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From the Desk of Christopher Bruce: Farewell

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In three judgments issued on January 19, 1978 - *Teno v. Arnold*, *Thornton v. School District No. 57*, and *Andrews v. Grand and Toy* - the Supreme Court of Canada set the stage for a change in the role of experts in personal injury cases. The Court's clear preference for statistical evidence and expert opinion in those cases induced many litigants to employ financial experts, such as economists, accountants, and actuaries, to support their positions concerning loss of earning capacity.

As I had just completed my Ph.D. in Labour Economics (the study of wages and employment), I was attracted by the challenge of contributing to the development of new theories and techniques in this area, at the intersection of law and economics.

Those of us who worked in personal injury litigation – not only judges, lawyers and economists, but also vocational psychologists, cost of care experts, and accountants – will remember the subsequent decade as a period of experimentation, as we all worked to develop new techniques and precedents. In the 1980s, because the principles on which damages were to be calculated had not yet been clearly established, it was common for those of us working in this field to appear in court frequently. By the mid-1990s, however, fewer and fewer cases made it to court as the underlying principles became commonly accepted.

As the case law began to develop, it became apparent that it would be useful to collect the developing economic techniques into one place. For this purpose I wrote *The Assessment of Personal Injury Damages*. Although the intention behind this book was to provide a guide to those who were not experts in economics, it also had the effect of requiring that I ensure that every aspect of my practice was up to date on the latest legal, statistical, and theoretical work. I am pleased to report that *Assessment* was well-received by the legal community and that in July 2019, its sixth edition (with two co-authors – Kelly Rathje and Laura Weir) will be published.

By the late 1980s, I realised that if I was to meet the demand for expert opinion, I would have to bring in assistants. Accordingly, in 1988 I formed *Economica Ltd.* and began to employ individuals with MAs in Economics. I was fortunate, early on, to hire two individuals who still remain with me – Derek Aldridge, in 1995, and Kelly Rathje, in 1999. In 2006 I made another excellent hire, in Laura Weir. All three proved adept at identifying the key issues in the cases presented to them, developing informed opinions about those issues, and in communicating their opinions to our clients.

When I retired from 41 years as a Professor of Economics at the University of Calgary in January 2015, I devoted more time to personal injury work. But after more than thirty years as president of Economica and twenty-five years as editor of the Expert Witness, I have decided to retire from both positions.

Effective August 1, 2019 ownership will be transferred to Derek, Kelly, and Laura who, I am confident, will continue to offer the professional service that has been our trademark.

I have enjoyed my involvement in the personal injury field. The issues have been intellectually challenging and the individuals who work in the field have all acted in a most professional and collegial manner. Thanks to all of you who have entrusted your files to Economica. I will maintain my interest in economics, which has been a lifelong passion, and will continue to follow the personal injury litigation field where I have made so many friends and acquaintances. I wish all of you the very best.

Selecting the Productivity Factor

Christopher Bruce, Derek Aldridge, Kelly Rathje, and Laura Weir

One of the most important determinants of the plaintiff's future earnings is the rate at which those earnings will grow. There are two broad determinants of this rate. First, each individual benefits from increases that arise from gains in experience, promotions, and job changes. Second, as the economy grows, the earnings of all individuals rise with it - the source of the popular aphorism "a rising tide lifts all boats." The purpose of this article is to summarise the most recent research concerning the latter rate, which economists call the *real rate of growth of earnings*, and which the courts often refer to as the *productivity factor*.

We divide our discussion into three parts: In the first, we define what we mean by real rate of growth of earnings. In the second, we provide two types of statistical evidence concerning that rate. Finally, we argue that the most reliable projections of that rate are obtained from agencies that specialise in making such projections. We conclude that those projections indicate that real earnings will grow at approximately 1.25 to 1.50 percent per year in the long run.

1. Definition: Real rate of growth of earnings

Assume that it has been observed that economy-wide earnings have increased at five percent per year. This "observed" rate is referred

to as the *nominal* rate of growth of earnings. Economists divide this rate into two factors: those due to increases in the average level of prices, the rate of *price inflation*, and those due to increases in the purchasing power of wages, the *real rate of growth* of earnings.

For example, if the rate of price inflation has been two percent per year, the first two percent of a five percent nominal increase will be needed just to allow individuals to buy the same set of goods that they had been able to purchase before the price increase. The remaining approximately three percent will be available to purchase additional goods. That three percent is called the real rate of growth of earnings.

As there is a strong consensus in the financial community that the long-run rate of price inflation will be approximately two percent, the forecast of wage growth can focus on the *real* rate of growth. [The financial community widely believes that the rate of inflation will be two percent because (a) that is the rate that the Bank of Canada has targeted since 1996; and (b) the Bank has managed to maintain the actual rate of inflation near its target since the latter was introduced.]

2. Methods of predicting the real rate of growth of earnings

In the long run, if workers are to be able to purchase more goods with their earnings (that is, if real wages are to rise), they must produce more goods. Hence, it is commonly argued that long-run increases in average real earnings must approximate long-run increases in average output per worker. As the latter is often called the *rate of growth of productivity*, the terms “real rate of growth of earnings” and “rate of growth of productivity” are often used interchangeably in the courts. Although this conflation could be misleading in the short run, when deviations between the two are common, if we are concerned with lifetime changes in a plaintiff’s earnings, projections of productivity growth can substitute for projections of real wage growth.

In this section, we provide two types of data concerning the growth of both real earnings and productivity. In the first, projections assume that past growth rates will continue into the future. In the second, models of the growth of the economy are used to derive predictions concerning growth of wages and productivity.

2.1 Historical data

In Table 1, we compare Alberta wage and price inflation, from 2001/2002 through 2017/2018. It is seen from this table that over the 2012-2018 time frame, which coincided with a considerable economic downturn in the Alberta economy (2014-2016), price inflation was higher than wage inflation. However, a longer-term perspective finds that wage inflation averaged approximately 0.78 percent *higher* than price inflation over the ten-year period 2008-2018; and approximately 1.0 percent higher than price inflation over the seventeen-year period 2001-2018.

Table 1: Alberta Wage and Price Inflation 2001-2018

Time frame	Wage inflation	Price inflation	Difference between wage and price inflation
2001/2002	2.58%	3.43%	-0.85%
2002/2003	3.49%	4.42%	-0.93%
2003/2004	3.34%	1.40%	1.94%
2004/2005	5.68%	2.14%	3.54%
2005/2006	4.99%	3.88%	1.10%
2006/2007	5.91%	4.93%	0.97%
2007/2008	5.92%	3.18%	2.74%
2008/2009	2.85%	-0.14%	2.99%
2009/2010	4.48%	0.99%	3.49%
2010/2011	4.38%	2.44%	1.94%
2011/2012	3.45%	1.12%	2.33%
2012/2013	3.52%	1.44%	2.09%
2013/2014	3.76%	2.57%	1.20%
2014/2015	-0.30%	1.15%	-1.46%
2015/2016	-2.38%	1.08%	-3.46%
2016/2017	1.02%	1.54%	-0.52%
2017/2018	1.62%	2.47%	-0.84%
2001-2018 average (17 years):			0.96%
2008-2018 average (10 years):			0.78%
2012-2018 average (6 years):			-0.50%

Source :

- Wage inflation: Alberta average weekly earnings (industrial aggregate group), unadjusted for seasonal variations, all employees, including overtime. Table 281-0026.
- Price inflation: Consumer price index for Alberta, all items. Table 326-0020.

If it is assumed that the experience of the last two decades or so is indicative of what will happen in the next few decades, then the data in Table 1 suggest that the real rate of growth of wages will be approximately 1.0 percent per year.

The data reported in Table 2, obtained from Statistics Canada, suggest that Canadian labour productivity has increased at an average annual rate of approximately 1.23 percent over the past 37 years (from 1982 through 2018), and 0.88 percent over the last five years (2014-2018).

Year	Labour productivity	Year	Labour productivity
1982	1.49%	2001	1.89%
1983	3.21%	2002	1.76%
1984	3.72%	2003	0.04%
1985	1.24%	2004	0.65%
1986	-1.13%	2005	2.42%
1987	0.75%	2006	1.19%
1988	1.29%	2007	-0.05%
1989	0.07%	2008	-0.70%
1990	-0.49%	2009	0.34%
1991	0.08%	2010	0.76%
1992	2.32%	2011	1.72%
1993	2.01%	2012	-0.09%
1994	2.53%	2013	1.42%
1995	1.10%	2014	3.18%
1996	-0.71%	2015	-0.69%
1997	2.32%	2016	0.30%
1998	2.56%	2017	1.93%
1999	3.34%	2018	-0.33%
2000	4.02%		
Past 5 years (2014-2018)		0.88%	
10 years (2009-2018)		0.86%	
37 years (1982-2018)		1.23%	

Source : Cansim table 383-0008. Labour productivity is a measure of real gross domestic product (GDP) per hour worked.

Again, a forecast of 1.0 to 1.25 percent seems to be supported by the data.

2.2 Forecasting Agencies

We have identified five reputable, independent agencies that provide public projections of either real wages or labour productivity. We summarise their long-run projections in Table 3, below.

Table 3: Predictions of Long-Run Changes in Real Wages and Labour Productivity

Agency	Time period	Factor being Predicted	Predicted growth rate (%)
Parliamentary Budget Officer ^a	2017 - 2091	Real wages	1.10
Centre for Study of Living Standards ^b	2014 - 2038	Labour productivity	1.00
Policy and Economic Analysis Program ^c	2010 - 2040	Real wages	1.45
Superintendent of Financial Institutions ^d	2020 - 2060	Average weekly earnings	1.20
Conference Board of Canada ^e	2022 - 2036	Real personal income	1.80

Sources :

- Office of the Parliamentary Budget Officer, Ottawa, September 2018.
- Centre for the Study of Living Standards, 2015.
- Policy and Economic Analysis Program, University of Toronto, November 2013.
- Office of the Superintendent of Financial Institutions, Ottawa, 2017.
- The Conference Board of Canada, Ottawa, 2019.

Table 3 suggests that reputable forecasting agencies are predicting that real wages will grow at approximately 1.25 to 1.50 percent per year over the next two or three decades.

3. Selecting a forecast

Our experience is that most financial experts have relied on historical figures, such as those we reported in Tables 1 and 2, to project the rate of growth of real wages/productivity. For two reasons, we caution against acceptance of this approach.

First, there is no theoretical basis for assuming that what has happened in the past will continue into the future. For example, advances in computer technology are introducing changes to the economy that may differ in significant ways from those that have occurred in the past; the wave of “baby boomers” is about to retire from the labour force; and interest rates have fallen to historical lows.

Second, with very few exceptions, the financial experts who testify in personal injury cases have not devoted significant amounts of time to the analysis of long-run changes in labour productivity. Given a choice between the

testimony of individuals whose primary expertise is in the preparation of personal injury reports and that of individuals who devote their professional lives to the forecasting of long-term trends in the economy, it seems to us clear that it is the latter that should be preferred.

Accordingly, we recommend that the courts rely on the forecasts of the five agencies identified in Table 3, and on others with similar expertise, when determining the “productivity factor” to be employed in personal injury and fatal accident actions.

A Word from the Consultants of Economica

Derek Aldridge, Kelly Rathje, and Laura Weir

We would like to say thank you to Dr. Christopher Bruce. You have been a great mentor for us throughout our careers with Economica. You have provided direction, leadership, advice, and have groomed us to be one of the leading firms in the industry. Your knowledge, guidance, and support throughout the years have been a major contributor to our success, and we truly appreciate everything we have learned from you.

We are thankful for the opportunity you have given us, and we will strive to maintain the level of professionalism, integrity, and service that Economica is known for, and continue to be one of the leading firms in this industry.

Thank you and enjoy your retirement Chris.

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Economica is a Calgary-based economic consulting firm that specialises in the provision of litigation support in personal injury and fatal accident actions. Our areas of expertise include: the calculation of pre-/post-trial losses of earning capacity, business income, and household services; the computation of the present value of future costs of care; and the estimation of the “tax gross-up” on future damages in fatal and cost of care actions.

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