

Why Have Real Wages Lagged Labour Productivity Growth in Canada?

Andrew Sharpe, Jean-François Arsenault and Peter Harrison¹

Centre for the Study of Living Standards

ABSTRACT

The most direct mechanism by which labour productivity affects living standards is through real wages, that is, wages adjusted to reflect the cost of living. Between 1980 and 2005, the median real earnings of Canadian workers stagnated, while labour productivity rose 37 per cent. This article analyzes the reasons for this situation. It identifies four factors of roughly equal importance: rising earning inequalities; falling terms of trade for labour; a decrease in labour's share of GDP; and measurement issues.

THE MOST DIRECT ROUTE by which labour productivity affects living standards is through gains in real wages, that is, wages adjusted for the cost of living. Yet median real wages have stagnated in Canada since 1980 despite significant productivity gains. The 2006 Census found that median real earnings of individuals working full-time on a full-year basis barely increased between 1980 and 2005. Over the same period, labour productivity rose 37.4 per cent. If median real earnings had grown at the same rate as labour productivity, the median Canadian full-time full-year worker would have earned \$56,826 in 2005, considerably more than the actual \$41,401 (2005 dollars). The objective of this article is to explain this large divergence between median real wage growth and labour productivity growth.

This article is divided into five sections. The first section sets out the analytical framework used in the article and discusses measurement issues. The second section reviews trends in real wages and labour productivity. The third section provides an accounting reconciliation of the gap between the growth rate of median real earnings and labour productivity in Canada between 1980 and 2005. The fourth section discusses the drivers of this gap. The fifth section concludes.

Analytical Framework and Measurement

At the aggregate level, when defined consistently, long-term growth in average real wages is determined by labour productivity growth. This relationship is mediated by changes in labour's share of income and labour's terms of trade (the

¹ Andrew Sharpe is Executive Director of the Centre for the Study of Living Standards (CSLS). Jean-François Arsenault and Peter Harrison are economists at the CSLS. This is the abridged version of CSLS Research Report No. 2008-8 entitled "The Relationship between Productivity and Real Wage Growth in Canada and OECD Countries: 1961-2006" prepared for Human Resources and Social Development Canada (HRSDC). It is available in the Research Reports section of the CSLS website: www.csls.ca. The authors would like to thank a number of HRSDC officials who provided comments and Cynthia Haggard-Guenette of Statistics Canada for assistance with data. E-mails: andrew.sharpe@csls.ca; jf.arsenault@csls.ca; peter.harrison@csls.ca.

price of the output produced by workers relative to their cost of living):

$$1) \Delta Real Wage = \Delta Labour Productivity + \Delta Labour's Share + \Delta Labour's Terms of Trade$$

where Δ indicates a percentage change.

In equation (1) real wages are nominal wages deflated using the Consumer Price Index (CPI).² In this equation, real wages are an average rather than a median measure, and therefore do not directly capture the effect of changing earnings inequality, an issue to which we will return below.

The key measurement issue in the relationship between labour productivity and real wages is the appropriate choice of a measure of wages. The theoretical relationship between real wages and labour productivity set out in equation (1) is a relationship between the total compensation paid to labour and labour productivity. A number of wage measures covering different groups and based on different definitions of wages are available from Statistics Canada (Table 1). This choice is important, because the series grow at different rates, and using series that are not comprehensive tends to underestimate growth in labour compensation.

Wage estimates from the Survey of Employment, Payroll and Hours and the Major Wage Settlements series do not cover all workers, nor do they cover all types of labour compensation. While wage estimates from the Survey of Labour and Income Dynamics and Labour Force Survey cover all types of workers, they do not include supplementary labour income. The “wages, salaries, and supplementary labour income” series from the national accounts does cover all forms of labour com-

Table 1

Measures of Nominal Hourly Wages, Canada, Total Economy, 1997-2007
(average annual growth rate, per cent)

| | |
|--|------|
| Survey of Employment, Payroll and Hours | |
| Employees paid by the hour | 2.07 |
| Salaried employees | 2.37 |
| Survey of Labour and Income Dynamics* | 3.60 |
| Labour Force Survey | 2.73 |
| Major Wage Settlements | 2.40 |
| National Income and Expenditure Accounts | 3.72 |
| Productivity Accounts | 3.62 |

* 1997-2005

Source: CCLS calculations based on Statistics Canada data.

pensation, but excludes the self-employed. The labour compensation series from the Canadian Productivity Accounts is the most appropriate series to use in analyzing the relationship between real wages and labour productivity. This series covers the broadest definition of compensation and the broadest definition of workers, including the labour component of self-employed remuneration, and is the measure used for real wages throughout this article.³

An important trend has been the growing share of supplementary labour income (SLI) in total labour income. Statistics Canada defines SLI to include employer contributions to pension plans (private or public), supplementary health benefits, Employment Insurance (EI) and workers' compensation. Since 1961, SLI has risen from 4.9 per cent of labour income to 12.9 per cent in 2007 (Chart 1). This increasing importance is attributable primarily to (1) a sig-

2 Or, more formally, $\frac{Y_L}{P_C \times L} = \frac{Y}{P_Y \times L} \times \frac{Y_L}{Y} \times \frac{P_Y}{P_C}$ where Y_L is the sum of all wages paid, P_C is the Consumer Price Index (CPI), L is total hours worked in the economy, Y is nominal output, and P_Y is the GDP deflator. Therefore, $\frac{Y_L}{P_C \times L}$ is the consumption wage, $\frac{Y}{P_Y \times L}$ is labour productivity, $\frac{Y_L}{Y}$ is labour's share of output, and $\frac{P_Y}{P_C}$ is labour's terms of trade.

3 In practice, the labour compensation series from the Productivity Accounts has exhibited very similar trends to the “wages, salaries, and supplementary labour income” series from the Income and Expenditure Accounts over the 1981-2007 period.

Table 2

Labour Productivity and Real Wages in Canada, Total Economy, 1961-2007

| Period | Labour Productivity | Labour Share | Labour's Terms of Trade | Real Wage | Real Wage Gap | Labour's Share of Nominal GDP (per cent) | |
|-----------|--|--------------|-------------------------|-------------------|---------------|--|------------------------|
| | compound annual growth rate (per cent) | | | | | in first year of period | in last year of period |
| | [1] | [2] | [3] | [4] = [1]+[2]+[3] | [5]=[4]-[1] | [6] | [7] |
| 1961-2007 | 1.73 | -0.17 | 0.11 | 1.67 | -0.06 | 57.5 | 53.1 |
| 1961-1973 | 3.00 | -0.08 | 0.90 | 3.87 | 0.87 | 57.5 | 57.0 |
| 1973-1981 | 1.29 | -0.11 | 0.22 | 1.38 | 0.09 | 57.0 | 56.5 |
| 1981-1989 | 1.15 | -0.20 | -0.66 | 0.28 | -0.86 | 56.5 | 55.6 |
| 1989-2000 | 1.54 | -0.38 | -0.36 | 0.79 | -0.76 | 55.6 | 53.3 |
| 2000-2007 | 1.03 | -0.04 | 0.26 | 1.24 | 0.21 | 53.3 | 53.1 |
| 1980-2005 | 1.27 | -0.27 | -0.42 | 0.58 | -0.69 | 56.5 | 52.8 |

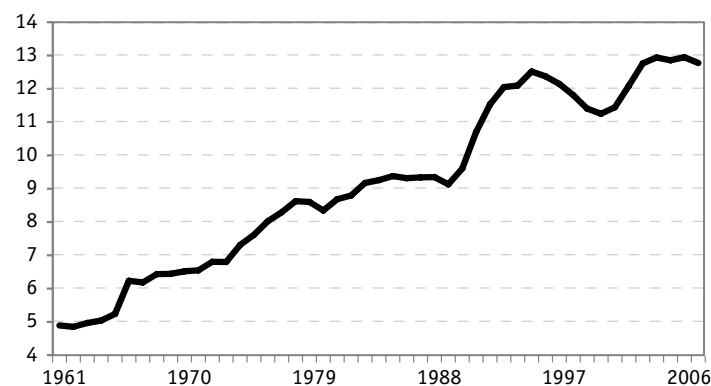
Note: Figures may not sum exactly due to rounding. Apart from 1980-2005, sub-periods are chosen to be cyclically neutral (peak to peak). Real wages and labour share are calculated with the labour compensation series from the Canadian Productivity Accounts.

Source: CCLS calculations based on Statistics Canada data.

Chart 1

Supplementary Labour Income as a Share of Total Labour Income, Canada, Total Economy, 1961-2007

(current dollars, per cent)



Source: Statistics Canada, National Accounts.

nificant increase in contribution rates for the Canada and Quebec Pension Plans, particularly since 1998, and (2) the increasing importance of welfare benefits such as private health and dental benefits plans, which represented 3.0 per cent of labour income in 2005, up from only 1.0 per cent in 1961.⁴ All other components of SLI also increased in importance over the 1961-2005 period: private pensions (2.4 to 3.8 per cent);

⁴ Data on the components of SLI are only available up to 2005.

Employment Insurance contributions (0.7 to 1.5 per cent); retiring allowances (0.0 to 0.7 per cent); and workers' compensation payments (0.8 to 1.3 per cent). Any estimate of the growth in wages which does not include SLI is likely to be an underestimate.

Trends in Labour Productivity and Real Wages

Over the 1961-2007 period, growth in real wages (1.67 per cent per year) has been slightly slower than labour productivity growth (1.73 per cent per year) (Table 2 and Chart 2). The real wage gap, that is, the difference between the real wage growth and labour productivity growth reflects trends in the labour's share of income and labour's terms of trade. Labour's share fell 0.17 per cent per year between 1961 and 2007, from 57.5 per cent of GDP to 53.1 per cent (Table 2 and Chart 3). Over the same period, labour's terms of trade improved by 0.11 per cent per year. In sum, growth in real wages lagged growth in labour productivity over the period 1961-2007 because the labour share declined. The real wage gap would have been even greater had it not been for an improvement in labour's terms of trade.

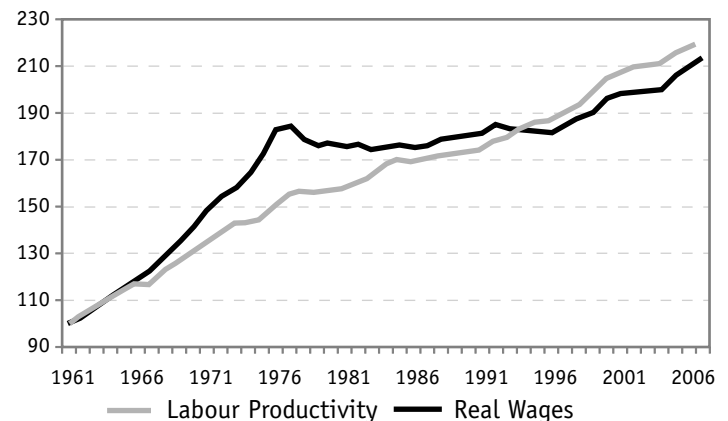
In all sub-periods between 1961 and 2007 the labour share fell. The decline was most pronounced in the period from 1989 to 2000. In fact, the fall in the labour share between 1961 and 2007 was largely due to developments between 1992 and 1996, when the labour share fell from 57.7 per cent to 53.8 per cent of GDP. Since then, the labour share has failed to recover and indeed has further declined. The timing and persistence of this decline in labour share will be discussed in more detail below.

Labour's terms of trade improved slightly from 1961 to 2007, but this improvement concealed major shifts within the period (Table 2 and Chart 4). Labour's terms of trade improved considerably from 1961 to 1973, overcoming the negative effect of the small fall in labour share to push the rate of growth of real wages well above the rate of growth of labour productivity. After further small increases to 1976, labour's terms of trade fell steadily until the early 1990s. This fall resulted in weak real wage growth from 1981 to 1989, which at 0.28 per cent per year was well behind growth in labour productivity of 1.15 per cent per year. From 1989 to 2000, there was a further fall in labour's terms of trade, though less so than in the 1980s. Real wages still failed to keep pace with labour productivity as the labour share also fell sharply. Finally, between 2000 and 2007 there was a turnaround, real wage growth outpaced labour productivity growth for the first time since the 1970s, due exclusively to gains in labour's terms of trade.

Trends in labour productivity and real wages in other high-income countries

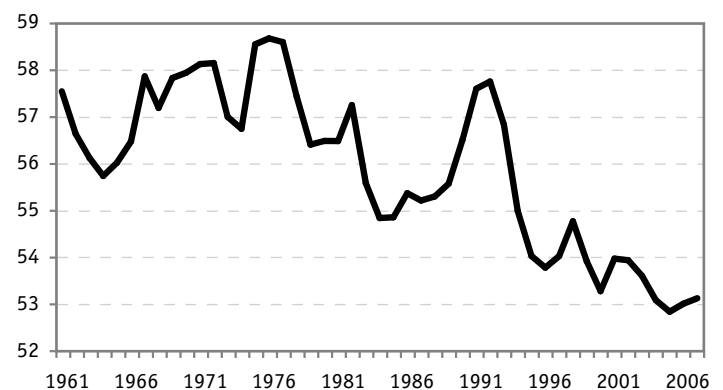
The relationship between labour productivity and real wages in the United States was broadly similar to that observed in Canada. Over the period 1961 to 2007, labour productivity grew by 1.82 per cent per year on average, while real wages grew by 1.74 per cent per year. The labour share

Chart 2
Labour Productivity and Real Wages, Canada, Total Economy, 1961-2007
(1961 = 100)



Source: CSLS calculations based on Statistics Canada data.

Chart 3
Labour's Share, Canada, Total Compensation as a Share of GDP, 1961-2007
(current dollars, per cent)

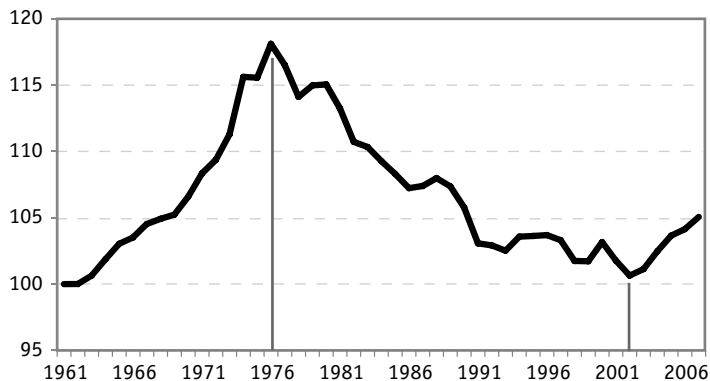


Source: CSLS calculations based on Statistics Canada data.

declined by 0.09 per cent per year, from 64.1 per cent of GDP in 1961 to 61.5 per cent of GDP in 2007. Labour's terms of trade were essentially unchanged over this period, and exhibited far less fluctuation than in Canada.

Between 1970 and 2006, the trend among other high-income countries has been broadly similar to that observed in Canada. In nine of 15 countries for which data were available, labour pro-

Chart 4
Labour's Terms of Trade, Canada, 1961-2007
(Index 1961 = 100)



Source: CSLS calculations based on Statistics Canada data.

Table 3
Factors Explaining the Difference between Median Real Earnings and Labour Productivity Growth in Canada, 1980-2005

| | Absolute (points) | Relative (per cent) |
|--|-------------------|---------------------|
| Median Real Earnings and Productivity Gap, of which: | 1.26 | 100.0 |
| Measurement Issues | 0.25 | 19.8 |
| Inequality | 0.35 | 27.6 |
| Labour's Terms of Trade | 0.42 | 33.3 |
| Labour's Share | 0.25 | 19.8 |

Source: Table 4.

ductivity growth slightly exceeded growth in real wages. Declines in labour share have been partially offset by improvements in labour's terms of trade. There was notable variation among some high-income countries with the United Kingdom and New Zealand actually experiencing increases in labour share, while Germany, Japan, and South Korea all saw substantial deteriorations in labour's terms of trade.⁵

An Accounting Perspective on the Gap between Median Real Earnings Growth and Labour Productivity Growth

In May 2008 Statistics Canada (2008) reported that the median earnings of full-time, full-year workers in Canada rose only \$53 dollars, from \$41,348 (2005 dollars) in 1980 to \$41,401 in 2005.⁶ Over the same period, total economy labour productivity gains were 37.4 per cent. As discussed above, a number of conceptual and methodological hurdles stand in the way of a meaningful comparison of labour productivity and earnings growth. This section provides a decomposition of the gap between stagnant median real earnings and labour productivity growth.

Some of the gap between the growth of median real earnings and the growth of labour productivity is a result of inconsistent measurement. The two measures embody different definitions and concepts that are either not comparable, or cannot be meaningfully compared as they lack consistency. As shown in Table 3, about one fifth of the 1.26 per cent gap between annual median earnings growth and annual labour productivity growth over the 1980-2005 period was due to measurement issues.

First, to make a meaningful comparison between real earnings and labour productivity, the same unit of labour input must be used. While census earnings are reported for full-time full-year workers, productivity is reported for all workers and is best expressed on an hourly basis. In our analysis, the transformation from full-time, full-year workers to hours for all workers was divided in two steps (Table 4). First, the average earnings of full-time full-year workers

5 See the unabridged version of this article for a more detailed analysis of trends in labour productivity and real wages in the United States and other high-income countries.

6 The analysis contained in this section pertains to the 1980-2005 period rather than the 1961-2007 period, which was the focus of the previous section. We adopted the 1980-2005 period in order for the discussion to remain in the context of the current public debate in Canada about the gap between labour productivity and real wages. The lack of consistent median wage data prior to 1980 also prevented us from extending the analysis further back in time.

grew at about the same rate as the earnings of all earners, where an earner is defined as anyone with earnings during the year. Second, the number of hours worked per earner has increased slightly over the 1980-2005 period, up 2.25 per cent, or 0.09 per cent on an annual basis.⁷ Adopting a more appropriate measure of labour input, hours worked, thus increases the gap by 0.10 percentage points (7.9 per cent).

Second, the census definition of earnings excludes supplementary labour income (SLI). On an annual basis, average labour compensation grew 0.35 percentage points faster over the 1980-2005 period than average earnings, in part because labour compensation includes SLI and earnings do not. This difference in growth rates explains slightly more than one-quarter (27.8 per cent) of the gap between the growth in real median earnings and labour productivity.

The use of median earnings instead of average earnings accounted for about one-quarter (27.6 per cent) of the gap between median real earnings and labour productivity growth. This difference reflects increasing earnings inequality in Canada over the period. Median real earnings of the top 20 per cent of full-time full-year earners grew 16.4 per cent, while those of the bottom 20 per cent fell 20.6 per cent (Statistics Canada, 2008). While of great social importance, trends in inequality are largely independent of the relationship between labour productivity and real wages. As such, comparing median earnings and labour productivity may be slightly misleading from the point of view of a consistent statistical framework as it conflates issues of inequality with those of productivity growth.

The use of different price indexes to deflate nominal GDP and labour compensation accounted for one-third of the median earnings/

Table 4
Reconciling Growth in Median Real Earnings and Labour Productivity in Canada, 1980-2005

| Earnings and Productivity Growth Gap | Compound Annual Growth Rates | |
|--|-------------------------------------|----------------------------|
| Real median earnings of full-time full-year workers | 0.01 | |
| Labour productivity (Real output per hour) | 1.27 | |
| Total gap | 1.26 | |
| Contribution to Median Real Earnings and Productivity Gap | Absolute (points) | Relative (per cent) |
| From median to average earnings | 0.35 | 27.6 |
| Change in definition of labour input, of which: | -0.10 | -7.9 |
| from full-time full-year earners to all earners | -0.01 | -0.6 |
| from earners to total hours | -0.09 | -7.3 |
| From earnings to total compensation | 0.35 | 27.8 |
| From CPI to GDP deflator | 0.42 | 33.3 |
| Change in the labour share of nominal GDP | 0.25 | 19.8 |
| Total – All Factors | 1.26 | 100.0 |

Note: Figures may not sum exactly due to rounding.

Source: CCLS calculations based on Statistics Canada data.

labour productivity growth gap between 1980 and 2005. From a consumer perspective, labour compensation must be adjusted using the CPI in order to obtain an indicator of purchasing power that is comparable over time. Over the 1980-2005 period, the CPI grew faster than the GDP deflator. Yet, for consistency the link between real wages and labour productivity requires that both variables be deflated using the same price index. When both measures are deflated using the GDP deflator, a further 0.42 percentage points, or 33.3 per cent, of the gap is explained. This difference between the rate of growth of the price of output, measured by the GDP deflator, and the rate of growth of the price of consumption goods, measured by the CPI, is known as labour's terms of trade.

The remaining 0.25 percentage points (19.8 per cent) of the median earnings/labour productivity gap was due to the falling labour share. In an

7 The number of hours worked per earner tends to be pro-cyclical, i.e. favorable labour market conditions tend to increase the average number of hours worked for individuals working in a given year. Over the 1980-2005 period, the number of hours worked per earner per year based on monthly averages reached a trough in 1982 at 1,463 hours and peaked in 1998 at 1,593 hours (Labour Force Survey). In this context, the difference between 1980 and 2005 is relatively small at 35 hours per year, from 1,521 hours in 1980 to 1,556 in 2005.

accounting sense, faster growth in the non-wage components of GDP explains the falling labour share. During the 1980-2005 period, average annual growth of nominal wages, salaries and supplementary income was 5.77 per cent, slightly slower than nominal GDP growth of 6.08 per cent per year, and significantly slower than the 6.42 per cent per year rate of increase of nominal GDP excluding wages. Of the six largest non-wage components of income-based GDP (accounting for 97.4 per cent of GDP excluding wages), five grew faster than wages and thus contributed to the faster growth of GDP relative to wages. Profits, growing at a robust 6.59 per cent per year, made a large contribution.⁸ In 1980, profits represented 12.2 per cent of GDP. By 2005, the share had risen to 13.8 per cent.

Factors Affecting the Drivers of the Gap between Median Real Earnings Growth and Labour Productivity Growth

This section examines the three most important drivers of the gap between median real earnings and labour productivity growth over the 1980-2005 period: earnings inequality, labour's terms of trade, and labour's share of national income.

Earnings inequality

As noted earlier, the median real earnings of the top quintile increased 16.4 per cent between 1980 and 2005, while those of the bottom quintile decreased 20.6 per cent. Some argue that increased earnings inequality reflects market forces at play and more specifically the growing

demand for highly skilled labour. An extreme example of market forces leading to large gains for skilled labour is J.K. Rowling, the author of the Harry Potter series. She was the first person to become a billionaire by writing books, a reality made possible by the new market forces which among other things facilitate the distribution of products across markets.⁹ Others make the case that increased earnings inequality reflects governance structures that allow persons in positions of power, such as Chief Executive Officers, to obtain earnings increases not commensurate with their contribution to output.

Saez and Veall (2005) find that the increase in total income since the late 1970s in Canada has been concentrated among the top one per cent of earners, whose share of income increased from 5 per cent in the late 1970s to 10 per cent in 2000. The top 0.1 per cent in turn accounted for much of that increase, with their share going from 1.0 to 4.3 per cent over the period. Saez and Veall suggest that the threat of migration to the United States, where the surge in top income share started earlier (1970), might have spurred the surge in Canada. They support their case with evidence from Quebec where residents have a lower propensity to migrate because of language and cultural differences and where the top income share increase has been much more modest. While the finding of increased income inequality due to the rapid rise of incomes at the top of the distribution has been confirmed in many subsequent studies (Murphy, Michaud and Wolfson (2008) and Heisz

8 Nominal net income of unincorporated businesses including rent grew at a 7.54 per cent average annual growth rate between 1980 and 2005, with capital consumption allowances increasing at a 6.42 per cent average annual rate, and net taxes (taxes less subsidies) at a 7.75 per cent rate. Interest and miscellaneous investment income advanced at only a 3.28 average annual rate. In relative terms, the faster growth of corporate profits account for 34.5 per cent, or 23.1 percentage points, of the 67.1 percentage point difference between the growth of wages and the growth of GDP minus wages for the 1980-2005 period. Net taxes contributed 36.2 per cent, capital consumption allowance 25.9 per cent, unincorporated businesses 29.5 per cent and interest and investment income, which grew much more slowly, had a negative contribution of 51.7 per cent.

9 Other examples include professional athletes, musicians and performers in general.

(2007) for example), the drivers behind this trend still remain poorly understood.

Labour's terms of trade

The Consumer Price Index advanced 3.6 per cent per year between 1980 and 2005 compared to 3.2 per cent for the GDP deflator.¹⁰ The CPI measures changes in the prices of a basket of goods and services purchased by consumers. The GDP deflator is a measure of the change in the prices of all components of output in the economy. It is the weighted average of deflators for personal consumption, government consumption, investment, exports, and imports.

Changes in labour's terms of trade are equal to changes in the GDP deflator less changes in the CPI. For example, if the prices of the goods produced by workers, which are measured by the GDP deflator, rise more quickly than the goods consumed by workers, measured by the CPI, then the workers are better off; their terms of trade have improved.¹¹

It is interesting to examine what happened to labour's terms of trade between 1980 and 2005, in order to shed more light on the discussion presented in the previous section. Over this period, labour's terms of trade deteriorated 0.42 percentage points per year (Table 5 and Chart 4). Three-quarters of this deterioration was driven by slower inflation in the price of investment goods, primarily in the 1990s. This trend reflected in large part the falling prices of information and communications technology (ICT) investment goods over that period.

Over the last five years, however, falling ICT prices have been dominated by Canada's improving international terms of trade, a

direct consequence of rising commodity prices. As a result, labour's terms of trade have improved steadily after 2002.

Labour's share

Labour's share fell 3.7 percentage points from 56.5 per cent of GDP in 1980 to 52.8 per cent in 2005 (Chart 3). It should be noted that with the large labour income increases of top earners, the labour share of the bottom 80 or 90 per cent of workers fell even more than represented by average figures. The potential causes of the decrease in labour share in Canada since 1980 are multiple. The brunt of the shift in the relationship between labour productivity and real wages finds its source in the 1990s, and especially between 1992 and 1996 when the share fell from 57.7 per cent to 53.8 per cent. The following sub-sections outline an explanation for the downward trend in labour's share in terms of three key drivers: the declining bargaining power of workers, rising commodity prices, and an increasing share of GDP going to capital consumption allowances (CCA).

The declining bargaining power of workers

The fall in labour share in the 1992-1996 period coincided with a major policy shift in Canada. In 1991, the Bank of Canada and Finance Canada adopted an inflation target of 2 per cent. A rise in short-term interest rates was engineered to lower inflation expectations, which contributed to a recession and a prolonged period of stagnation. The unemployment rate reached 11.4 per cent in 1993 and remained above nine per cent until 1998. Since the mid-1990s, real wages failed to make up for the shortfall that occurred

10 It is also possible to use the Personal Consumption Expenditures deflator (PCE) to obtain a measure of real wages. In Canada, the PCE has grown 0.20 percentage points per year slower than the CPI over the 1980-2005 period. If we had used the PCE rather than the CPI, the gap between real median earnings and labour productivity growth over the 1980-2005 period would have been 1.06 percentage points per year rather than 1.26 points per year. Similarly, the absolute contribution of falling terms of trade for labour to the gap between real wages and labour productivity growth would have halved (from 0.42 points to 0.22 points per year). See the unabridged version of the paper for an explanation of reasons behind this divergence.

11 See the unabridged version of this article for a more detailed derivation of this relationship.

Table 5

Decomposition of Labour's Terms of Trade, Canada, Total Economy, 1961-2007

| | Labour's Terms of Trade | CPI | Domestic Economy Deflators | | | | International Trade Deflators | | |
|--|-------------------------|------|----------------------------|-------------|-----------------------------|------------|-------------------------------|---------|---------|
| | | | GDP | Consumption | Current Government Spending | Investment | Total | Exports | Imports |
| Compound Annual Growth Rate (per cent) | | | | | | | | | |
| 1961-07 | 0.11 | 4.45 | 4.57 | 4.41 | 5.44 | 3.89 | .. | 4.05 | 3.59 |
| 1961-76 | 1.12 | 4.66 | 5.83 | 4.92 | 7.59 | 5.69 | .. | 5.66 | 4.63 |
| 1976-02 | -0.61 | 4.59 | 3.95 | 4.49 | 4.51 | 3.12 | .. | 3.57 | 4.10 |
| 2002-07 | 1.08 | 2.76 | 3.87 | 1.95 | 3.52 | 2.30 | .. | 1.19 | -3.32 |
| 1980-05 | -0.42 | 3.62 | 3.19 | 3.42 | 3.67 | 2.16 | .. | 1.85 | 1.66 |
| Absolute Contribution (percentage points) | | | | | | | | | |
| 1961-07 | 0.11 | .. | .. | -0.03 | 0.17 | -0.12 | 0.11 | -0.11 | -0.22 |
| 1961-76 | 1.12 | .. | .. | 0.15 | 0.55 | 0.23 | 0.21 | 0.20 | -0.01 |
| 1976-02 | -0.61 | .. | .. | -0.06 | -0.02 | -0.32 | -0.18 | -0.33 | -0.15 |
| 2002-07 | 1.08 | .. | .. | -0.46 | 0.15 | -0.10 | 1.53 | -0.60 | -2.13 |
| 1980-05 | -0.42 | .. | .. | -0.11 | 0.01 | -0.32 | 0.01 | -0.58 | -0.59 |
| Relative Contribution (per cent) | | | | | | | | | |
| 1961-07 | 100.0 | .. | .. | -24.2 | 152.4 | -108.1 | 98.2 | -93.6 | -191.8 |
| 1961-76 | 100.0 | .. | .. | 13.1 | 47.4 | 19.8 | 17.7 | 17.0 | -0.7 |
| 1976-02 | 100.0 | .. | .. | 9.0 | 2.7 | 49.4 | 27.9 | 51.0 | 23.1 |
| 2002-07 | 100.0 | .. | .. | -41.2 | 13.3 | -8.6 | 137.6 | -54.1 | -191.7 |
| 1980-05 | 100.0 | .. | .. | 25.3 | -2.3 | 74.5 | -1.9 | 134.8 | 136.6 |

Note: Some figures may not add due to rounding and to small exclusions from GDP.

Source: Statistics Canada, National Accounts and Consumer Price Index.

during the period of weak economic growth and high unemployment in the first half of the 1990s. The inability of the labour share to return to pre-1991 levels reflects in part the falling bargaining power of workers.¹²

In Canada, the following factors have eroded the wage bargaining power of workers in recent years:

- Globalization has affected the bargaining power of Canadian workers through reductions in trade barriers and increased competition from low-wage countries. The threat of offshoring has tempered wage demands and driven down the economic rents over

which workers had previously been able to bargain.

- In Canada, the unionization rates have exhibited a downward trend since the late 1990s (Chart 5). This trend suggests that workers may be losing some power to bargain for higher wages, resulting in a decline in the labour share.
- Conway, Janod and Nicoletti (2005) find that Canada moved to a less restrictive product regulatory environment between 1998 and 2003. Deregulation of product markets can lead to increasing competition that

12 In a world of perfect competition and constant returns to scale, wage bargaining has no effect on the labour share. Indeed, there is no excess profit (only normal profits) to be shared and labour demands for increases in real wages that exceed average labour productivity gains will remain either unanswered, or will drive the targeted business out of the market. In reality, however, few firms operate in a perfectly competitive market, opening the door to excess profits. This excess profit can be shared between the owners of the firm and labour. This is where wage bargaining can play an important role in affecting the labour share.

reduces excess profits and the ability of workers to obtain higher wages.

- Labour market deregulation also has similar negative effects for the labour share in the short term. In Canada, reduced Employment Insurance benefits, for example, have diminished the capacity of workers to negotiate higher wages as their threat of leaving is less credible.

Commodity prices

In recent years, commodity prices, and particularly oil prices have risen significantly. The direct impact of a demand-induced increase in commodity prices is an increase in economic rent and profits in resource-related industries. For example, in the mining, and oil and gas sector, profits doubled between 2000 and 2006 (Arsenault and Sharpe, 2008).

Higher commodity prices may lead to employment shifts across industries. Between 2000 and 2007, employment in the manufacturing sector fell almost 10 per cent while employment in the mining and oil and gas industry increased about 60 per cent. Because commodity-based industries tend to have larger profit shares and lower labour shares, employment shifts towards these industries lead to a decreasing labour share.

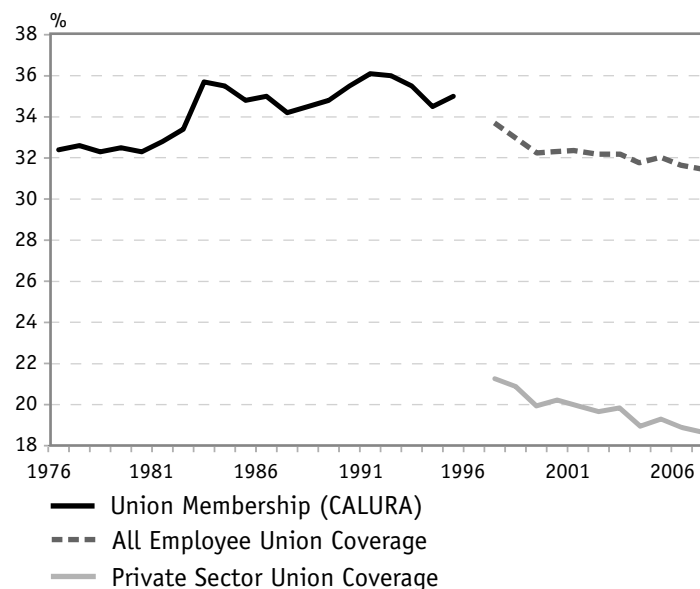
In the long term, the main effect of a permanent increase in commodity prices on labour's share results from changes in industrial structure. While firms, including manufacturers and commodity producers, will eventually adjust to the new set of relative prices at home and abroad, employment shifts towards industries with lower labour share have the potential to translate into a permanently lower labour share at the aggregate economy level.

Capital Consumption Allowances

Between 1980 and 2005, as labour share has declined the shares of several non-wage compo-

Chart 5

Unionization Rate,* Canada, 1976-1995 and 1997-2007



* From 1976 to 1995, the series is derived from CALURA and refers to union-membership. For the 1997-2007 period, data are from the LFS and refers to employees who are members of a union and employees who are covered by a collective agreement or a union contract.

Source: Statistics Canada, Cansim Table 379-0025 and 282-0078. Corporations and Labour Unions Returns Act (CALURA) and Labour Force Survey (LFS).

nents of GDP have increased. As was just noted, changing market and insitutional conditions have favored an increase in the profit share, which increased as a share of GDP by 1.5 percentage points from 1980 to 2005. A less obvious but still important development has been the increase in the share of GDP accounted for by capital consumption allowances (CCA), also called depreciation.

In recent years, the proportion of short-lived capital assets, such as information and communication technologies, has increased significantly as a share of new investment. Because these assets depreciate at a faster rate, a larger share of current production must be used to replace them. As a result, the share of capital consumption allowance (CCA) in GDP increased by 0.8 percentage points from 1980 to 2005.

Conclusion

The median real earnings of Canadians barely increased between 1980 and 2005; over the same period, labour productivity rose by 37.4 per cent. This divergence can be explained by four factors: measurement issues, an increase in earnings inequality, a decline in labour's terms of trade, and a decline in labour's share of national income.

The most important measurement issue is the definition of real wages. The labour compensation series from the Canadian Productivity Accounts covers the widest definition of labour compensation and covers the widest definition of worker. It is therefore used as the measure of real wages in this article. Moving from earnings of full-time full-year workers to labour compensation per hour explains about one-fifth of the real wages and labour productivity growth gap over the 1980-2005 period.

Rising earnings inequality, as captured by the difference in average and median real earnings growth, accounts for about one-quarter of the gap. The sources of the significant increase in earnings inequality in Canada since the late 1970s are still under investigation, but any convincing explanation will have to focus on the increasing concentration of income among top earners.

Labour's terms of trade deteriorated significantly from 1980 to 2005, and accounted for 33.3 per cent of the gap between the growth in real median earnings and labour productivity. Three-quarters of this deterioration was the result of the quality-adjusted prices of investment goods rising much more slowly than the Consumer Price Index.

The fall in labour's share explained the last fifth of the gap between the growth of real median earnings and the growth of labour productivity over the 1980-2005 period. A substantial fall in the labour share occurred during the recession and prolonged stagnation of the first

half of the 1990s. The relationship stabilized after 1996, with real wages growing at roughly the same pace as labour productivity. Yet, the ground lost was never made up.

Workers were unable to recover the same share of income they had enjoyed earlier for three key reasons. First, bargaining power was weakened by declining unionization, deregulation, and increased competition from low-wage countries. Second, a boom in commodity prices led to an increased profit share, particularly in resource-related industries. Finally, the structural shift to short-lived assets such as ICT investment goods increased the share of CCA in GDP.

In some sense, this article raises more questions than answers. Further research is required to understand more fully what has driven changes in earnings inequality, labour's terms of trade, and labour's share. Labour productivity growth is the only way to raise living standards in the long run, and real wages are the most direct mechanism to transfer the benefits of productivity growth to Canadians. It is worrying, therefore, that real median earnings failed to increase from 1980 to 2005, while labour productivity grew 37.4 per cent. If most Canadians are not seeing the benefits of labour productivity growth in the form of higher real wages, why should they support policies favouring productivity growth?

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