, is a valid methodology to use to set the level of the RSR. The Board seems to agree as in Board Order No. 157/12 Page 57 it states “The Board believes that the DCAT methodology is an improved approach for determining the target for the RSR over the current methodology.”

### **3. Ongoing Issues related to the use of the DCAT**

#### **a. Issues related to the range of the RSR and the confidence level to be used in setting the RSR range**

We would suggest that a range, rather than a target, for the RSR level is desirable. This was argued by Wayne Simpson in the 2015 paper “Determining the Manitoba Public Insurance Rate Stabilization Reserve” where he indicated that, if a RSR is in the best interest of Manitobans, the RSR should be a range rather than a target. We will not repeat these arguments here but state that a range is the preferred approach given the historical arguments. The Board agrees as stated in Board Order No. 135/14 page 52 “The Board accepts that an RSR target range is preferable to an RSR target point.”

MPI has used the 1-in-40 most adverse scenario results as the minimum level of the RSR. The Board appears to agree with this. From Board Order No. 150/07 page 45 “The RSR should be large enough to be able to withstand an unforeseen loss of a magnitude not anticipated to occur more than once in 40 years.” And Board Order No. 135/14 page 52 “the Board accepts that a 1-in-40 year scenario probability level, as requested by MPI, is the appropriate threshold for the minimum RSR target for 2015/16.” It can be argued that the 1-in-40 adverse scenarios should be the target of the RSR, therefore being the midpoint of the RSR range. The minimum would then be the 1-in-20 or 1-in-30 year adverse scenario level.

MPI has suggested the use of the capital required at a 100% Minimum Capital Test result as the maximum level of the RSR. It is unclear why this level was suggested but it is assumed that management judgement was the decisive factor. In Board Order No. 135/14 page 54 it states that “The Board finds that the Corporation has provided insufficient context for its choice of a 100% MCT ratio for the maximum RSR/capital target, only stating that 100% is a lower ratio than those utilized by other insurers in Canada.” This situation has not changed.

In fact, simulations using the maximum RSR total equity balance of \$366M did not produce a negative total equity balance with management action in 5000 runs, suggesting that the maximum calculated at a 100% MCT level corresponds to a probability level of less than 0.0002 (1-in-5000) or far less than the lowest probability of 1-in-200 (0.005) considered in the DCAT Report. This suggests that the RSR maximum at 100% MCT is both arbitrary and excessive in the context of the DCAT methodology used to establish the RSR target minimum.

We suggest that outcomes of the adverse scenarios at different levels of probability be used to set the maximum RSR level, as well as a minimum. This is supported in Board Order No. 135/14 page 46 “A target capital range can be defined by selecting a lower and upper percentile level of possible outcomes, each consistent with a level of protection one intends the target capital level to provide.”

A public monopoly, such as MPI, does not need to plan for scenarios such as other insurers taking over their books of business. In fact, MPI does not need to fear bankruptcy at all. They are backed by the full taxing power of the provincial government. They can also raise rates (with approval from the Board) at any time, although there may be political ramifications of an extreme rate increase.

The adverse scenarios that most federal private insurers have to plan for, such as a British Columbia earthquake, do not apply here. Therefore the amount of capital that a monopoly is required to carry is less than that required by a private insurer. 1-in-100 year event scenarios are not relevant here. The Board has indicated agreement with this. Therefore, that is not an acceptable level for the maximum of the RSR range.

It is suggested that adverse scenario results between the 1-in-20 year and the 1-in-100 year event results be examined for use as the minimum and maximum of the RSR range, with the 1-in-40 year event serving as the target.

**b. What Management Actions are Valid**

MPI has argued that management actions have to be limited to the highest rate increases that the Public Utilities Board has allowed in the past. Below is an excerpt from the 2015 DCAT (page 32-33) outlining the Management and Regulatory Action assumptions used and, presumably, what MPI is planning on assuming again this year.

*“The following management and regulatory action assumptions were used for all adverse scenarios:*

- *Per discussions with management, we have assumed that the maximum combined rate increase and/or additional RSR rebuilding fee in a given rate application is 5.0%. In prior year’s rate applications, the maximum additional RSR rebuilding fee approved by the PUB in a given year was 2.0%. The maximum rate increase approved by the PUB in the past 20 years was 4.1% in 1996. We believe this assumption is reasonable in light of the historical experience.”*

Limiting the amount of a rate increase following an adverse event simply means that policyholders pay now and MPI holds their money. If an adverse event occurs rates go up slowly to build up the RSR to its previous level. Essentially, the policyholder pays earlier for the adverse event and then pays again to build the RSR up in case another adverse event occurs. It has to be stressed that the adverse event may or may not occur within the lifetime of the policyholder, yet the policyholder has paid to build up the RSR, allowing MPI to have excess moneys.

An alternative approach is to allow larger rate increases following an adverse event. The policyholder pays at the time the funds are required, rather than



paying in advance for an event that may or may not occur in their lifetime. It does have to be noted that there are several instances in historical Board Orders where the Board indicates that an overall increase of more than 10% would be seen as excessive.

However, the large rate increase risk has to be considered alongside the existence of intergenerational inequities. Current policyholders may pay more now to build up the RSR. However, they may no longer be policyholders when the adverse event that the RSR exists to protect against actually occurs. They do not benefit from the RSR. It is the future policyholders who will not see an increase of more than 10%.

From Board Order No. 156/06 page 43 “General rate shock is represented by an average rate increase in one year in excess of 10%. While the balance of the RSR may allow for the avoidance of rate shock, it does not follow that rate shock need be avoided in all cases. In some circumstances rate shock may be acceptable, perhaps as the preferred option to two difficult choices.”

Rate increases should not be the only management action reviewed. As per the Canadian Institute of Actuaries Standards of Practice, Section 2520.08, “The purpose of dynamic capital adequacy testing is to identify plausible threats to satisfactory financial condition, actions that would lessen the likelihood of those threats, and actions that would mitigate a threat if it materialized.”

In the past the Equity Decline and Interest Rate scenarios have been the most adverse for MPI. Management actions should be taken now to mitigate those threats. Section 2520.35 of the Standards states that “If the investigation identifies any plausible threat to satisfactory financial condition, then the actuary would identify possible corrective management action that would lessen the likelihood of that threat, or that would mitigate that threat, if it materialized...The actuary would report the corrective management action so that users may consider its practicality and adequacy.” Thought should be given to actions that could be taken now to reduce the adversity of those events contemplated in the equity decline and interest rate scenarios.

From Board Order No. 135/14 page 52 “Included in the actions available to MPI are cost cutting measures, delaying of expenditures, early realization of available investment gains (since these gains can also be used to moderate rate increases) and transferring of excess reserves from other lines of business to Basic.”

**c. Issues with the Current DCAT Scenarios**

- i. The equity decline scenario is inconsistent with the other scenarios and fails to capture the rebound in equity returns after an adverse event. The Report chooses the three-year equity decline scenario as the most adverse based on the 1-in-40 probability level after management action (pp.38-39), but this is inconsistent with the other three adverse scenarios (high loss, interest rate decline, and combined scenarios) which are based on a four-year scenario. The choice of the three-year time horizon also overstates the adverse nature of this scenario because there is evident rebound in equity returns in the fourth year according to the Report’s own results (p.35): A significant rebound of 9.9% occurs in year 4 for the 2.5<sup>th</sup> percentile (1-in-40 probability) which exceeds the rebound in either year 2 or year 3.
  
- ii. The interest rate decline scenario is inconsistent with the methodology used for the high loss and equity decline scenarios and is simply not credible. The interest rate decline scenario does not rely completely on historical evidence because the historical evidence does not contain a sustained low interest rate period such as we are experiencing now. The removal of the “stagflation period” interest rates, as CAC Manitoba suggested last year, slightly alleviates the exaggeration of interest rate declines that might occur in our current environment but does not in any sense solve this problem. The proposed solution in this year’s (and last year’s) report is to arbitrarily impose an interest rate floor based on the lowest monthly Government of Canada 10-year bond yield from 1989 to the present. Since the DCAT calculations apply to fiscal years, not months, it is unclear why the lowest monthly yield is used since it also exaggerates the lowest annual yield and the estimated impact of the scenario.

Probability	Return Period	2016/17	2017/18	2018/19	2019/20
1-in-200	4 Years	192	151	104	71
1-in-100	4 Years	192	151	104	71
1-in-40	4 Years	192	151	104	71
1-in-20	4 Years	192	153	107	74

One illustration of the inconsistency of the interest rate decline scenario with the DCAT methodology used in the other scenarios is the lack of response of the interest rate decline scenario to different probability levels. One can expect, as in the equity decline scenario that is fully based on the historical

evidence (p.38), that more risky scenarios associated with a lower probability of occurrence lead to more adverse outcomes or lower total equity. This does not occur for the interest rate scenario because of the presence of the *ad hoc* interest rate floor assumption which constrains interest rates immediately in 2016/17 and dominates the scenario calculations thereafter (p.58):

The interest rate decline scenario produces virtually identical total equity results regardless of the specified risk, i.e. for 1-in-200, 1-in-100, 1-in-40 and 1-in-20 probabilities. The probability level, which plays an important part in other scenarios and in the purported advantages of using the DCAT methodology, simply does not matter in the presence of the floor that is applied to interest rate declines.

As a scenario based on appropriate historical evidence, in the spirit of the high loss and equity decline scenarios for example, the interest rate decline scenario is not credible and its results, as well as its contribution to the combined scenario, should be heavily discounted.

- iii. The dramatic change in the relationship between the interest rate decline scenario and the combined scenario is puzzling. Last year's DCAT report found that the interest rate decline scenario was the most adverse of the individual scenarios and produce similar results to the combined scenario in terms of its implications for the RSR target. Specifically, the greatest difference from base for total equity was \$168M for the interest rate scenario in 2017/18 and \$213M for the combined scenario in the same year. This year, however, the interest rate scenario no longer dominates the other individual scenarios and its results are much more at variance with the combined scenario. The greatest difference from base for total equity is \$91M in 2018/19 for the interest rate scenario compared to \$105M for high loss, \$147M for equity decline and \$237M for the combined scenario. The impact of the implementation of the new Asset and Liability Management (ALM) program appears to account for \$51M of the improvement in total equity in the interest rate decline scenario (p.55) or about two-thirds of the difference in the total equity outcome from last year (\$168M last year vs. \$91M this year, or \$77M). What is less clear is why the combined scenario has then worsened this year in the presence of ALM, since there are no other obvious dramatic changes in the other scenarios to offset the improved outcomes for the interest rate decline scenario. The inclusion of a 2-year combined scenario in the revised DCAT report just released (September 21, 2015) neither sheds any light on this issue nor improves the credibility of the combined scenario exercise as it is currently constituted.

#### 4. Rate Stabilization Reserve

##### a. **Purpose and Use of the RSR**

Board Order No. 151/13 (as well as several other Orders) states:  
“The stated purpose of the Rate Stabilization Reserve (RSR) is to protect motorists from rate increases made necessary by unexpected events and losses arising from nonrecurring events or factors.” (Page 33)

The question of whether the RSR is meeting this purpose and whether this purpose is valid has been a recurring theme in the last several rate hearings, particularly since MPI has argued that the DCAT is the preferred methodology for determining the level of the RSR.

The Board showed interest in the purpose of the RSR and stated in Board Order No. 135/14 page 51 that “Next year, the Board may examine further the stated purpose of the RSR as a component of Basic retained earnings and consider whether changes are required to the RSR definition or accounting.” Also from Board Order No. 135/14 page 55 “The Board is concerned about improvised or irregular decisions to deal with excess reserves from funds that should be used, as a matter of course, to provide support to Basic insurance, without which the other business lines could not exist.”

In the past the Corporation has proposed the use of the RSR to fund university infra-structure initiatives. Board Order 151/00 page 21 states “Immediately preceding the commencement of the hearing, the Corporation announced the \$20 million that would be transferred to selected universities to fund infrastructure improvements. The Corporation cited the contribution as being appropriate in that the Corporation, as a Crown Corporation, was owned by all Manitobans and reasoned that all Manitobans, not only motorists, should benefit from the Corporation’s financial strength.” This would not be supported by the stated purpose of the RSR.

Normal occurrences such as normal size hail storms, improvements to Information systems technology, immobilizer expenses, etc. would be budgeted for. These would not be unexpected events. Going back to the Kopstein report we quote from page 22 “Unusual weather conditions and certain other occurrences are unpredictable by their nature. The resulting losses are an inherent part of what the insurance business must expect on occasion and they must be anticipated.” And from Board Order No. 150/07 page 45 “In short, the RSR is retained to meet the financial impact of events not expected to recur on a regular basis.”

The RSR should be reported separately to ensure transparency.

**b. Arguments For and Against**

Below are arguments that the RSR could be supported and arguments that a capital reserve, the RSR, is not needed in a government monopoly auto insurance environment.

*Arguments in favor of the RSR:*

1. The existence of a RSR could reduce the need for a large rate increase immediately following an adverse event, allowing the RSR to be rebuilt over time.
2. The existence of a RSR could reduce variability in rates allowing Manitobans to budget for their auto insurance premiums without as much concern for large rate increases in one year.
3. An organization operating at a deficit is likely to develop Human Resource issues. Employees may find it disengaging when the organization does not see a profit leading to poor morale and, potentially, the inability to recruit high level talent.
4. An organization operating at a deficit may have their management viewed as incompetent, thereby creating political risk.

*Arguments against the need for a RSR:*

1. The existence of a RSR means that policyholders have paid in excess of actual expected costs in order for MPI to have a reserve in case a low probability adverse event occurs. Should the adverse event occur the policyholders will then pay extra again to rebuild the RSR.
2. The extra amount paid to MPI by policyholders reduces the amount of money circulating in the Manitoba economy. From Board Order No. 156/06 page 48 "if Board-deemed excess RSR funds are not rebated to policyholders, they would largely be invested in bonds, now with an average issue rate below 5%. It is not difficult to imagine that a great number of MPI's policyholders incur interest rates considerably higher than 5% on their debts, and would appreciate a return of excess MPI reserves for their personal use. It has not escaped the Board that funds restored to the economy benefit the economy."
3. The extra amount paid to MPI by policyholders increases the amount paid by current policyholders for an event that may or may not occur so that future policyholders will be spared the extra expense (intergenerational inequity).

To illustrate these points we will use a simplified example. We understand that this is a simplification of the complex reality of insurance. However, it is a simple portrayal of the two ways in which a government monopoly could pay for an adverse event and the resulting impact on policyholders.

Let us assume that an adverse scenario is projected by the DCAT that would result in a \$110 million loss. Therefore the RSR minimum is set equal to \$110 million. Then assume that the event actually occurs in Year 8. Two options are presented below.

The first option is to build the RSR in advance of the event. This option is shown in the second table below. A RSR rebuilding charge of 2% is applied in each of years 2 through 5. The premium paid, using \$1000 as the premium in year one would grow to \$1082 by Year 5 and remain at that level in years 6 through 8. The adverse event occurs in Year 8, followed by RSR rebuilding occurring in Years 9 and 10. The rebuilding fee would increase premiums 3.66% in each of years 9 and 10. This would result in a premium of \$1163 in Year 10. The fourth table below shows the amount that is built up in the RSR with this option. In this simple example the RSR total would be over \$114 million by the end of year 5, enough to pay for the adverse event of \$110 million.

With this option the premiums could be reduced back to \$1000 in years 6 and 7. Otherwise there would be further buildup of the RSR in those years.

The second option is to forego the use of a RSR and surcharge premiums the year after the event occurs in order to re-establish the Corporation's financial position to where it was before the adverse event occurred. This option is shown in the third table below. In years 1 through 8 the premium remains at \$1000. The adverse event occurs in Year 8, followed by an increase in premium of \$79.26 in Year 9 bringing the Premium to \$1079 in Years 9 and 10. The \$79.26 is calculated in the first table below by taking the adverse event cost (\$110 million) divided by the units in year 8 (1,387,761 in this example).

It is evident, in this simple example, that the policyholder pays less with no RSR in place. With the first option the policyholder pays more starting in year 2 and pays \$1163 by year 10. In the second option policyholders do not see a rate increase until year 9 and at that time pay \$1079.

If the premium was reduced back to \$1000 in years 6 and 7 in the first option the premiums paid in years 6 through 10 would be very similar in year 10 in both options. Higher premiums would only be paid in years 2 through 5 with option 1.

Assume an average premium of \$1,000 in year 1 with no rate changes required over the years. Based upon DCAT analysis it is assumed that the RSR requires an additional \$110 million at the end of Year 1 in order to protect against a projected adverse event.										
1. Rating Year	1	2	3	4	5	6	7	8	9	10
2. Adverse Event (\$)								110,000,000		
3. Expected Units								1,387,761		
4. Adverse Event (\$/unit)								79.26		
<b>Method 1: Rebuild the RSR from years 2 to 5 to withstand the adverse event projected to be \$110 million using a 2% RSR Rebuild charge in each of years 2 through 5. The adverse event occurs in year 8. The RSR is built back up again over years 9 and 10.</b>										
1. Rating Year	1	2	3	4	5	6	7	8	9	10
5. Adverse Event (%) = [4.]/1,082								7.32%		
6. RSR Rebuild		2.00%	2.00%	2.00%	2.00%				3.66%	3.66%
7. Resulting Premium = Prior Years premium x {1+[6.]}	1,000	1,020	1,040	1,061	1,082	1,082	1,082	1,082	1,122	1,163
<b>Method 2: No RSR is held. The adverse event occurs in year 8. The adverse event is paid for through a surcharge per unit in year 9.</b>										
1. Rating Year	1	2	3	4	5	6	7	8	9	10
8. Resulting Premium: Years 1 to 8 unchanged, Year 9 = Prior Years Premium + [4.], Year 10 = Prior Years Premium	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,079	1,079
9. Difference % = (8) / (7) - 1	0.0%	-2.0%	-3.9%	-5.8%	-7.6%	-7.6%	-7.6%	-7.6%	-3.8%	-7.2%
10. Difference \$ = (8) - (7)	0.00	-20.00	-40.40	-61.21	-82.43	-82.43	-82.43	-82.43	-42.80	-83.88
1. Rating Year	2	3	4	5	6	7	8	9	10	11
2. Average Premium	1,000.00	1,020.00	1,040.40	1,061.21	1,082.43	1,082.43	1,082.43	1,082.43	1,122.06	1,163.15
3. RSR Rebuild %	2.00%	2.00%	2.00%	2.00%	0.00%	0.00%	0.00%	3.66%	3.66%	0.00%
Amount of RSR Rebuild = (2) x (3) x 1,387,761	27,755,218	28,310,322	28,876,529	29,454,059	-	-	-	55,000,000	57,013,771	-
Amount of RSR Rebuild before Adverse Event - Years 2 through 5	\$ 114,396,129									

## 5. Recommendations

- i. The DCAT methodology should not replace the existing percentage of premiums (Kopstein) methodology until an appropriate and consistent methodology is devised to establish a RSR range involving both a minimum and a maximum.
- ii. The RSR should be reported separately to ensure transparency.
- iii. A range, rather than a target, should be used to define the level of the RSR.
- iv. A consistent method to establish a range for the RSR using the DCAT methodology could be developed using the results of the adverse scenarios at different levels of probability. It is suggested that plausible adverse scenario

results between the 1-in-20 year and the 1-in-100 year event results be examined for use as the minimum and maximum of the RSR range, with the 1-in-40 year event serving as the target.

- v. The Corporation should continue to investigate their asset mix to ensure that it is optimal in terms of balancing investment income and risk with the required level of the RSR.
- vi. The Equity Decline and Combined scenarios should be based on the 4 year time horizon. In the case of the Equity Decline scenario, this would account for the rebound in equities in the fourth year.
- vii. The interest rate decline scenario, and its contribution to the combined scenario, should be heavily discounted as it is not credible on the basis of the evidence available. We would suggest that it be given a weight of zero and eliminated from the consideration of the RSR target.
- viii. The relationship between the Interest Rate scenario and the 4-year Combined Scenario should be clarified.
- ix. The current total equity of \$213M (p.25) leaves a surplus of \$35M above the RSR maximum of \$178M (RSR section p. 18). We recommend that these funds be rebated to motorists.



# EXPERT'S DECLARATION

## EXPERT'S DECLARATION

I [Insert Full Name] DECLARE THAT:

- 1 I understand that my duty in providing written reports and giving evidence is to help the Public Utilities Board, and that this duty overrides any obligation to the parties by whom I am engaged or the persons who have paid or are liable to pay me. I confirm that I have complied and will continue to comply with my duty.
- 2 I confirm that I have not entered into any arrangement where the amount or payment of my fees is in any way dependent on the outcome of the case.
- 3 I acknowledge that it is my duty to provide evidence in relation to this proceeding as follows:
  - to provide opinion evidence that is fair, objective and non-partisan;
  - to provide opinion evidence that is related only to matters that are within my area of expertise; and
  - to provide such additional assistance as the Public Utilities Board may reasonably require to determine an issue.
- 4 I know of no conflict of interest of any kind.
- 5 I will advise the party by whom I am instructed if, between the date of my report and the hearing, there is any change in circumstances which affect my answers to point 4.
- 6 I have identified the sources of all information I have used.
- 7 I have exercised reasonable care and skill in order to be accurate and complete in preparing this report.
- 8 I have endeavoured to include in my report those matters, of which I have knowledge or of which I have been made aware, that might adversely affect the validity of my opinion. I have clearly stated any qualifications to my opinion.
- 9 I have not, without forming an independent view, included or excluded anything which has been suggested to me by others, including my instructing lawyers.
- 10 I will notify those instructing me immediately and confirm in writing if, for any reason, my existing report requires any correction or qualification.

11 I understand that:

- 11.1 my report may form the evidence to be given under oath or affirmation;
- 11.2 questions may be put to me in writing for the purposes of clarifying my report and that my answers shall be treated as part of my report and covered by my statement of truth;
- 11.3 I may be required to attend at a hearing to be cross-examined on my report by a cross-examiner assisted by an expert.

**STATEMENT OF TRUTH**

I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

Signature  Date 9/20/15

# EXPERT'S DECLARATION

## EXPERT'S DECLARATION

I [Insert Full Name] DECLARE THAT:

- 1 I understand that my duty in providing written reports and giving evidence is to help the Public Utilities Board, and that this duty overrides any obligation to the parties by whom I am engaged or the persons who have paid or are liable to pay me. I confirm that I have complied and will continue to comply with my duty.
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- 9 I have not, without forming an independent view, included or excluded anything which has been suggested to me by others, including my instructing lawyers.
- 10 I will notify those instructing me immediately and confirm in writing if, for any reason, my existing report requires any correction or qualification.

11 I understand that:

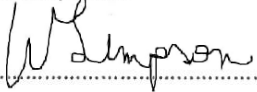
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11.2 questions may be put to me in writing for the purposes of clarifying my report and that my answers shall be treated as part of my report and covered by my statement of truth;

11.3 I may be required to attend at a hearing to be cross-examined on my report by a cross-examiner assisted by an expert.

**STATEMENT OF TRUTH**

I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

Signature.......... Date..... September 21, 2015 .....

## **ANDREA SHERRY**

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Winnipeg, MB Canada  
R3R 1K2  
204-223-3847  
asherry@wawanesa.com

### **PROFESSIONAL AFFILIATIONS:**

Certified Management Accountant 2008  
Fellow Chartered Insurance Professional (FCIP) 2005  
Chartered Risk Manager (CRM) 2005  
Fellow of the Canadian Institute of Actuaries (FCIA) 2000  
Fellow of the Casualty Actuarial Society (FCAS) 2000

### **EXPERIENCE:**

1/11 – Present **The Wawanesa Mutual Insurance Company** – Winnipeg, MB

#### Vice President, Actuarial Pricing

- Responsible for the actuarial pricing for all jurisdictions across Canada and the US
- Manage the actuarial pricing team
- Research, develop and implement new pricing methodologies to ensure profitability and competitiveness
- Present analysis results to branch offices and work with their teams to implement changes
- Work with the Director, Enterprise Risk Management (ERM) on the implementation of an ERM environment
- Work on project teams for data warehouse development and improvement and large system changes required for rating changes

3/08 –1/11 **Aviva Canada Inc** – Toronto, ON and Winnipeg, MB

#### Vice President, Solvency II

Manage two teams – Solvency II and Economic Capital– with the following responsibilities:

- Solvency II implementation for Aviva Canada, ensuring that the use test is passed, both for Aviva Canada and Aviva plc.
- Work within an Enterprise Risk Management framework to ensure the continued viability of the company on both a regulatory and economic capital basis
- Quarterly updates of Economic Capital position.
- Economic Capital projections and stress/scenario testing
- Ensuring synergies between Solvency II and IFRS 4 were accounted for in system changes and accounting changes made for Solvency II requirements
- Appointed Actuary for Traders, one of our insurance companies, responsible for signing off on year end valuations and Dynamic Capital Adequacy Reports

#### Vice President, Corporate Actuary

- Manage two teams – Capital and Investment Compliance and Corporate – with the following responsibilities:
  - The determination of the trend, loss ratio and other inputs to the planning model, ensuring the smooth running of the model with adjustments to the model as required, as well as supporting the business units throughout the planning process.
  - Preparation of the capital stress testing results and report to ensure the long term viability of the business plan
  - Economic capital calculation and reporting
  - Provide the capital framework and discipline (regulatory and economic) to assist in identifying value enhancers and value destroyers
  - The continuous monitoring of capital levels and the investment portfolio
  - Implementation of a reinsurance plan to level the capital available among the legal entities
  - Investment compliance with regulation
  - Investment reporting and monitoring, including chairing the Credit Committee
  - Investigating and reporting on investment portfolio decisions
  - Appointed Actuary for Traders, one of our insurance companies, responsible for signing off on year end valuations and Dynamic Capital Adequacy Reports

## **ANDREA SHERRY**

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asherry@wawanesa.com

11/04 – 3/08

### **Saskatchewan Government Insurance – Winnipeg, MB**

#### Assistant Vice President and Corporate Actuary

- Valuation actuary for the Saskatchewan Auto Fund and Saskatchewan Government Insurance Canada Insurance Services Ltd.
- Interim valuations for the Saskatchewan Auto Fund and Saskatchewan Government Insurance Canada Insurance Services Ltd.
- Responsible for initial rate application to write auto business in Alberta
- Responsible for regular rate indications and rate filings in Alberta for Saskatchewan Government Insurance Canada Insurance Services Ltd.
- Responsible to ensure that rate changes are accurately made in the system
- Responsible for implementation of CLEAR for the Auto Fund's basic coverage – involved combining Saskatchewan experience with the Canadian CLEAR experience
- Responsible for actuarial portion of the rate application to the Saskatchewan Rate panel for a change to the Saskatchewan Auto Fund's basic coverage rates
- Responsible for termination rate analysis in the Long Term Reserving model as well as ensuring implementation of the recommended termination rate changes
- Responsible for the yearly by product budget for the Saskatchewan Auto Fund and Saskatchewan Government Insurance Canada Insurance Services Ltd. – both premiums and claims amounts
- Manage five actuarial students

01/98 – 11/04

### **Federated Insurance Company of Canada – Winnipeg, MB**

#### Actuary

- Responsible for setting up actuarial systems and methodologies as I was the first in house actuary
- Responsible for all rate changes – including calculation of indications, rate filings with regulators and implementation in the system – in all of the provinces in which the company writes insurance
- Project manager of team that ensured system and rate changes required in response to Alberta regulation changes that occurred in 2003 were made with no business interruption or negative implications
- Monitor IBNR adequacy monthly
- Member of Senior Management Team
- Manage team of six

01/90 – 01/98

### **Manitoba Public Insurance – Winnipeg, MB**

#### Associate Actuary

- Calculate policy liabilities, forecast premiums and claims amounts
- Prepare Autopac Extension Rates Report and the Ratemaking Methodology Report (basic coverage), involving the calculation of final premiums and preparation of all amounts and exhibits underlying premiums
- Prepare Claims Forecasting Report
- Compile and prepare all appendices and exhibits for claims valuation report
- Ensure proper documentation of all work and supply and explain records for external auditors as requested
- Assist in preparation of Public Utility Board application
- Build and manage automated systems using APL, Paradox, Lotus and SAS to reduce manual work for systems including IBNR, discounting, quarterly variance analysis, etc.
- Manage actuarial student on targeted projects
- Work in concert with Finance and Corporate Information Systems on a regular basis

### **EDUCATION:**

UNIVERSITY OF MANITOBA  
Bachelor of Commerce (Honors), December 1990  
Major in Actuarial Mathematics

## WAYNE SIMPSON

### CURRICULUM VITAE August, 2015

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**Tel:** (204)474-6174/474-9207

**Fax:** (204)474-7681

**E-mail:** simpson@ms.umanitoba.ca

#### Background

**Education:** Ph.D. Economics, London School of Economics, 1977  
 M.Sc. Economics, London School of Economics, 1974  
 Certificate in Economics (High Honours) University of Saskatchewan,  
 1971  
 Certificate in Mathematics (Honours) University of Saskatchewan, 1970  
 B.A. (Great Distinction) University of Saskatchewan, 1969

**Employment:** Head (1997-2008), Professor (1991- ), Associate Professor (1984-1991),  
 Assistant Professor (1979-84), Department of Economics, University of  
 Manitoba.  
 Economist, Centre for the Study of Inflation and Productivity, Economic  
 Council of Canada, Feb-Aug, 1979  
 Economist, Labour Canada, 1977-79  
 Sessional Lecturer in Labour Economics and Industrial Relations,  
 Department of Economics, Carleton University, 1977-79  
 Teaching Assistant in Mathematics and Statistics for Economists,  
 Department of Economics, London School of Economics, 1976-77  
 Operations Analyst, Bank of Canada, 1971-73

**Academic Affiliations:** Research Fellow, School of Public Policy, University of Calgary,  
 2013-16; Affiliated Researcher, Education Policy Research Institute, University of  
 Ottawa, 2012-; Research Associate, Center for Comparative Immigration  
 Studies, University of California San Diego, 2009-; Visiting Scholar, CCIS, UCSD,  
 March, 2009; Visiting Professor, University of Wollongong, Australia, January-  
 April, 2005; Fellow and Faculty Associate, Lincoln Institute of Land Policy  
 (Cambridge, Mass.), 1991-92; St. John's College Visiting Fellow, 1985-86

**Academic Honours:** Mike McCracken Award for Economic Statistics, Canadian  
 Economics Association, 2014 (with Derek Hum and Evelyn Forget); John  
 Vanderkamp Prize (best article in *Canadian Public Policy* with Derek Hum), 1999;  
 University of Manitoba Centre on Aging Research Fellowship, 1999-2000;  
 University of Manitoba Certificate of Teaching Excellence, 1996; University of  
 Manitoba Merit Award (Research), 1992; University of Manitoba Merit Award  
 (Research and Service), 1991; S.S.H.R.C. Leave Fellowship, 1985-86; Canada  
 Council Doctoral Fellowship, 1974-77; George Robertson Memorial Scholarship,  
 1973-76; C.M.H.C. Fellowship, 1973-74; University of Saskatchewan Honours  
 Scholarship, 1969-71; University of Saskatchewan Entrance Scholarship, 1966-70.

## Research - Publications

### Books/Monographs:

*Maintaining a Competitive Workforce: Employer-Based Training in the Canadian Economy* (Monograph Series on Education no.6). Montreal: Institute for Research on Public Policy, 1996 (with D. Hum)

*Urban Structure and the Labour Market: Analysis of Worker Mobility, Commuting and Underemployment in Cities*, Oxford University Press, 1992

*Income Maintenance, Work Effort and the Canadian Mincome Experiment*, Ottawa: Economic Council of Canada, 1991 (with D. Hum)

### Articles in Books:

“Social Assistance in Manitoba,” in Daniel Beland and Pierre-Marc Daigneault (eds.) *Welfare Reform in Canada: Provincial Social Assistance in Comparative Perspective*, University of Toronto Press (Forthcoming, 2015)

“Manitoba in the Middle: A Mutual Fund Balanced for Steady Income,” in Paul Thomas and Curtis Brown (eds.) *Manitoba Politics and Government: Issues, Institutions, Traditions*, University of Manitoba Press, 2010, 293-305 (with D. Hum)

“The Retirement Prospects of Immigrants” in Abbott, Michael, Charles Beach, Robin Boadway and James MacKinnon (eds.) *Retirement Policy Issues in Canada*, McGill-Queen’s University Press, 2009, 429-450 (with D. Hum)

“Revisiting Equity and Labour: Immigration, Gender, Minority Status and Income Differentials in Canada,” in Sean Hier and B. Singh Bolaria (eds.) *Race and Racism in 21<sup>st</sup> Century Canada: Continuity, Complexity and Change* Broadview Press, 2007, 89-109 (with D. Hum)

“The Impact of Health on Labour Supply in Panel Data” in *Global Business and Economics Anthology Volume I*, December, 2006, 185-196 (with D. Hum and E. Fissuh Ghebretsadik)

“The Cost of Eliminating Poverty in Canada: Basic Income with an Income Test Twist,” in Lewis, M., S. Pressman, & K. Widerquist (eds) *The Ethics and Economics of Basic Incomes* London: Ashgate Press, September, 2005 (with D. Hum)

“What are Canadians Doing After School? An Analysis of Postschool Training Activity” in J. Gaskell and K. Rubenson (eds.) *Educational Outcomes for the Canadian Workplace: New Frameworks for Policy and Research*, University of Toronto Press, 2004, 89-117 (with D. Hum)



"Reinterpreting the performance of immigrant wages from panel data" in Badi Baltagi (ed.) *Panel Data: Theory and Applications*, Heidelberg and New York: Physica-Verlag, 2004, 129-148 (with D. Hum)

"Discussion of 'Downward Nominal Wage Rigidity: A Critical Assessment and Some New Evidence for Canada' by Jean Farés and Thomas Lemieux'," in *Price Stability and the Long-run Target for Monetary Policy*, Ottawa: Bank of Canada, 2001, 40-48

"Training and Unemployment" in Ken Battle and Andrew Sharpe (eds.) *Employment Policy Options*, Ottawa: Caledon Institute of Social Policy, 1999, 71-106 (with D. Hum)

"Reducing Inflation in an Era of Low Inflationary Expectations" in Wolfgang Filc (ed.) *Macroeconomic Causes of Unemployment: Diagnosis and Policy Recommendations*, Berlin: Duncker & Humblot, 1999, 271-88 (with D. Hum and N. Cameron)

"The View from the Less-Affluent West" in John McCallum (ed.) *From East and West: Regional Views on Reconfederation*, Ottawa: C.D. Howe Institute, 1991 (with N. Cameron and D. Hum)

"Can Government-Sponsored Training Reduce Unemployment in Canada?" in *Transitions to Work*, Institute for Social and Economic Research, 1985, 281-90

"La Formation Industrielle au Canada et au Québec: Une Analyse Economique" in Claude Montmarquette and Rachel Houle (eds.) *Les Ressources Humaines et la Croissance Economique*, Les Cahiers de l'ACFAS no. 23, Les Presses de l'Université du Québec, 1983, 181-20

"An Evaluation of Existing Canadian Data Bases to Support Research into Women and Work" in *Women and Work*, Winnipeg: Institute for Social and Economic Research, 1983

### **Articles in Refereed Journals:**

"Dynamics of the Location of Financial Institutions: Who is Serving the Inner City?" *Economic Development Quarterly* (forthcoming with J. Buckland)

"Balanced Budget Legislation for Manitoba: Principles and Prospects," *Manitoba Law Journal: Underneath the Golden Boy* 37, no.2, 2015, 229-258

"Canadian Economics in Decline: Implications for Canada's Economics Journals," *Canadian Public Policy* XXXVIII no.4, 2012, 445-470 (with J. C. H. Emery)

“Effective tool or effectively hollow? Balanced budget legislation in Western Canada,” *Canadian Public Policy XXXVIII* no.3, 2012, 291-313 (with J. Wesley)

“Information Technology and the Changing Workplace in Canada: Firm Level Evidence,” *Industrial and Corporate Change 20* no.6, 2011, 1601-1636 (with S. Moshiri)

“Explaining Declining Social Assistance Participation Rates: A Longitudinal Analysis of Manitoba Administrative and Population Data,” *Canadian Public Policy XXXVII* no.2, 2011, 163-181 (with H. Stevens and S. Frankel)

“The Declining Retirement Prospects of Immigrant Men” *Canadian Public Policy XXXVI* no.3, 2010, 287-306 (with D. Hum)

“Examining Evidence of Financial & Credit Exclusion in Canada from 1999-2005,” *Journal of Socio-Economics* vol. 38, 2009, 966-976 (with J. Buckland), available online at: <http://dx.doi.org/10.1016/j.socec.2009.06.004>

“Taking Account of Context: How Important are Household Characteristics in Explaining Adult Health Seeking Behaviour: The Case of Vietnam,” *Health Policy and Planning* vol.23, 2008, 397-407 (with A. Sepehri, S. Moshiri, and S. Sarma)

“How important are individual, household and commune characteristics in explaining utilization of maternal health services in Vietnam?” *Social Science and Medicine*, vol. 67, 2008, 1009-1017 (with A. Sepehri, S. Moshiri and S. Sarma)

“A Panel Multinomial Logit Analysis of Elderly Living Arrangements: Evidence from Aging in Manitoba Longitudinal Data,” *Social Science and Medicine*, vol. 65, 2007, 2539-2552 (with S. Sarma)

“The Influence of Health Insurance on Hospital Admission and the Length of Stay - the Case of Vietnam,” *Social Science and Medicine*, vol. 63, 2006, 1757-1770 (with A. Sepehri and S. Sarma)

“The Legacy of Immigration: Labour Market Performance and Education in the Second Generation,” *Applied Economics*, vol.39, no. 15, 2007, 1-25 (with D. Hum)

“Does Non-profit Health Insurance Reduce Financial Burden? Evidence from the Vietnam Living Standards Survey Panel,” *Health Economics*, vol. 15, no. 6, 2006, 603-616 (with A. Sepehri and S. Sarma)

“A Microeconomic Analysis of Canadian Health Care Utilization,” *Health Economics*, vol. 15, no. 3, 2006, 219-239 (with S. Sarma).

“Economic Integration of Immigrants to Canada: A Short Survey,” *Canadian Journal of Urban Research*, vol. 13, no. 1, 2004, 46-61 (with D. Hum)

- "Reinterpreting the Performance of Immigrant Wages from Panel Data," *Empirical Economics*, vol. 29, no. 1, 2004, 129-147 (with D. Hum)
- "Job-Related Training Activity by Immigrants to Canada," *Canadian Public Policy* vol. 29, no.4, 2003, 469-489 (with D. Hum)
- "Labour Market Training of New Canadians and Limitations to the Intersectionality Framework," *Canadian Ethnic Studies*, vol. 35, no. 3, 2003, 56-69 (with D. Hum)
- "Selectivity and Immigration in Canada: A Research Note," *Journal of International Migration and Integration*, vol. 3, no. 1, 2002, 107-127 (with D. Hum)
- "Public Training Programs in Canada: A Meta-evaluation," *Canadian Journal of Program Evaluation*, vol. 17, no. 1, 2002, 119-138 (with D. Hum)
- "Disability Onset Among Aging Canadians: Evidence from Panel Data," *Canadian Journal on Aging*, vol. 21, no. 1, 2002, 117-136 (with D. Hum)
- "Closing the Wage Gap: Economic Assimilation of Canadian Immigrants Reconsidered," *Journal of International Migration and Integration*, vol. 1, no. 4, Fall, 2000, 427-441 (with D. Hum)
- "Intermittent Work Activity and Earnings," *Applied Economics*, vol. 32, 2000, 1777-1786
- "The Production Responses of the Competitive Firm to Three Conventional Distributional Shifts: Towards an Integrated Perspective," *Metroeconomica* , vol. 51, no.2, May, 2000 (with R. Sproule)
- "Wage Opportunities for Visible Minorities in Canada," *Canadian Public Policy*, vol. 25, no.3, 1999, 379-394 (with D. Hum)
- "Is Hypoinflation Good Policy?" *Canadian Public Policy*, vol. 24, no.3, 1998, 291-308 (with N. Cameron and D. Hum)
- "Canadians with Disabilities and the Labour Market" *Canadian Public Policy*, vol. 22, no.3, 1996, 285-299 (with D. Hum)
- "Stylized facts and Stylized Illusions: Inflation and Productivity Revisited," *Canadian Journal of Economics*, vol.29, no.1, 1996, 152-162 (with N. Cameron and D. Hum)
- "Reducing Spending and Increasing Equity: How Far Can Refundable Tax Credits Take Us?", *Canadian Public Administration*, vol.38, no.4 (Winter), 1995, 598-612 (with D. Hum)
- "Can the Sufficient Conditions Used to Sign the Global Effect of Risk Be Used to Sign the Marginal Effect?" *Bulletin of Economic Research*, vol. 47, no.4, 1995, 305-319 (with R. Sproule and D. Hum)

"Labour Supply Estimation and Public Policy," *Journal of Economic Surveys*, vol. 8, no.1, 1994, 57-81 (with D. Hum)

"Whatever Happened to the Guaranteed Income Project in Canada?" *Canadian Public Administration* 36, vol. 36, no.3, 1993, 442-450 (with D. Hum)

"Economic Response to a Guaranteed Annual Income: Experience from Canada and the United States," *Journal of Labor Economics*, vol. 11, no.1, part 2, 1993, S263-S296; also issued as discussion paper no.25, Centre for Labour and Social Policy, University of Trier, 1991 (with D. Hum)

"The Economics of Commuting and the Urban Labour Market: A Survey," *Journal of Economic Surveys* 6:1, vol. 6, no. 1, 1992, 45-62 (with A. van der Veen)

"Starting Even? Job Mobility and the Wage Gap Between Young Single Males and Females," *Applied Economics*, vol. 22, June, 1990, 723-737

"Workplace Location, Residential Location, and Urban Commuting," *Urban Studies*, vol. 24, April, 1987, 119-28

"Analysis of Part-time Pay in Canada," *Canadian Journal of Economics*, vol. 19, November, 1986, 798-807

"Unions, Industrial Concentration, and Wages: A Re-examination," *Applied Economics*, vol. 18, March, 1986, 305-17

"The Impact of Unions on the Structure of Canadian Wages: An Empirical Analysis with Microdata," *Canadian Journal of Economics*, vol. 18, February, 1985, 164-81

"An Econometric Analysis of Industrial Training in Canada," *Journal of Human Resources*, vol. 19, Fall, 1984, 435-51

"On the Appropriate Spatial Unit for Labour Market Analysis and Policy Design," *Urban Studies*, vol. 20, November, 1983, 487-9

"The Economics of Mileage Restrictions for Railway Workers in Western Canada," *Relations Industrielles*, vol. 38, no. 1, 1983, 95-103 (with F. Peters)

"The Off-farm Work Behaviour of Farm Operators," *The American Journal of Agricultural Economics*, vol. 65, November, 1983, 801-5 (with M. Kapitany)

"Job Search and the Effect of Urban Structure on Unemployment and Married Female Participation Rates," *Applied Economics*, vol. 14, April, 1982, 153-65

"A Simultaneous Model of Workplace and Residential Location Incorporating Job Search," *Journal of Urban Economics*, vol. 8, 1980, 330-49

## Other Articles:

"The Decline of Canadian Economics," *Policy Options*, September-October, 2013, 4-5 (with H. Emery and S. Tapp)

"Adult Immigrants: How Well Are They Trained?" *Education Quarterly Review*, vol.9, no.3, 2003, 17-22 (with D. Hum)

"Do Immigrants Catch Up Economically?" *Policy Options*, vol.22, no.30, March, 2002, 47-50 (with D. Hum)

"Adult Training in Canada: Snapshots from the Nineties," *Education Quarterly Review*, vol.8, no.2, 2002, 26-32 (with D. Hum)

"A Guaranteed Annual Income? Mincome to the Millennium," *Policy Options*, January/February, 2001, 78-82 (with D. Hum)

"Not All Visible Minorities Face Labour Market Discrimination" *Policy Options*, vol. 21, December, 2000, 45-48 (with D. Hum)

"Aspects of Labour Market Behaviour: Essays in Honour of John Vanderkamp (Louis N. Christofides, E. Kenneth Grant and Robert Swidinsky, eds.)" *Canadian Public Policy*, vol. 22, no.4, 1996, 379-380

"Can Training Reduce Unemployment?" *Policy Options*, vol. 17, no.6, July/August, 1996, 59-64 (with D. Hum)

"Employment Equity and People with Disabilities: The Need for Separate Treatment," *Policy Options*, vol. 14, 1993, 30-32 (with D. Hum)

"No Hope for Citizens Income in Canada?," *BIRG: Basic Income Research Group Bulletin* No. 16, July, 1993, 26-27 (with D. Hum)

"Demogrant Transfers in Canada and the Basic Income Standard," *BIRG: Basic Income Research Group, Bulletin* No. 15, July, 1992, 9-11 (with D. Hum)

"Whither Unemployment? A Review of Yoram Weiss and Gideon Fishelson (eds.), *Advances in the Theory and Measurement of Unemployment* (New York: St. Martin's Press, 1990) and Ralf Hussmanns, Farhad Mehran and Vijay Verma *Surveys of Economically Active Population, Employment, Unemployment and Underemployment: An ILO Manual on Concepts and Methods* (Geneva: International Labour Office, 1990)," *The Review of Income and Wealth*, vol. 38, no. 3, September, 1992, 355-359.

"Variations to Work Incentive Plans: A Simulation of the Manitoba Case," *Western Economic Review*, vol. 3, March, 1984, 26-48 (with D. Hum)

"The Interpretation and Application of Tobit Regression," *Western Economic Review*, vol. 3, July, 1984, 84-9

"Work Incentives and Welfare: Evidence from the Mincome Baseline for Adult Males," *Western Economic Review*, vol. 2, December, 1983, 17-25 (with J. Ehnes)

### **Research Reports and Technical Papers:**

"The Impact of Converting Federal Non-Refundable Tax Credits Into Refundable Credits" University Calgary School of Public Policy Research Paper, vol. 8, issue 30, August 2015 (with H. Stevens) on the Social Science Research Network (SSRN) at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2658748](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2658748)

"Immigrant Retirement Prospects: From Bad to Worse?" Center for Comparative Immigration Studies Working Paper No. 183, University of California San Diego, March, 2009 (with D. Hum) at: <http://ccis.ucsd.edu/2010/01/immigrant-retirement-prospects-from-bad-to-worse-working-paper-183/>

"The Legacy of Immigration: Labour Market Performance of the Second Generation," Prairie Centre of Excellence for Research on Immigration and Integration Working Paper Series, University of Alberta, June, 2005 (with D. Hum)

*Participation in Adult Training by Canadians in the 1990s: A Multivariate Analysis Using AETS Data*, Series R-01-9-SE. Ottawa: Applied Research Branch, Human Resources Development Canada, 2002 (with D. Hum)

"Analyzing the Economic Assimilation of Canadian Immigrants Using Panel Data," Working Paper 75F0002MIE - 01009, Income Statistics Division, Statistics Canada, October, 2001 (with D. Hum)

*Microeconomic Theory and Its Applications I 018.245*, Distance Education Program, Continuing Education Division, University of Manitoba, 1999

*Microeconomic Theory and Its Applications II 018.246*, Distance Education Program, Continuing Education Division, University of Manitoba, 1999

"Wage Opportunities for Visible Minorities in Canada," SLID Working Paper no. 98-17, Statistics Canada, Ottawa, November, 1998 (with D. Hum)

"Econometric Analysis of Canadian Self-Employment Using SLID," SLID Working Paper no. 98-16, Statistics Canada, Ottawa, November, 1998 (with R. Sproule)

"Labour Market Intermittency and Earnings in Canada," SLID Working Paper no. 97-12, Statistics Canada, Ottawa, 1997

*Microeconomic Theory and Its Applications II 018.246*, Distance Education Program, Continuing Education Division, University of Manitoba, 1996

"Sources of Income for Persons with Disabilities in Canada," Employment Equity Data Program, Statistics Canada, Ottawa, 1994 (with D. Hum)

"Life Cycle Incidence and Employment of Persons with Disabilities in Canada," Employment Equity Data Program, Statistics Canada, Ottawa, 1994 (with D. Hum)

"The Economic Well-Being and Labour Market Activity of Persons with Disabilities in Canada," Employment Equity Data Program, Statistics Canada, Ottawa, May, 1993 (with D. Hum)

"Which Employers Train? Sectoral Evidence on Employer-Based Training in Canada," a study prepared for Labour Market and Policy Analysis, Strategic Policy and Planning, Employment and Immigration Canada, Ottawa, March, 1993 (with D. Hum)

"Life Cycle Incidence and Employment of Persons with Disabilities in Canada," a study prepared for the Employment Equity Data Program, Statistics Canada, Ottawa, April, 1993 (with D. Hum)

"Sources of Income of Persons with Disabilities in Canada," a study prepared for the Employment Equity Data Program, Statistics Canada, Ottawa, April, 1993 (with D. Hum)

"Employer-Based Training in Canada: Is There Enough?" A study prepared for Labour Market and Policy Analysis, Strategic Policy and Planning, Employment and Immigration Canada, Ottawa, June, 1992 (with D. Hum)

"Design Proposal for an Experimental Wage Subsidy Program," a study prepared for the Innovations Program, Employment and Immigration Canada, Ottawa, February, 1991 (with D. Hum and D. Sabourin)

"Employer-Based Training in Canada: A Survey of the Information and Issues," prepared for Strategic Policy and Planning, Employment and Immigration Canada, December, 1988

"An Exploration of the Microfoundations of Internal Migration in Manitoba," prepared for the Review of Demography and the Implications for Economic and Social Policy, September, 1988 (with G. Mason)

"Implications of Demographic Changes for the Labour Market: Labour Supply, Unemployment, and Earnings," prepared for the Federal Government Task Force on the Review of Demography and Implications for Economic and Social Policy, Health and Welfare Canada, October, 1986

"An Economic Analysis of Industrial Training in Canada," Discussion Paper No. 224, Economic Council of Canada, 1983.

"The Manitoba Work Incentives Plan: An Assessment of Administrative Issues and Possible Design Variations," commissioned by the Manitoba Task Force on Social Assistance, June, 1983 (with D. Hum)

"The Relationship Between Wages and Family Income in Canada," Labour

Canada Discussion Paper, January, 1981

"Wage Structure and Stagflation in the 1970s," Discussion Paper No. 161,  
Economic Council of Canada, February, 1980

### **Unpublished Conference/Seminar Papers:**

"Social Assistance in Manitoba," paper presented to the conference on Welfare Reform in Canada: Provincial Social Assistance in Comparative Perspective sponsored by the Johnson-Shoyama Graduate School of Public Policy, Regina, October 24-25, 2013

"Banking Relocation and the Inner City," paper presented to the Canadian Economics Association annual meeting, Montreal, May, 2013; also appearing as "The Dynamics of Financial Institution Location in Toronto: Who Is Serving the Inner City?" SSRN working paper available online at:  
[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2371931](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2371931)

"The Decline of Canadian Economics: Implications for Canada's Economics Journals," Canadian Public Policy lecture (invited), Canadian Economics Association, Calgary, June, 2012

"The Effectiveness of Balanced Budget Legislation: Lessons from Western Canada," invited seminar at the Johnson Shoyama Graduate School of Public Policy, University of Saskatchewan and at the Manitoba Association of Business Economists, April, 2012

"Promise Meets Reality: Balanced Budget Legislation in Western Canada, 1991-2010" paper presented at the annual meeting of the Canadian Political Science Association, Wilfrid Laurier University, May 16, 2011 (with J. Wesley)

"The Retirement Prospects of New Immigrants – From Bad to Worse?" paper presented to the Manitoba Association of Business Economists, Dec. 4, 2008 (with D. Hum)

"The Impact of Health on Labour Supply Over the Life Cycle," paper presented to joint sessions of the Canadian Labour Market and Skills Researcher Network (CLSRN) and the Canadian Economics Association, Vancouver, June 5, 2008, and to the Oxford Business and Economics Conference 2008, Oxford, June 23, 2008, submitted to the *Journal of Human Resources* (with D. Hum and E. Fissuh)

"Finding the Best NCB Program Mix," paper prepared for the Federal/Provincial/Territorial National Child Benefit Evaluation Workshop Expert Panels, Toronto, June 13-15, 2006

"Modelling Immigrant Prospects Using Microdata: Modern Issues and Applications," paper presented at EcoMod2005 International Conference on Policy Modeling, Istanbul, June 29-July 1, 2005 (with D. Hum)

"Determinants of Elderly Living Arrangements: Evidence from Aging in Manitoba



Longitudinal Data, 1971-96," paper presented at the Canadian Health Economists Study Group Meetings, Toronto, May 25-26, 2005 (with S. Sarma)

"Assessing the Prospects of Immigrants to Canada: Evidence from Microdata on Immigrant Integration," paper presented at the University of Melbourne Institute of Applied Economic and Social Research, January, 2005 and at the Departments of Economics of the Universities of Wollongong and Western Sydney (Campbelltown), March, 2005

"Immigrant Integration in the Labour Market," invited seminar, Centre for International Governance and Innovation, University of Waterloo/Wilfrid Laurier University, Oct 15, 2004

"Does Non-profit Health Insurance Reduce Financial Burden? Evidence from the Vietnam Living Standards Survey Panel," paper presented to the Canadian Economics Association meetings, Toronto, June 4-6, 2004 (with A. Sepehri and S. Sarma)

"Assessing Immigrant Economic Performance using Panel Data," paper presented to the Workshop on Recent Immigrant Labour Market Performance: An International Perspective, 8<sup>th</sup> International Metropolis Conference, Vienna, Austria, September 15-19, 2003 (with D. Hum)

"An Analysis of the Quality of Life in Canada and Germany," UM/Trier Conference, Trier, Germany, May 12-13, 2003 (with D. Hum)

"Analysis of the Performance of Immigrant Wages Using Panel Data," paper presented to the 10<sup>th</sup> International Conference on Panel Data, German Institute for Economic Research, Berlin, Germany, July 5-6, 2002 (with D. Hum)

"Training Activity by Adult Immigrants in Canada," paper presented to the Canadian Employment Research Forum Conference on Immigration, Canadian Economics Association meeting, Calgary, May30-31, 2002 (with D. Hum)

"Selectivity and Immigration in Canada," paper presented to the PCERII Conference on "Building on Strength: Supporting Policy and Practice Through Immigration and Integration Research," Winnipeg, November 8-10, 2001 (with D. Hum)

"Wages and Labour Supply of Immigrants and Visible Minorities," paper presented at the CERF/IRPP conference on "Creating Canada's Advantage in an Information Age," Ottawa, May 4-6, 2000 (with D. Hum)

"Transition and Skills Development Through Education, Training and Work Experiences: A Follow-up Study of Seven Oaks School Division," paper presented to the 3<sup>rd</sup> annual meeting of the Western Research Network on Education and Training, University of British Columbia, February 26, and to the Annual Meeting of the American Educational Research Association, Montreal, April 19-23, 1999 (with L. Taylor, K. McClure, B. Graham and B. Levin)

"The Personal and the Economic: the Effects of Gender, Family and Culture on Education and Employment," presented to the plenary session of the 2<sup>nd</sup> annual meeting of the Western Research Network on Education and Training, University of British Columbia, January 24, 1998

"A Microeconomic Analysis of Canadian Self-Employment," seminar presented at the Department of Economics, the University of Manitoba, October, 1998 (with R. Sproule)

"Reducing Unemployment in an Era of Low Inflationary Expectations," paper presented at the Symposium of the Institut für Empirische Wirtschaftsforschung, Berlin, March 19-20, 1998 (with D. Hum and N. Cameron)

"The Production Responses of the Competitive Firm to Three Conventional Distributional Shifts: Towards an Integrated Perspective," seminar presented to the Universities of Stockholm, Orebro, and Jonkoping, Sweden, April-May, 1998 (with R. Sproule)

"Evaluating Farm Income Distribution and Stabilization Programs," seminar at Agriculture Canada, Ottawa, March, 1995 (with D. Hum and D. Kraft)

"Revisiting the GAI: Fair and Affordable Income Security for all Canadians," paper prepared for the Conference on Economic Policy at Laurentian University and the Economic Seminar at the University of Manitoba, March, 1995 (with D. Hum)

"Analysis of On-the-Job Training Incidence from Household Microdata," paper presented to the Bank of Canada Research Department, July 26, 1994

"Profile of Persons with Disabilities in Canada," paper presented to the Canadian Paraplegic Association, Winnipeg, May, 1994

"A Guaranteed Annual Income: Some Design Issues for Persons with Disabilities," paper presented to the Canadian Paraplegic Association, Winnipeg, May, 1994

"Dimensions and Causes of Unemployment," 1994 Paulinian Conference, St. Paul's College, University of Manitoba, February 18, 1994

"The Statistical Methodology of Mincome," presented to the Statistical Association of Manitoba, November, 1991

"Residential and Workplace Location and Wage Gradients," presented to the 31st European Congress of the Regional Science Association, Lisbon, Portugal, August, 1991 (with A. van der Veen)

"Estimating Labour Supply Functions: The Relative Contribution of Econometric Refinements and Data Improvements," presented to the Economic Council of Canada, Ottawa, September, 1989 (with D. Hum)

"Urban Mobility and Workplace Choice: Theory and Applications," presented to the 29th European Congress of the Regional Science Association, Cambridge, U.K., August, 1989

"Where There's a Way is There a Will? Public Policy and Income Inequality in Canada," presented to the Conference on Trends in Social Inequality, University of Western Ontario, October, 1986 (with D. Hum)

"Estimation of Family Labour Supply from Canadian Microdata," presented to the annual meeting of the Canadian Economics Association, May, 1986 (with D. Hum)

"Farm Wealth and Income Data Requirements: An Economic Perspective," presented to the Statistics Canada Workshop on the Theory and Practice of Agricultural Wealth Accounts, Ottawa, February, 1985

"Longitudinal Labour Supply Studies Using Mincome Data," presented to the special session on Mincome at the Learned Societies Meetings, June, 1984

"Risk, Job Search, and Wage Variation," presented to the annual meeting of the Canadian Economics Association, June, 1980

### **Unpublished Papers:**

"Promise Meets Reality: Balanced Budget Legislation in Western Canada, 1990-2010, submitted to *Parliamentary Affairs*, July, 2011 (with J. Wesley)

"Disability Benefits and Disability Conversion: Evidence from a Canadian Provincial Welfare Program," submitted to the *Journal of Human Resources*, January, 2011 (with H. Stevens and S. Frankel)

"The Sensitivity of Life Cycle Labor Supply Parameter Estimates to Sample Selection," University of Manitoba, August, 2009 (with E. Fissuh)

"The Sensitivity of Health Effects on Wages to Individual Heterogeneity and Sample Selection Correction: Panel Data Evidence from Canada," University of Manitoba, January, 2009, submitted to the *Journal of Health Economics* (with E. Fissuh)

"The Healthy Immigrant Effect and the Canadian Exception," University of Manitoba, November, 2008 (with D. Hum)

"An Analysis of the Demand for Health Capital in Canada," mimeo, University of Manitoba, December, 2003 (with S. Sarma)

"The human capital model of the demand for health: empirical findings from NPHS data," mimeo, University of Manitoba, October, 2002 (with S. Sarma)

"Competitive Production and Risk-Response Equilibria," mimeo, U of Manitoba, 1997 (with R. Sproule)

"The Structure of Opportunity in Canadian Labour Markets: Colour, Hue and Birthplace," seminar at the University of Manitoba, 1997 (with D. Hum)

"Freeze but Don't Cut: Wage Setting in an Environment of Low Inflation," mimeo, University of Manitoba, April, 1997 (with N. Cameron and D. Hum)

"Which Sectors Train? An Analysis of Employer-Based Training in Canada," mimeo, University of Manitoba, September, 1996 (with D. Hum)

"Specification of On-the-Job Training Incidence," mimeo, University of Manitoba, August, 1994 (with R. Sproule and D. Hum)

"Portfolios with One Safe and One Risky Asset: The Marginal Effect in the Large and in the Small," mimeo, University of Manitoba, 1994 (with R. Sproule)

"A Limit Theorem Regarding the Equivalence of the Sign of the Marginal and Global Effects of Risk in a Two-Asset Portfolio," mimeo, February, 1994 (with R. Sproule)

"A Sign-Correspondence Theorem for the Marginal and Global Effects of Risk: The Case of Two-Argument Utility Functions," mimeo, University of Manitoba, June, 1993 (with R. Sproule)

"Signing the Marginal Effect of Risk by Restricting the Functional Form of the Outcome Variable," mimeo, University of Manitoba, 1993 (with R. Sproule)

"A Restriction-Free Approach to Signing the Marginal Effect of Output-Price Risk for the Cooperative Firm," mimeo, University of Manitoba, May, 1993 (with R. Sproule)

"The Relationship Between the Marginal and the Global Effects of Risk, and its Implication," mimeo, University of Manitoba, May, 1993 (with R. Sproule)

"Risk Always Reduces Output: Signing the Marginal Effect of Output-Price Risk for the Competitive Firm," paper presented to the University of Manitoba Department of Economics, Feb. 26, 1993 (with R. Sproule and D. Hum)

"Social and Employment Policy: A North American Perspective," paper presented to the Macro Economic Research Group and the Department of Economics, University of the Witwatersrand, Johannesburg, South Africa, February, 1993

"Signing the Marginal Effect of Multiplicative Risk from First Principles: The Case of Two-Argument Utility Functions," mimeo, University of Manitoba, November, 1992 (with R. Sproule)

"Labour Supply Analysis of an Income Maintenance Experiment: Results from Mincome," January, 1992 (with D. Hum)

"Employer-Based Training Policy in Canada," May, 1990 (with D. Stambrook)

"Family Labour Supply Behaviour of Low-income Families in the Manitoba Basic Annual Income Experiment," December, 1987 (with D. Hum, A. Basilevsky, and D. Sabourin)

"Seasonal Variation in Interest Rates Revisited," November, 1986 (with R. Sproule)

"Equilibrium and Labour Market Theory," June, 1986

"The Antipoverty Impact of Income-Tested Transfers and Wage Subsidies," April, 1986 (with D. Hum)

"Wealth Accumulation, Off-farm Income, and the Well-Being of Canadian Farmers: A Test of the Life Cycle Perspective," March, 1986 (with D. Freshwater)

"Sectoral Employment Shifts and Unemployment in Canada," June, 1985 (with K. Prystawski)

"Why Larger Establishments Have Higher Labour Productivity and Wage Rates: A Theory," February, 1984

"What is Union Density Doing in Wage and Union Status Equations?" August, 1984

"A Test for the A-J Effect in the Operations of Bell Canada, 1952-76," 1983 (with R. Sproule and R. Clement)

"Estimates of the Impact of Productivity Increases on Corporate Profits in the Telecommunications Industry: The Case of Bell Canada, 1952-76," 1983 (with R. Sproule and R. Clement)

"Tax Evasion and Labour Supply under Risk Neutrality," 1983 (with R. Sproule)

"Technological Efficiency of Full- and Part-time Farmers: Saskatchewan, 1978," 1982 (with D. Freshwater)

"Factors Impeding the New Technological Wave: An Economic Perspective," 1982

"An Analysis of the Structure of Canadian Wages, 1974 and 1979," 1981

"A Hedonic Approach to the Analysis of Wage Structure: Toward a Reconciliation of Orthodox and Unorthodox Theories," University of Manitoba Working Paper 197907, October, 1979

"The Effects of Establishment Size on Wage Rates: Some Further Evidence," University of Manitoba Working Paper 197906, September, 1979

"Evolutionary Theory and Limited Knowledge in a Dynamic Model of the Firm in

Urban Space," November, 1978

"A Framework for the Evaluation of the Economic Effects of Minimum Wages," Economic Analysis Branch, Labour Canada, February, 1978

"Manpower Policy: An Economist's Perspective," Economic Analysis Branch, Labour Canada, February, 1978

"Limited Knowledge, Urban Structure and Labour Markets," PhD dissertation, London School of Economics, December, 1977

### **Research Grants:**

(2011-2012) Canadian Public Policy/Analyse de Politiques, "Canadian Academics and Canadian Economics: Is the Publishing Landscape Changing?" \$5,000

(2008-2010) Prairie Metropolis Centre Research Grant, "The Retirement Prospects of Immigrants: Will it Require a New Social Contract?" \$12,000 (with D. Hum)

(2005-2008) CIHR Grant, "Town With No Poverty: Assessing the Long-term Consequences of a Canadian Guaranteed Income Experiment," \$60,447 (with E. Forget (PI), N. Roos, and D. Hum)

(2005-2006) Prairie Centre of Excellence for Research on Immigration and Integration Research Grant, "Immigrant Health Status and Work Activity," \$14,100 (with D. Hum)

(2004-2005) Prairie Centre of Excellence for Research on Immigration and Integration Research Grant, "Economic assimilation of Canadian immigrants: cross-sectional vs panel data estimates," \$14,540 (with D. Hum)

(2003-2005) SSHRC/Canadian Centre for Policy Alternatives (Manitoba) Research Grant, "The Economic Theory of Community Economic Development and the New Economy," \$20,000 (with J. Loxley and I. Hudson)

(2003-2004) Prairie Centre of Excellence for Research on Immigration and Integration Research Grant, "Short-term, Medium-term and Long-term Performance of Immigrants," \$63,412 (with P. Li, R. Wanner, S. Halli, L. Wilkinson, and D. Hum)

(2002-2003) SSHRCC New Economy Research Grant, "Education, Training and Job Outcomes in the New Economy," \$15,000 (with I. Hudson)

(1996-2001) SSHRCC Strategic Research Network Grant in Education and Training Outcomes, \$225,000 for five years (with B. Levin at U of Manitoba as well as collaborators at UBC, U of Victoria and U of Alberta)

(2001-2002) Prairie Centre of Excellence for Research on Immigration and

- Integration Research Grant, "Immigrant Training," \$15,000 (with D. Hum)
- (2000-2001) Prairie Centre of Excellence for Research on Immigration and Integration Research Grant, "Immigrants and Selectivity," \$9,000 (with D. Hum)
- (1999-2000) Prairie Centre of Excellence for Research on Immigration and Integration Research Grant, "Earnings and Employment of Visible Minority Immigrants," \$11,794 (with D. Hum)
- (1999-2000) Centre on Aging Research Grant, "Disability, Aging and Work," \$1,000 (with D. Hum)
- (1989) UM/SSHRC International Conference Travel Grant to attend the 29th European Congress of the Regional Science Association, Cambridge, U.K., August 29-September 1, \$997.
- (1988-90) SSHRC Research Grant, "Analysis of Short Run Growth in Earnings and Hours in Canada," \$10,200.
- (1987-9) Review of Demography and its Implications for Economic and Social Policy Research Grant, "The Demographic Structure of Prairie Canada: a Micro Analysis," \$40,000 (with Greg Mason).
- (1985-8) SSHRC Research Grant, "Analysis of Labour Supply Behaviour in the Manitoba Basic Annual Income Experiment," \$86,905.68 (with A. Basilevsky and D. Hum)
- (1984-5) UM/SSHRC Research Grant, "Analysis of Job Search, Workplace Location and Urban Labour Market Dynamics with Particular Application to Canada," \$1700.
- (1984-5) Labour Canada-Universities Research Grant, "The Relationship Between Wages and Family Income: Further Evidence and Policy Application," \$3500 (with Derek Hum).
- (1983-4) SSHRC Research Grant, "Economic Analysis of the Structure of Canadian Wages," \$10,238.
- (1982-3) Agriculture Canada Grant with David Freshwater, "The Distribution of Income and Wealth in Canadian Agriculture," \$10,800.
- (1982-3) UM/SSHRC Research Grant, "Economic Data Retrieval and Analysis System," \$520.
- (1981-2) Agriculture Canada Grant, "Relative Efficiency of Full- and Part-time Farmers," \$7500 (with David Freshwater)
- (1980-1) Labour Canada-University Research Grant, "The Determinants of Canadian Occupational Wage Structure, 1974-79," \$4000.

## **Administrative Responsibilities**

### **Dept. of Economics, U. of Manitoba**

Steering Committee, chair, 2009-11, 2012-13  
 Head, 1997-2008  
 Acting Head, 1987-8, 1991-2  
 Associate Head, 1984-5, 1988-91, 1992-6, 2013-  
 Graduate Studies Committee, 1980; chair, 1986-7, 1989-91, 1993  
 Appointments and Renewals Committee, 1986-7  
 Research Committee, 1986-7  
 Computer Committee, 1981-4 and 1988-9  
 General Studies Committee, 1980-3; chair, 1981-2  
 Labour Studies Committee, 1981-2  
 Library Committee, chair, 1979-80

### **Faculty of Arts, U. of Manitoba -**

Faculty of Arts Executive Committee, 2012-14  
 Faculty of Arts Tenure and Promotion Committees (6), 2012-13  
 Hiring Committee for Econometrics, Department of Economics, 2012  
 University Senate Representative, Faculty of Arts 2009-12  
 Faculty of Arts Executive Committee, 2012-15  
 Strategic Enrolment Management Committee, 2011  
 Nominating Committee, 2007-09  
 Centre on Aging Scholarship Adjudication Committee, 2003-4  
 Professor of the Year Award Committee, 2002  
 Head Search Committee, Department of Sociology, 2002  
 Head Search Committee, Department of Linguistics, 2001  
 Head Search Committee, Department of Native Studies, 1999-2000  
 Inquiry into the Climate in the Dept. of Political Studies, 1995  
 Policy Committee, 1994-5  
 Appeals Committee, 1994-5  
 Headship Search Committee for Sociology, 1992  
 Nominating Committee, 1991-3  
 Ad Hoc Committee on Undergraduate Enrollment, 1991-2  
 Headship Selection Committee for Economics, 1984 and 1987  
 Executive Board, Institute for Social and Economic Research, 1984-6  
 Research Committee, 1983-4  
 Computer Users' Committee, 1982-4

### **Other University of Manitoba**

Tenure Committee, Asper School of Business, 2009  
 Interim Management Team, University of Manitoba Research Data Centre, 2003-4  
 Presidential Committee to Appoint Dean of Arts, 1998-9  
 Presidential Committee for Appointment of Dean of Management, 1998-9  
 Head Search Committee, Department of Family Studies, Faculty of Human  
 Ecology, 1998-9  
 University Staff Benefits Committee 2000-2002



UMFA Staff Benefits Committee, 2000-  
 UM/UMFA Joint Scholarship Program Committee, 1998-99  
 UM/UMFA Joint Salary Structure Committee, 1999-  
 UM/UMFA Promotion Appeal Committee, chair, 1995  
 U of Manitoba Research Grants Committee, 1994-6  
 Agricultural Economics Program Committee, 1994  
 UMFA/UM Systemic Differences Committee, 1992-  
 University Collective Bargaining Team with CUEW, 1990  
 UMFA Collective Agreements Committee, 1984-5, 1989-90, 1993-94, 1998-;  
 chair, 1986-7  
 UMFA Salaries Committee chair, 1980-6  
 UMFA Bargaining Advisory Committee, 1983  
 UMFA Board of Representatives, 1980-3  
 UMFA Executive, 1981-2  
 UMFA Collective Bargaining Team, 1981

### **Other Professional Activities**

Affiliated Researcher, Education Policy Research Initiative, University of Ottawa\_\_  
 Executive Council, Canadian Economics Association, 2013-  
 Purvis Prize Committee for contribution to Canadian economic policy, Canadian  
 Economics Association, 2009-10  
 Editorial Advisory Board, *Canadian Public Policy*, 2008-  
 Executive Committee of the Board of Governors, Prairie Metropolis Centre, 2008-2011  
 Board of Governors, Prairie Metropolis Centre, 2007-2011  
 Ontario Council of Graduate Studies Appraiser for Ottawa/Carleton PhD, Wilfrid  
 Laurier  
 MABE, and Lakehead University MA, 2009-10  
 Premiers Economic Advisory Committee Competitiveness Task Group, April, 2005-  
 Visiting Professor, University of Wollongong, Australia, January-April, 2005  
 External Reviewer, Department of Economics, Lakehead University, 2003  
 External Reviewer, Department of Economics, University of Winnipeg, 2001  
 Fellow and Faculty Associate, Lincoln Institute of Land Policy  
 (Cambridge, Mass.), December, 1991-  
 Editorial Board, *Canadian Journal of Economics*, 1986-9  
 Referee for: *Review of Economics and Statistics*, *Journal of Human Resources*,  
*Applied Economics*, *Canadian Journal of Economics*, *Canadian Public Policy*,  
*Regional Science and Urban Economics*, *Urban Studies*, *Journal of Regional  
 Science*, *American Journal of Agricultural Economics*, *Journal of International  
 Migration and Integration*, *Education Economics*, *Economics of Education  
 Review*, *Relations Industrielles/Industrial Relations*, *Canadian Ethnic Studies*,  
*Environment and Planning A*, *Papers in Regional Science*, McGill-Queen's  
 University Press, Economic Council of Canada, Queen's-University of Ottawa  
 Economic Projects, Addison-Wesley Publishers, SSHRCC, Alberta Heritage  
 Foundation for Medical Research  
 SSHRC Doctoral Fellowships Committee, 1986-8; chair, 1988  
 SSHRC Research Grants Committee on the Integration of Persons with  
 Disabilities, 1995  
 Economic Consultant to the Private Practice Physiotherapists of Manitoba, 1987-8  
 Social Planning Council of Winnipeg Ad Hoc Committee on Employment, 1985-6  
 Editorial Board, *Western Economic Review*, 1982-3

Consulting Editor, *Worklife Magazine*, 1979-80