

LOW PRODUCTIVITY GROWTH IS HOLDING BACK CANADIANS' PAY GROWTH

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POLICY PERSPECTIVES



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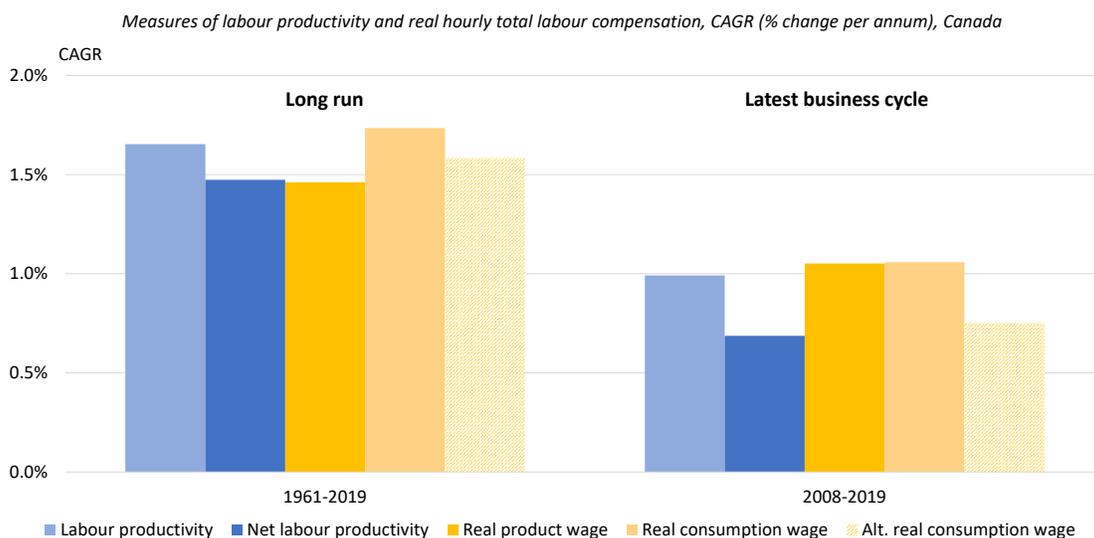
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LOW PRODUCTIVITY GROWTH IS HOLDING BACK CANADIANS' PAY GROWTH

HIGHLIGHTS

- A populist narrative goes like this: policymakers can ignore productivity growth because the link between people's pay and a country's productivity is broken; workers are receiving a shrinking share of the economic pie; and overall income inequality is rising. However, a careful look at the data for Canada shows that none of these claims are correct.
 - A [peer-reviewed study](#) by this author finds that over the long run from 1961-2019, growth in productivity and real average pay in Canada are broadly in line at around 1.5-1.7% per annum (**Figure A**).
 - The period since 2000 has seen Canada's weakest productivity growth since records began in 1961.
- Initially, during the 2000-08 business cycle, the impact of the productivity growth slowdown on workers' pay growth was ameliorated by some extraordinary – but temporary – relative price shifts. As China opened to the world, Canada's resource-based economy benefited from soaring commodity prices, while cheap import prices boosted consumers' purchasing power.
- During the 2008-19 business cycle, the chickens came home to roost. There were no further fortuitous terms of trade shifts. Regardless of price measure, real pay growth slowed to around 1% per annum – broadly in line with the rate of labour productivity growth. Canada's productivity growth problem was laid bare (**Figure A**).

FIGURE A: **PRODUCTIVITY AND PAY ARE GROWING TOGETHER, ONLY SLOWER THAN EVER**



Note: Labour productivity is real GDP at market prices per hour worked. Net labour productivity is real NDP at basic prices per hour worked, where output excludes depreciation and output-based taxes. Total compensation per hour worked includes supplementary labour income and the labour income of the self-employed. Labour productivity, net labour productivity and the real product wage use the same price measure, the GDP deflator (PGDP). The real consumption wage and alternative real consumption wage use the household consumption expenditure deflator (HCE) and the consumer price index (CPI), respectively.

Source: Williams (2021).

HIGHLIGHTS (CONT'D)

- Canada's productivity growth performance ranks 21st out of 23 OECD countries over 1970-2000 and 25th out of 36 OECD countries over 2000-19. By 2019, on a purchasing power parity basis, real output per hour worked in Canada was about 27% lower than the United States, 21-22% lower than France and Germany, and 10% lower than the United Kingdom.
- Had Canada's productivity growth rate after 2000 matched the average for the members countries of the Organization for Economic Cooperation and Development (OECD), the average Canadian's pay would be \$2,900 higher in 2019.
- Had Canada's productivity growth after 2000 matched its own performance from 1961 to 2000, the average Canadian's pay would be around \$13,550 per annum higher in 2019.
- International studies show that innovation diffusion slowed among firms after 2000, with the most likely culprits being regulatory impediments on competition and the reallocation of labour and capital to best use. For Canada since 2000, in terms of output per hour of labour input, non-leading firms have fallen further behind the country's leading companies, while Canada's most productive businesses have lost ground to leading global firms.
- The good news is that there is ample scope for productivity "catch up". Canada can raise productivity – and therefore real pay and living standards – through the widespread adoption of best practices and technologies already deployed by leading countries and firms.
- Canadian policy discussions on economic growth tend to be overwhelmingly preoccupied with increasing GDP by expanding the labour supply. Increases in immigration, population and labour supply increase GDP, but they have negligible impact on GDP *per capita*. Furthermore, they do *not* materially alter the age structure of the population over time.
- In contrast, higher productivity has the advantage of raising workers' real incomes and GDP *per capita*. Thus, an economic growth strategy centred on raising productivity growth would be a better strategy than one focused on expanding the labour supply – because it would actually generate the resources to support retired workers and fund enhancements to Canada's social safety net.
- Curing the productivity-related maladies that have long weighed on Canada's economic performance will require governments to review the structural policy settings that encourage or discourage product market competition and innovation diffusion, business dynamism and creative destruction, resource reallocation, and private sector investment in capital, skills and scale.
- Productivity growth matters. Canadians should be concerned about the country's serially low productivity growth because it leads to low real pay growth. Canada needs an institutional and policy framework that creates better conditions for economy-wide productivity gains.

"The report of my death was an exaggeration."

Mark Twain, 1897

INTRODUCTION

A paper by this author is the [lead article in the Spring 2021 edition of *International Productivity Monitor*](#), a peer-reviewed journal published by the Canadian Centre for the Study of Living Standards and The Productivity Institute of the United Kingdom. The journal's objective is to focus attention on the importance of productivity for improving living standards and quality of life. It ranks in the top fifth of all economic journals on RePEc with an impact factor of 2.718, and is in the top 10% of all economic journals by file downloads.

[International Productivity Monitor](#) publishes high-quality articles on productivity issues, trends and developments in Canada and other countries and serves as a vehicle for the international discussion of productivity topics. The articles are largely non-technical in nature and understandable to a wide audience of productivity researchers and analysts as well as the general public. The publication is accessible online and free to download.

"[Pay and Productivity Growth in Canada: Growing Together, Only Slower than Ever](#)" examines the relationship between growth in real output per hour worked ("labour productivity") and real total labour compensation per hour worked ("pay") over six business cycles, from 1961 to 2019.¹ When both concepts

are carefully measured, pay and productivity in Canada are shown to have broadly kept pace with each other over both the long run and the most recent business cycle from 2008-2019. The long run relationship between growth in Canadian labour productivity and workers' average pay remains foundational and intact.² As the Mark Twain quote above suggests, the reports of its death were exaggeration.

MEASURING PAY AND PRODUCTIVITY

The textbook neoclassical macroeconomic theory of the firm predicts a long-run relationship between labour productivity and "real product wages", where *both* output and workers' pay are measured in terms of output prices. Households are also interested in the purchasing power of their income, which calls for an examination of "real consumption wages" (nominal total labour compensation per hour worked, deflated by *consumer prices*). Irrespective of changes in productivity, workers benefit when the prices of goods and services they produce outpace the prices of goods and services they consume. The ratio of output prices to consumer prices is known as "labour's terms of trade". Finally, in the interests of equity and incentives to work, workers are also interested in the share of nominal output paid to labour, known as the "labour share".

An assessment of these long-run relationships requires careful attention to three key measurement issues.

1. Which measure of nominal wages?

The measure of nominal hourly wages must be comprehensive because all labour inputs contribute to an economy's output. It should include all types of compensation paid by firms to workers for applying their time and skills to the production process. It should include the labour compensation of both employees and self-employed workers (excluding dividends and other capital income received as business owners), because the measure of output in the labour productivity statistics includes the output of both employees and the self-employed. Similarly, it should include the compensation of workers across all industries, including both the business and non-business sectors, since all of these labour inputs contribute to the economy's total output.

Statistics Canada's Productivity Accounts provide the only comprehensive source of nominal labour compensation data. Other wage data sources – the Labour Force Survey, Survey of Employment, Payroll and Hours, and the National Accounts – are incomplete. They are likely to *understate* nominal labour income by excluding the *rising* share

The long run relationship between Canada's labour productivity and workers' average pay remains foundational and intact.

¹ Hereafter, "productivity" and "pay" refer to *levels*, and *growth* refers to their change over time. An acceleration (deceleration) in levels is an increase (decrease or slowdown) in growth rates.

² The analysis does not consider changes in the distribution of pay across income groups, firms, regions, industries, skills, or socioeconomic characteristics. It is noteworthy that although income inequality did increase in Canada during the 1980s and 1990s, the Gini coefficients for market incomes and disposable incomes peaked in 1998 and 2004 respectively ([Statistics Canada, 2021](#)). In other words, Canada is unlike the U.S. in that overall household income inequality has been *declining* for about two decades.

of compensation that is paid by employers as supplementary labour income (SLI).³ They also exclude the labour income of self-employed workers and/or the non-business sector.

2. Which measure of prices (to convert nominal wages to real wages)?

When assessing the relationship between pay and productivity in accordance with the neoclassical theory of the firm, the most appropriate price deflator is output prices. The GDP deflator, PGDP, is the most appropriate available price measure. Extending the analysis to household welfare (as measured by real incomes) leads to a focus on the real consumption wage. Here, the most appropriate price measure is the household consumption expenditure deflator (HCE) from the national accounts, which is a subset of PGDP. CPI is widely known but is the least appropriate price measure for any assessment of the relationship between pay and productivity. Based on a fixed basket of goods and services, CPI excludes substitution effects. Its use leads real pay growths to be understated, especially from the early 2000s when the CPI rose faster than HCE.⁴

Rising depreciation costs and output-based taxes reduce the income firms generate from production.

3. How much income do firms generate from production?

The conventional measure of “output” in labour productivity overstates the income firms have available to compensate labour and capital as factors of production. Non-factor production costs such as depreciation and output-based taxes reduce firms’ income generated from production. These costs vary over time. For example, they were 28% of nominal GDP in 2019 compared to 25% in 1961.⁵ It is generally accepted that the capital stock is depreciating at a faster rate because digital, intangible, and intellectual property assets have shorter lives and play an increasing role in modern production. When a rising proportion of output is devoted to maintaining the capital stock, or to paying output-based taxes, these resources are not available to compensate factors of production. In other words, this is not income that firms can use to pay their employees or the firm’s owners.

A more appropriate measure of productivity may therefore be “net labour productivity,” where output is net of non-factor production costs. Only a proxy of hourly real net domestic product (NDP) at basic prices can be developed because Statistics Canada does not calculate a price deflator specific to NDP.⁶ With that caveat, the conventional measure of labour productivity appears to overstate the income from production available to firms relative to net labour productivity.⁷

RESULTS

Overview

The results of the research are presented in **Table 1**, showing compound annual growth rates (CAGR) for productivity growth and pay growth. **Figure 1** plots this data over the six business cycles from 1961-2019, corresponding to Columns B to F from **Table 1**. To abstract from short term wage pressures caused by business cycle fluctuations, the analysis focuses on the CAGR from business cycle peak to peak. Column A shows the business cycle dates as determined by the [Business Cycle Council of the C.D. Howe Institute](#). Both 1961 and 2019 are starts and ends of business cycles, respectively.

³ SLI includes employers’ contributions to: group or private pension plans; health, dental, life and other insurance policies; and government plans such as the Canada Pension Plan, Quebec Pension Plan, employment insurance, and workers’ compensation insurance. National Accounts (NA) wage data shows that SLI has become a much larger share of employers’ cost of labour over time, increasing from 9% to 14% of compensation between 1981 and 2019. Conversely, money wages have dropped from 91% of total remuneration to 86% over that period. National accounts labour compensation data exclude the self-employed.

⁴ Four main sources of divergence between the consumption deflator and the CPI are the formulae, relative weights on comparable items, treatment of medical expenses, and treatment of housing (see Johnson, 2017; and [Pessoa and van Reenen, 2013](#):29-30, for the United States). Substitution effects missed by the CPI may have become more important from the 2000s due to the advent of cheap imports from China after its 2001 admittance to the World Trade Organization, internet shopping, e-commerce and dynamic pricing by firms. Another possibility is that there are differences in the treatment of housing in HCE and CPI that have become more important during Canada’s post-2000 house price boom ([Williams, 2018](#); [Bergevin, 2012](#)).

⁵ Taxes directly linked to output include the goods and services tax (GST), provisional sales taxes (PST) or harmonized sales taxes (HST), import duties, export taxes, amusement taxes, air transportation taxes, municipal sales taxes, and environmental levies and excise on tobacco, alcohol or fuel. Taxes are remitted to the government when a product is sold: if no output is sold, taxes are zero. Taxes indirectly linked to production must be paid by producers regardless of the level of profitability or sales. Examples include business property taxes, license fees, and taxes on pollution not linked to sales units.

⁶ The System of National Accounts defines output “at basic prices” as GDP at market prices less direct output-based taxes only (i.e. taxes minus subsidies on products and imports). This paper removes both direct and indirect output-based taxes from the measure of output since neither is available to firms to compensate factors of production. For simplicity, this paper refers to this output concept as “at basic prices” to differentiate it from gross or net output at market prices.

⁷ An appropriate deflator for NDP at basic prices would exclude from output prices the price effects of depreciation and output-based taxes. This output price measure would be the most consistent with the theory of the firm and in principle should be used to calculate net labour productivity and real product wages. In practice, a NDP deflator does not exist, so the GDP deflator is used as the measure of output prices. If overall price growth for depreciation and output-based taxes is slower (faster) than the GDP deflator, growth in net labour productivity and real product wages could be overstated (understated).

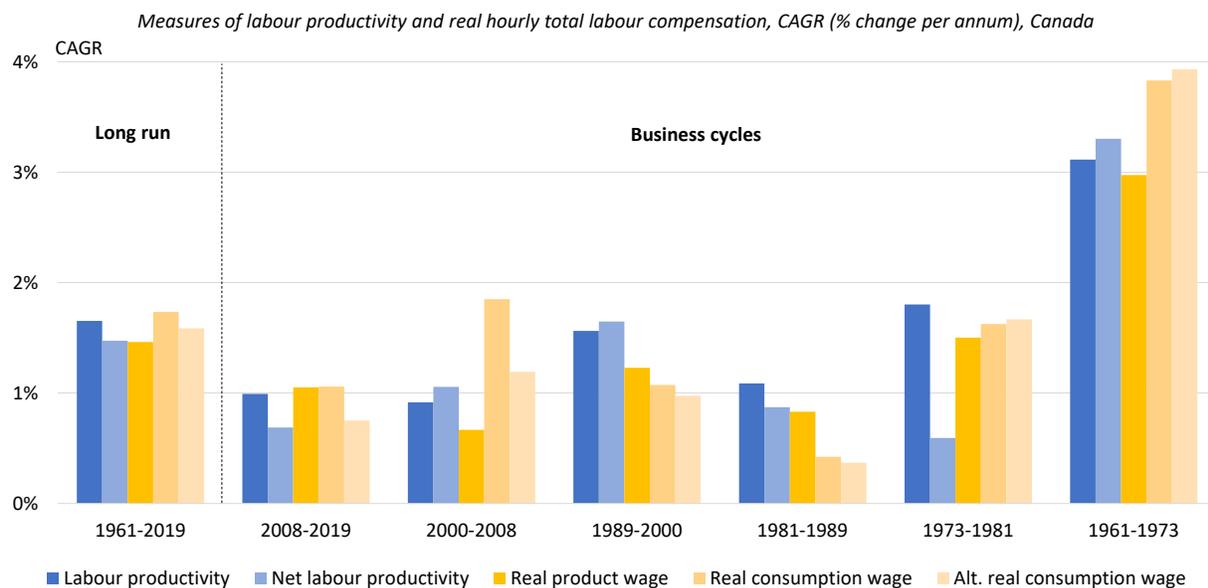
TABLE 1: GROWTH IN PRODUCTIVITY AND PAY OVER CANADIAN BUSINESS CYCLES
COMPOUND ANNUAL GROWTH RATES (CAGR, % CHANGE PER ANNUM), ANNUAL DATA, CANADA

Business cycle	Labour productivity	Net labour productivity	Real product wage	Real consumption wage	Alt. real consumption wage	Labour's terms of trade	Gross labour share	Net labour share
Years	Real GDP at market prices /hours worked	Real NDP at basic prices /hours worked	Hourly compensation /PGDP	Hourly compensation /HCE	Hourly compensation /CPI	PGDP /HCE	Nominal compensation /Nominal GDP at market prices	Nominal compensation /Nominal NDP at basic prices
A	B	C	D	E	F	G=E-D	H=D-B	I=D-C
1961-1973	3.11	3.30	2.97	3.83	3.93	0.86	-0.14	-0.33
1973-1981	1.80	0.59	1.50	1.62	1.67	0.12	-0.30	0.91
1981-1989	1.09	0.87	0.83	0.42	0.37	-0.41	-0.26	-0.04
1989-2000	1.56	1.65	1.23	1.07	0.97	-0.16	-0.33	-0.42
2000-2008	0.92	1.06	0.67	1.85	1.19	1.18	-0.25	-0.39
2008-2019	0.99	0.69	1.05	1.06	0.75	0.01	0.06	0.36
Long run: 1961-2019	1.65	1.47	1.46	1.73	1.59	0.27	-0.19	-0.01

Note: All data are for the total economy. Nominal net domestic product (NDP) at basic prices is nominal GDP at market prices less depreciation and output-based taxes. Real NDP is nominal NDP deflated by the GDP deflator (PGDP). HCE is the household final consumption expenditure deflator and CPI is the consumer price index. Total labour compensation and hours worked are from the Productivity Accounts where compensation includes supplementary labour income and the labour income of the self-employed.

Source: [Williams \(2021\)](#).

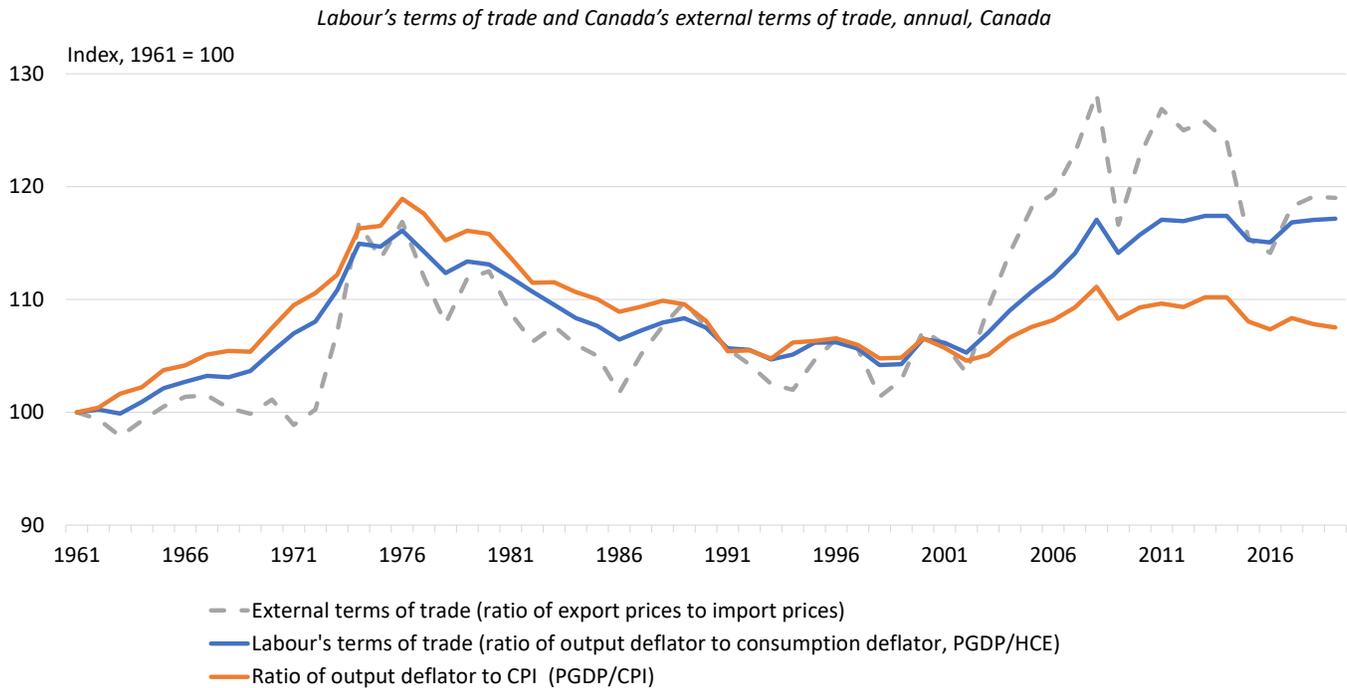
FIGURE 1: PRODUCTIVITY GROWTH AND PAY GROWTH ARE BROADLY ALIGNED IN THE LONG RUN



Note: Labour productivity is real GDP at market prices per hour worked. Net labour productivity is real NDP at basic prices per hour worked, where output excludes depreciation and output-based taxes. Total compensation per hour worked includes supplementary labour income and the labour income of the self-employed. Labour productivity, net labour productivity and the real product wage use the same price measure, PGDP. The real consumption wage and alternative real consumption wage use HCE and CPI, respectively.

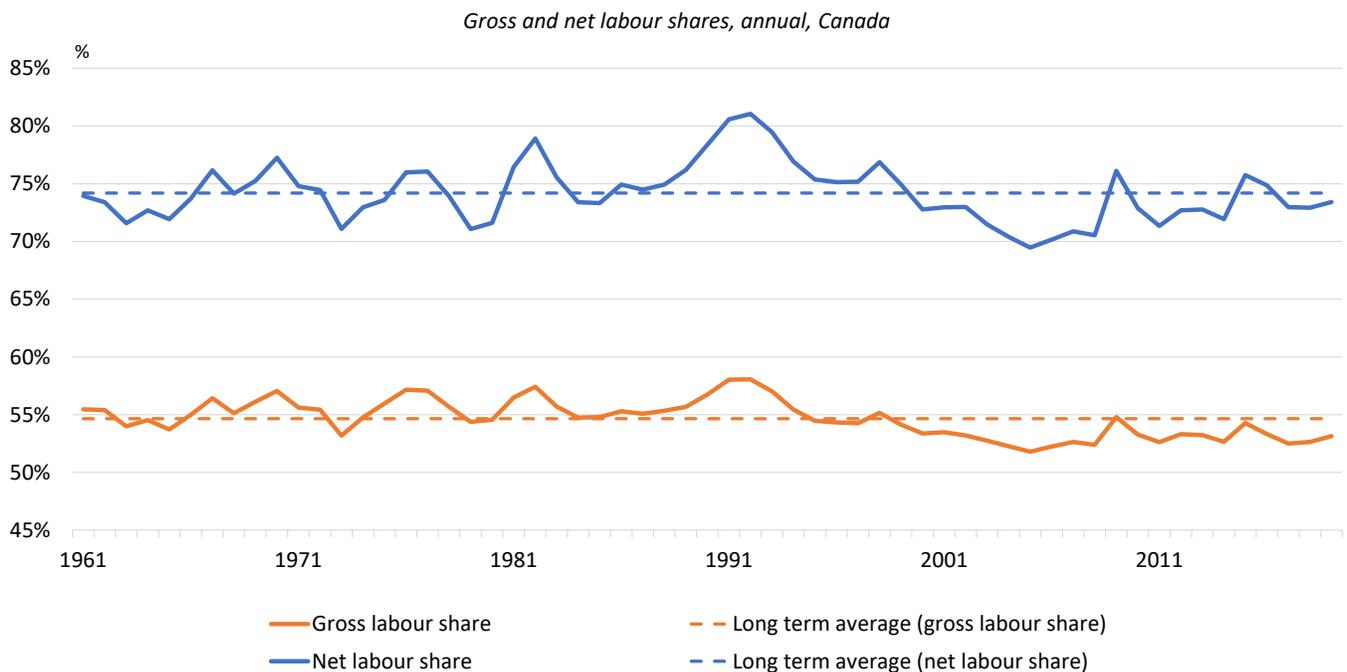
Source: [Williams \(2021\)](#).

FIGURE 2: LABOUR'S TERMS OF TRADE IMPROVED SIGNIFICANTLY IN THE 2000s



Source: Statistics Canada, Tables: 36-10-0129-01, 36-10-0130-01 and 18-10-0005-01.

FIGURE 3: LABOUR'S SHARE OF NET OUTPUT IN 2019 IS CLOSE TO ITS LONG RUN AVERAGE



Note: Gross labour share is nominal total labour compensation / nominal GDP at market prices, where compensation includes self-employed workers
 Net labour share is nominal total labour compensation / nominal NDP at basic prices, where the denominator is GDP less depreciation and output-based taxes

Source: Statistics Canada and author's calculations.

Also, the latest cycle, 2008-2019, is a complete business cycle. Further details on data sources and variable construction can be found in [Williams \(2021\)](#).

Columns B and C, respectively, show the CAGR in labour productivity (hourly real GDP at market prices) and net labour productivity (hourly real NDP at basic prices). Columns D through F respectively show CAGRs for the real product wage (hourly nominal total labour compensation, deflated by PGDP), the real consumption wage (hourly nominal total labour compensation, deflated by HCE), and the more commonly known – but least appropriate – measure of real wages using CPI. All three nominal wage measures are based on total labour compensation per hour worked from the Productivity Accounts, which includes all forms of labour compensation, all workers (including self-employed workers) and all sectors.

Columns G to I, respectively, show changes in labour’s terms of trade (the ratio of output prices to consumption prices) and two calculations for the labour share (the share of income from production paid to labour, where income includes or excludes non-factor production costs).

The most recent business cycle from 2008-19, along with the 2000-08 cycle, saw the slowest Canadian productivity growth since records began in 1961.

Long run results

The bottom row of **Table 1** shows the results for 1961 to 2019. Pay growth and productivity growth in Canada have roughly matched each other over the long run. Over 58 years, labour productivity growth averaged 1.7% per annum and net labour productivity growth was 1.5% per annum. Growth in real wages was similar: 1.5% per annum for real product wage growth, and 1.7% per annum for real consumption wage growth. For the CPI-based real wage measure, growth was in between at 1.6% per annum.

Labour’s terms of trade improved by 0.3% per annum, indicating that workers’ welfare improved as prices of goods and services consumed by workers rose less than prices of goods and services they produced. The gross labour share declined by 0.2% per annum, indicating that workers received a slightly decreasing share of national income compared to capital providers. However, after accounting for non-factor production costs, which rose over the period, the net labour share was unchanged.

2008-2019 business cycle

The most recent business cycle from 2008-19, along with the 2000-08 cycle, saw the slowest Canadian productivity growth since records began in 1961. Labour productivity growth was 1.0% per annum, while net labour productivity growth was even lower, at 0.7% per annum, due to rising costs of depreciation and output-based taxes.

Growth in productivity and pay was slow. Both the real product wage and the real consumption wage averaged

around 1.1% per annum, in line with labour productivity growth and faster than net labour productivity growth. The CPI-based real wage measure was slightly lower at 0.8% per annum, reflecting that the CPI rose faster than PGDP and HCE.

The 2008-19 business cycle saw no change in labour’s terms of trade, in stark contrast to the 2000-08 cycle when Canadian output prices significantly outpaced consumer prices. The gross labour share improved slightly, by 0.1% per annum. The net labour share improved by about 0.4% per annum, reversing the decline that occurred over 2000-08. Overall, the main difference between the 2008-19 and 2000-09 business cycles is that households’ real income was no longer aided by improvements in labour’s terms of trade.

DISCUSSION

The slowdown in real product wage growth in Canada since 2000 is consistent with the slowdown in net labour productivity growth over the same period. In and of itself, this might have given Canadian workers cause for concern in respect of their standard of living. However, during the 2000-08 business cycle, Canada benefited from some very favourable – but temporary – relative price movements that ameliorated the effects of decelerating productivity on pay growth. As China opened to the world, Canada’s resource-based economy benefited from soaring commodity prices, while cheap import prices boosted consumers’ purchasing power (**Figure 2**).

As a result, during 2000-08, real consumption wages grew at roughly twice the pace of labour productivity. Workers' welfare (as measured by real incomes) actually *improved* over 2000-08 because real consumption wages accelerated, even as productivity and real product wages decelerated. This unusual confluence of forces may have obscured and (for a little while) dulled the full ramifications of Canada's post-2000 productivity growth slowdown on workers.

Over the 2008-19 business cycle, the chickens came home to roost. There were no further improvements in labour's terms of trade over 2008-19 (which had previously been boosting real consumption wages). Canada's fundamental productivity growth problem was *ladi bare*.

The post-2000 slowdown in real product wage growth does *not* appear to reflect a decline in share of national income paid to labour once non-factor production costs (i.e. depreciation and output-based taxes) are accounted for. In fact, net of non-factor production costs, the labour share increased over the most recent business cycle from 2008-19. While the net labour share has increased or decreased over various business cycles, these moves have largely offset each other. On balance, the net labour share appears little changed over 1961-2019 (**Figure 3**). Canadian data thus suggests that structural influences on the aggregate net labour share may play a minor role or cancel each other out in the long run, notwithstanding that there are fluctuations across business cycles and complex dynamics at the firm and industry level.

TABLE 2: **POST-2000 SLOWDOWN IN PRODUCTIVITY AND PAY GROWTH**
ANNUAL DATA, CANADA AND G7/OECD COUNTRIES

Measure	Compound annual growth rate (CAGR, % change per annum)	
	1961-2000	2000-2019
Canada		
Labour productivity	1.99	0.96
Net labour productivity	1.78	0.84
Real product wage	1.74	0.89
Real consumption wage	1.90	1.39
Alternative real consumption wage	1.90	0.94
Other advanced countries	1970-2000	2000-2019
G7 labour productivity	2.38	1.16
OECD labour productivity	n/a	1.21

Note: Labour productivity is real GDP at market prices per hour worked. Net labour productivity is real NDP at basic prices per hour worked, where output excludes depreciation and output-based taxes. Total compensation per hour worked includes supplementary labour income and the labour income of the self-employed. Labour productivity, net labour productivity and the real product wage use the same price measure, PGDP. The real consumption wage and alternative real consumption wage use HCE and CPI, respectively.

Source: [Williams \(2021\)](#).

POLICY IMPLICATIONS

Since in the long run the net labour share appears broadly stable, and pay growth and net productivity growth are broadly aligned, it follows that Canada's productivity growth performance has important implications for living standards. Canada's productivity growth rate fell by about half after 2000, as did growth in real product wages (**Table 2**). Had real product wages during 2000-2019 grown at the same pace as net productivity growth over 1961-2000 (i.e. 1.8% per annum instead of 0.9% per annum), pay would have been around 21% higher by 2019. This means Canadian workers' average total compensation in 2019 would have been around \$8 per hour higher in 2019, or about \$13,550 per annum.⁸

Most advanced countries also saw labour productivity growth slow significantly after 2000 to around 1.2% per annum on average among G7 and OECD countries (**Table 2**). [Gordon \(2012\)](#) argues that information and communications technology (ICT) innovations during the third industrial revolution from about 1960-2005, and digital innovations in the fourth industrial revolution now underway, do not have the same potential to generate large, continuous gains in living standards compared to the "great inventions" of the second industrial revolution from 1870-1970. [Brynjolfsson and McAfee \(2011\)](#) and [Mokyr \(2014\)](#) are more optimistic that the recent productivity slowdown is temporary.

⁸ These calculations are relative to actual total compensation of \$37.35 per hour and 1,691 annual hours worked per job in 2019 from the Productivity Accounts.

Nevertheless, Canada's labour productivity growth performance is serially poor, ranking 21st out of 23 OECD countries (for which data is available) over 1970-2000 and 25th out of 36 OECD countries over 2000-19, according to [OECD statistics](#). By 2019, on a purchasing power parity basis, the level of Canadian real GDP per hour worked was about 27% lower than the United States, 21-22% lower than France and Germany, and 10% lower than the United Kingdom.⁹ The evidence thus suggests Canada's economy is *not* on the global technological frontier, which arguably renders the debate between the techno-optimists and techno-pessimists somewhat moot in the Canadian context. The good news is that there appears to be ample scope to raise Canada's productivity growth by moving the country closer to the technological frontier. This can be achieved by adopting innovations already deployed by leading countries and firms. In other words, with the right set of economic policies, Canada can "catch up".

[Andrews et al. \(2016\)](#) attributes the global productivity slowdown after 2000 to increasing productivity dispersion among firms, reflecting a worldwide slowdown in the diffusion of innovations between firms. The most likely culprits are regulatory impediments that dampen competition and the reallocation of labour and capital to best use. For Canada, [Gu \(2019\)](#) finds that since 2000, in terms of output per hour of labour input, Canada's non-leading firms have fallen further behind the country's leading firms, while Canada's most productive businesses themselves have lost ground to leading global firms.

An economic growth strategy centred on raising productivity growth would be a better strategy than one focused on expanding the labour supply because it would raise real incomes and generate the resources to support retired workers and fund enhancements to the social safety net.

Canadian policy discussions about economic growth tend to be preoccupied with expanding the labour supply to increase GDP. Increased immigration, population and labour supply do increase GDP but they have no impact on GDP *per capita* ([Riddell et al., 2016](#)) and do not materially alter the age structure of the population over time ([Robson and Mahboubi, 2018, Figure 4](#)). In contrast, higher productivity has the advantage of raising workers' real incomes and GDP *per capita*. Thus, an economic growth strategy centred on raising productivity growth would be a better strategy than one focused on expanding the labour supply because it would generate the resources to support retired workers and fund other enhancements to the social safety net (such as in [Green et al., 2020](#)).

Curing the productivity-related maladies that have long weighed on Canada's economic performance will require policymakers to consider structural policy settings that encourage or discourage product market competition and innovation diffusion, business dynamism and creative destruction, resource

reallocation, investment in capital and skills, and economies of scale. An institutions-based approach to solving Canada's productivity growth malaise could involve establishing an Australian-style national [Productivity Commission](#) as an independent government agency tasked with conducting public inquiries on microeconomic problems and reforms ([Williams and Finlayson, 2021](#); [Capeluck, 2016](#)) or establishing a United Kingdom-style university-based [Productivity Institute](#) ([van Ark and Venables, 2020](#)). The public benefits of such an institution would easily exceed its costs.

CONCLUSION

A populist narrative these days says that policymakers can ignore productivity growth because the link between people's pay and a country's productivity is broken; workers are receiving a shrinking share of the economic pie; and overall income inequality is rising. However, a careful look at the data for Canada shows none of these claims are correct. They are based on an incomplete measure of nominal total labour income, an inappropriate measure of prices used to calculate real wages, and an overstatement of the output that firms have available to compensate factors of production – including labour – due to rising production costs in respect of depreciation and output-based taxes.

Once these measurement issues are addressed, Canadian pay growth and productivity growth are broadly aligned over the long run across 1961-2019 and also during the most recent business cycle from 2008-2019. During the 2000-08 business

⁹ Purchasing power parities (PPPs) are rates of currency conversion that equalise the purchasing power of different currencies, by eliminating the differences in price levels between countries (see [OECD website](#)).

cycle, there was an extraordinary – but temporary – rise in labour’s terms of trade, in part reflecting the surge in Canada’s external terms of trade. This improved the purchasing power of workers’ incomes even as productivity growth slowed.

Over the most recent business cycle from 2008-19, the chickens came home to roost. There were no further fortuitous terms of trade shifts to raise real consumption wages. Canada’s productivity growth problem was laid bare. The post-2000 slowdown in real product wage growth does not reflect a decline in the labour share after accounting for the increase in costs in respect of depreciation and output-based taxes. In fact, the net labour share increased over 2008-19 and was little changed overall between 1961 and 2019. The net labour share in 2019 was around its long-term average.

Fundamentally, Canada’s serially weak productivity growth, the general stability of the labour share (adjusted for depreciation and output-based taxes), and the lack of further gains in labour’s terms of trade after 2008 mean there is little to drive long term growth in real pay. Productivity growth matters. To generate higher average real pay and living standards, Canada’s policymaking institutions need to prioritize understanding and accelerating productivity.

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