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THE **Quarterly**

FALL 2019

AUTOMATION AND AI
**Why Technological Change Won't
Create Mass Unemployment**



ALSO INSIDE

Reality of Extreme
Weather

Barriers to Modernizing
Health Care

Women and
Economic Progress



Niels Veldhuis
President, Fraser Institute

Dear Fraser Institute Friends and Supporters,

What do Richard Branson, Elon Musk, Mark Cuban, and Mark Zuckerberg have in common? Of course they are all impressive entrepreneurs who have enriched our lives tremendously. They are also all deeply concerned about automation's impact on future employment.

Now, dire predictions about the adverse impact of technology on jobs are nothing new, and you might say that such gloomy predictions are natural and a first reaction for many, if not most, people. But our job at the Fraser Institute is to take a step back, look at history, and dispassionately examine issues empirically.

This is especially true when several of the successful entrepreneurs mentioned above and other influential people, including politicians, are using predictions of technology-induced job losses to advocate for a major new government program—a basic universal income or guaranteed annual income. The idea behind such a program is that everyone will receive an unconditional cash transfer from government to ensure that everybody has a minimum annual income.

But is the universal income program necessary? Is technology really a job-killer? It is for these reasons that we recently published a series of essays entitled *Technology, Automation and Employment: Will this Time be Different?* You can find a summary of the study on page 2 and an interesting commentary by Professor Livio Di Matteo on page 14.

Our research finds that despite dire predictions, history and demographics suggest that the effect of new technologies (including artificial intelligence) will likely resemble past experiences—businesses and workers will adapt and new jobs will emerge. That is not to say that taxi and Uber drivers, truck drivers, forklift operators, and many other jobs might someday be a thing of the past, but it is unlikely that technology will lead to massive unemployment.

There is a lot of other great work in this issue and while I can't highlight everything, I do want to note two excellent commentaries: one that appeared in the *Globe and Mail* this summer explaining that it's time to shift the housing affordability discussion away from discouraging buyers and towards the construction of more homes (see page 16), and the other about extreme weather events that appeared in the *National Post* (see page 22).

After you are finished reading this issue, please pass it on to your friends, family, or colleagues.

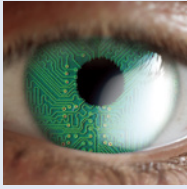
As always, thank you for your ongoing support.

Best,

A handwritten signature in blue ink, appearing to read 'Niels Veldhuis'.

Niels

New Research



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Artificial Intelligence Will Kill Jobs—and Create Them

Steven Gliberman

Ever since the Industrial Revolution, the automation of tasks once done by humans has raised fears about machines putting humans out of work and creating mass poverty. Happily, history has repeatedly proven the doomsayers wrong. While automation has certainly led to declines in entire industries (and employment in those industries), the relationship between automation and overall employment growth has been strongly positive over time.

There are sound explanations for this positive relationship. One, automation increases labour productivity and therefore raises the income levels of workers. Resulting increases in income translate into increased demand for all types of goods and services, which obliges businesses to hire additional workers. Second, automation directly increases the demand



for labour skills that are complementary to the development and efficient use of new technologies.

For example, consider accounting and spreadsheet software packages that have made labour-intensive bookkeeping and data processing occupations increasingly uneconomical. At the same time, such software has created enormous opportunities for individuals who can use the software to more efficiently perform new tasks or existing tasks such as project and supply chain management.

Notwithstanding historical experience, the latest generation of automation, broadly referred to as Artificial Intelligence (AI), has many sounding the old alarm bells about machines taking jobs away from humans. For example, Elon Musk, the controversial CEO of Tesla, warned that robots will be able to do everything better than humans. Crucially, Musk and others who think like

him draw a distinction between automation in the past, which was largely about mechanical power replacing human muscle, and AI, which is about making machines both stronger and smarter than humans.

Even as machine-learning technology advances and enables computers to make increasingly sophisticated decisions, new opportunities will emerge for humans to employ automated intelligence to do wholly new workplace activities and do their existing jobs more effectively.

Many computer scientists including Canadian AI expert Yann Lecun caution it will take decades to build AI systems that are even close to human-level intelligence. Furthermore, even as machine-learning technology advances and enables computers to make increasingly sophisticated decisions, new opportunities will emerge for humans to employ automated intelligence to do wholly new workplace activities and do their existing jobs more effectively.

For example, AI-equipped computers are now being used to identify the likelihood of individuals currently or prospectively experiencing health problems using real-time data transmitted from smartphones and other wearable devices. This technology frees up time for health care providers to develop personalized therapy protocols and educate their patients about how best to use those protocols. In addition, the data collected, which is being used to “train” computers to diagnose and predict health problems, is also facilitating the development of new treatment protocols and techniques for managing patient care. This, in turn, is increasing the demand for biologists, statisticians, computer programmers, and laboratory technicians, among other occupations.

To be sure, leveraging the benefits of automation requires individuals to acquire new skills. However, the extent and urgency of educating and training workers should not be overestimated. A recent study of 32 developed economies estimated that about 14 percent of workers might see their jobs entirely restructured (in terms of tasks) or significantly downsized as a result of computer automation. Furthermore, there’s usually a lengthy period of time between the introduction of an innovation and its widespread adoption. One comprehensive study of 15 major technologies estimated a lag of up to 50 years (on average) between the introduction of the technologies and their broad-based use. Such long lags suggest that new generations of workers will have ample time to equip themselves with the skills needed to use AI technology to their advantage in the job market.

Automation directly increases the demand for labour skills that are complementary to the development and efficient use of new technologies.

Yogi Berra, the late great New York Yankee, once said, “It’s tough to make predictions, especially about the future.” This is a useful reminder amid the dire predictions from Elon Musk and other doomsayers. History suggests that AI will create more jobs—and higher-paying jobs—for Canadians, which seems a safer guide for policymakers and employers than predictions about human intelligence getting automated out of existence. [FI](#)



STEVEN GLOBERMAN

Steven Globberman is a resident scholar and Addington Chair in Measurement at the Fraser Institute and professor emeritus at Western Washington University. He is a contributing editor of the collected series *Technology, Automation, and Employment: Will this Time be Different?*

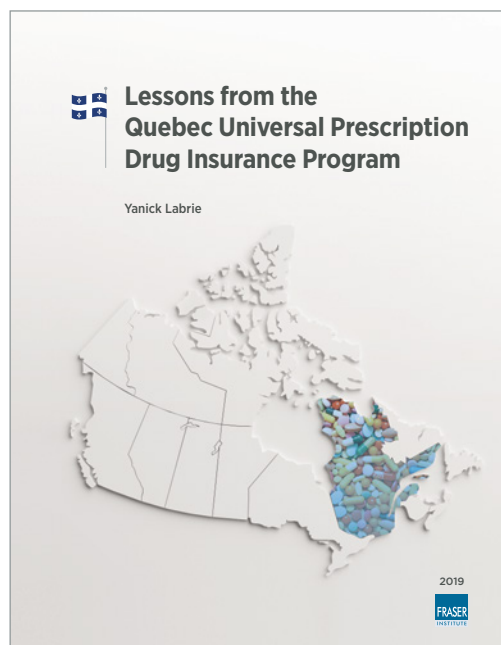
All Parties Should Learn from Quebec's Universal Prescription Drug Program

Yanick Labrie

In June, the Advisory Council for the Implementation of National Pharmacare, led by former Ontario health minister Eric Hoskins, tabled a report proposing a single-payer government-run universal drug plan for Canada. In response, Prime Minister Trudeau took to Twitter, saying his government “is committed to national pharmacare,” all but ensuring that pharmacare will be a central issue of the October federal election campaign.

And yet, despite all the headlines, few commentators have referred to the system in Quebec. Unlike the Hoskins plan that prescribes a government solution, Quebec's universal coverage for pharmaceuticals relies on a mixed public-private system.

The Quebec general drug insurance program (RGAM) was established in 1997 with the objective of ensuring that all Quebecers have “reasonable and fair access



to the medication required by their state of health.” The public plan provides a minimum level of coverage for the cost of pharmaceutical services and medications for people 65 years of age or older and social assistance recipients. It also provides insurance coverage to individuals who are ineligible for a private group insurance

plan with an employer.

All persons eligible for coverage, either as a participant or dependent, under an eligible private group insurance plan are mandated to join it. The coverage of a private group plan must be at least equivalent to the public plan and may be expanded to include drugs that are not part of it. In reality, most private insurance plans choose to provide more generous coverage to their members than the minimum standard set by the public plan.

Overall, while not perfect, the RGAM program provides greater access to prescription drugs than other provincial plans. In other words, among provinces, Quebec

Quebec's public-private pharmacare model provides **more** generous coverage and **more** timely access to new drugs than elsewhere in Canada

	QUEBEC	REST OF CANADA
Mandatory Coverage <small>Requires everyone to be covered by private or public insurance plan, with the public plan acting as the minimum coverage required.</small>	YES	NO
Generous Coverage <small>Percentage of drugs approved by Health Canada that are covered by provincial public plans (2008-2017).</small>	33.4%	26.5%
Timely Access to New Drugs <small>Average number of days from when a drug was approved by Health Canada to when it was covered by provincial public plans (2008-2017).</small>	477 DAYS	674 DAYS
Catastrophic Drug Costs <small>Percentage of population who faced drug costs higher than 9% of income (2009).</small>	0.2%	1.1%

has the most generous drug coverage. As of June 2018, 25.6 percent (on average) of all medicines approved by Health Canada between 2008 and 2017 were on the drug formularies (essentially the lists of available drugs) of all other provincial public plans compared to 33.4 percent in Quebec.

Public coverage in Quebec is not only more generous, but drug coverage approval is more timely than anywhere else in the country. And patients generally have access to a wider range of prescription drugs in Quebec due to the Quebec government's less-restrictive formulary compared to other provinces. For example, the list of medications covered by Quebec's public plan includes more than 8,000 prescription drug products, the most extensive in the country, compared to, for example, 4,400 on the Ontario Drug Benefit.

This is a crucial point. Researchers who have studied the RGAM program confirm that access to prescriptions drugs in Quebec has significantly improved. Only a tiny fraction of households in Quebec (0.2 percent) must take on catastrophic pharmaceutical expenses over the course of a year. And among provinces, Quebec has the lowest percentage of patients (3.7 percent in 2016, the latest year of comparable data) who say they don't fill prescriptions because of financial cost (the national average is 5.5 percent).

Finally, while pharmaceutical expenditures in Quebec have increased since the program was implemented, there has been a relative decrease in the use of other health services and, consequently, a lower level of total health spending (per capita). In fact, Quebec now has the lowest per capita health costs of any province, as some drug therapies may have replaced hospitalizations and more expensive treatments elsewhere in the health care system.

Quebec's mixed universal public-private system, partly based on mandated benefits, preserves the ability of employers to offer more generous benefit plans (which can be tailored for individual needs and preferences) than a single-payer public drug program. These lessons from Quebec should surely inform today's national conversation about pharmacare. [FI](#)



YANICK LABRIE

Yanick Labrie is a Fraser Institute senior fellow. He is the author of *Lessons from the Quebec Universal Prescription Drug Insurance Program*.

Average Family Tax Bill Keeps Growing

Jake Fuss and Milagros Palacios

As October's federal election draws near, the cost of living has become a top issue for many Canadian families. Because home prices and rents have risen (dramatically so, in many cities and towns) in recent years, many Canadians may assume that housing is the most expensive family budget item. But in reality, the average Canadian family actually spends more on taxes than any other single expense.

To understand the extent of our tax burden, we must look beyond the income and payroll deductions on our paycheques and consider all taxes—both visible and hidden—that we pay throughout the year to federal, provincial, and municipal governments. Those taxes include property taxes, carbon taxes, sales taxes, alcohol taxes, import taxes, and many more. Together, all of these taxes comprise our total tax bill.

A recent Fraser Institute study, *Taxes versus the Necessities of Life: The Canadian Consumer Tax Index, 2019*, noted that last year, the average Canadian family (including single Canadians) earned \$88,865 and paid \$39,299 in



total taxes—that's 44.2 percent of our income going to taxes.

To put this in perspective, housing costs (including rent and mortgage payments) for the average Canadian family totalled \$19,134 or 21.5 percent of its income. In other words, the average family spends more than twice as much on taxes than as it does on housing.

Taxes also consume more of the average family's income than housing, food, and clothing combined. In fact, the average family spent \$32,215 (or 36.3 percent) of its income on these three basic necessities last year, significantly less than what it paid in taxes. And the tax bill for the average family continues to grow.

Consider this. In 2015, taxes for the average Canadian family totalled 43.1 percent of its annual income. Since then, the federal and many provincial governments have raised taxes on the average family, with changes in personal income tax rates, higher payroll taxes, and the elimination of several tax credits.

Consequently, between 2015 and 2018, federal taxes (as a share of income) increased for the average family in all 10 provinces. The average Canadian family now pays nearly

**Average Canadian family pays 44% of its income in taxes—
more than the necessities of life.**



one out of every four dollars it earns to the federal government. During the same time period, provincial taxes (as a share of income) also increased for the average family in six provinces, with families in British Columbia, Alberta, and Ontario getting hit especially hard.

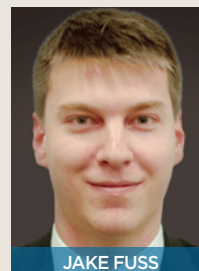
Although it's ultimately up to individual Canadians and their families to decide if they're getting value for their tax dollars, it's important that we know how much we pay in total taxes to make an informed assessment.

In contrast, the average family now spends a smaller share of its income on basic necessities than before. In 2015, expenditures on housing, food, and clothing amounted to 37.7 percent of its income—higher than what it is today.

Although it's ultimately up to individual Canadians and

their families to decide if they're getting value for their tax dollars, it's important that we know how much we pay in total taxes to make an informed assessment.

Since 2015, taxes for the average Canadian family have increased at both the provincial and federal level. And again, perhaps surprisingly to some, the total tax bill is now the largest single expense for the average family, eating up more income than housing, food, and clothing combined. [FI](#)



Jake Fuss is a Policy Analyst and Milagros Palacios is Associate Director in the Addington Centre for Measurement at the Fraser Institute. They are the authors of *Taxes versus the Necessities of Life: The Canadian Consumer Tax Index, 2019 edition*.

Trudeau Government Should Promote Economic Freedom for Women Worldwide

Rosemarie Fike

The Trudeau government has made gender equality a priority, both at home and across the globe. Recently, Maryam Monsef, Canada's federal Minister for Women and Gender Equality, announced that Ottawa would invest \$300 million in developing countries and partner with government, philanthropic, non-profit, and private-sector organizations to help increase gender equality.

It's unclear at the moment the types of programs this initiative will produce. But if Canada's government is serious about improving the lives of women around the world, I have a suggestion—invest in programs focused on increasing the economic freedom of women.

Economic freedom means you are largely in control of your own major life choices. You can choose for your-



self what type of occupation to pursue, where to live, where to travel, whether or not you'd like to open your own business, who you'd like to enter into contracts with, and where to store or invest the income you earn.

For decades, economists have found evidence that economic freedom is a key determinant

of whether a society is prosperous or not. Economically free societies tend to have wealthier, healthier, and happier populations. And yet, as important as economic freedom is for human flourishing, in much of the world women don't enjoy the same economic freedom as men.

In many countries in the Middle East, North Africa, and South Asia, women cannot own or inherit property, open a bank account, enter into a contract, choose where to live, or what occupation to pursue. Women with no (or limited) economic freedom have little ability to control their own destinies, leaving them extremely vulnerable.

Twenty countries in the world require, by law, that women obey their husbands or another male guardian. This effectively means that women in these countries must seek permission from a man before legally pursuing employment opportunities. Thirty-nine countries have unequal inheritance laws, favouring sons over daughters.

In other parts of the world, including parts of Eastern Europe and South America, women's economic freedom is limited in subtler ways. For example, 106 countries have at least one labour regulation that restricts women's ability to work in the same occupations in the same way as men. Thirty-one countries have laws restricting women from working the same night-time hours as men. Forty-nine countries forbid women from working in jobs deemed hazardous, and 47 countries restrict women from working in arduous occupations. Twenty-one countries have laws that restrict women from working in jobs that are not "morally or socially appropriate."

Allowing women the same level of economic freedom as men does not just benefit the female portion of any country's population—it benefits everyone.

So what can be done?

Thankfully, reforms that increase the economic freedom of women are often low-opportunity cost endeavours. Achieving gender equality under the law simply requires countries to remove certain existing laws from the books. (As an added bonus, countries will save money that would have been spent enforcing these laws).

Moreover, allowing women the same level of economic freedom as men does not just benefit the female portion of any country's population—it benefits everyone. A 2014 study by David Cuberes and Marc Teignier on the aggregate costs of gender gaps in the labour market estimated that a country loses out on 14 to 15.5 percent

of GDP by not granting women the same levels of economic freedom as men. For a country such as Saudi Arabia, where limits on women's economic freedom are the most severe in the world, this estimated annual cost is slightly more than \$7,000 per person.

Economic freedom is a key determinant of whether a society is prosperous or not. Economically free societies tend to have wealthier, healthier, and happier populations.

If the Trudeau government wants to invest in programs that promote gender equality across the globe, it should focus on expanding the economic freedom of women in places where it's limited, often severely. [FI](#)



Rosemarie Fike is an instructor of economics at Texas Christian University and a Fraser Institute senior fellow. She is the author of *Gender Disparity under the Law and Women's Well-Being*.

Canada's Carbon Tax Hampers Key Industries, May Spur "Carbon Leakage"

Ross McKittrick, Elmira Aliakbari, and Ashley Stedman

With Canada's carbon tax set to reach \$50 per tonne in 2022, many Canadian industries are bracing for potential cost increases. Not only will they pay the tax on their own emissions, but they'll pay higher prices for inputs from other sectors that also face the tax. Given that the United States, our largest trading partner, doesn't have a comparable carbon-pricing system, we must understand the potential competitiveness risks.

In addition to effects on employment and income, the loss of competitiveness may cause firms to move production and/or new investment to countries without a carbon tax or emissions trading system—a phenomenon known as “carbon leakage.”

If this happens, Canadians will pay an economic price for our reduced competitiveness—in the form of lower employment and/or investment—but emissions will remain relatively stable since the underlying activity causing the emissions has simply shifted to other

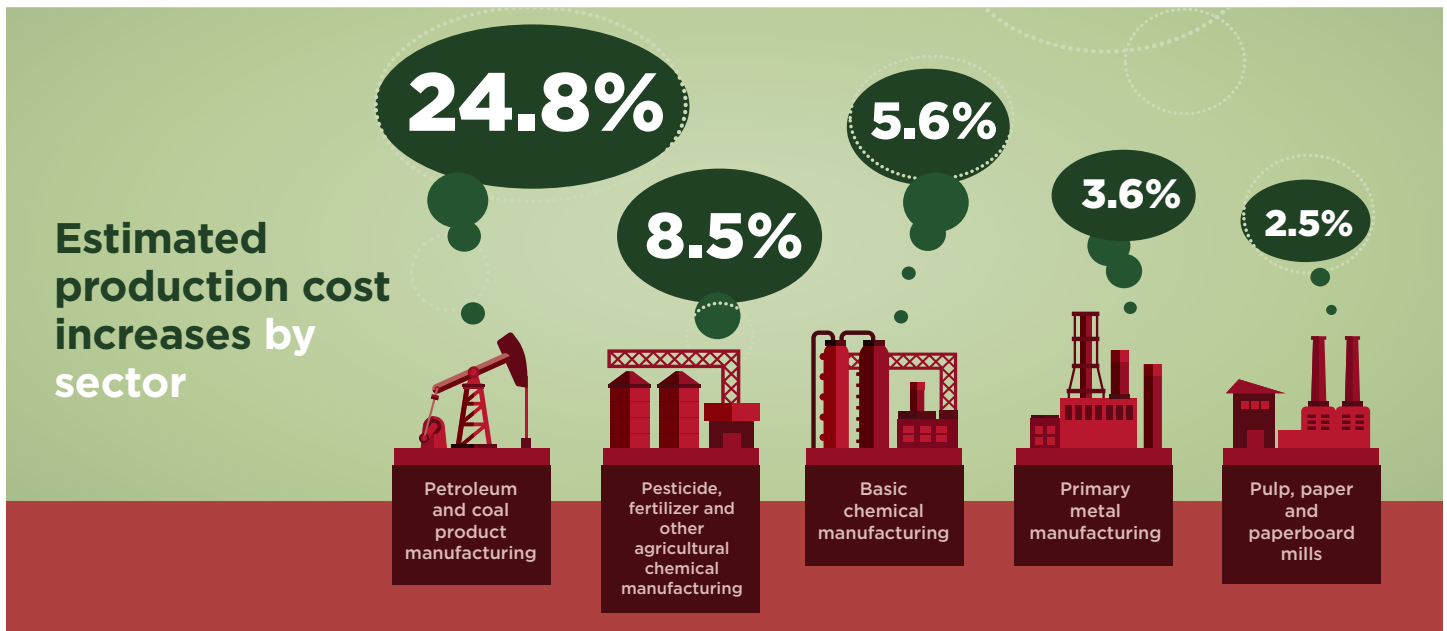


jurisdictions, which dramatically undermines the intended purpose of the carbon tax.

To understand the extent of this issue for Canadian industries, a recent Fraser Institute study, *The Impact of the Federal Carbon Tax on the Competitiveness of Canadian Industries*, uses the latest data from Statistics Canada to examine the short-term effects of an economy-wide \$50-per-tonne carbon tax on domestic commodity prices and the production costs of different sectors of the economy.

According to the study, four industries—petroleum and coal products; agricultural chemicals (pesticides, fertilizers, and others); electric power generation, transmission and distribution; and basic chemical manufacturing—will face unit production cost increases of more than 5 percent in the short-run once the full tax is introduced.

Forty other industries including oil and gas extraction, cement and concrete product manufacturing, and primary metal manufacturing, which combined account



for nearly 20 percent of Canada’s output, would see noticeable production cost increases.

The study also looked at which sectors face risks from both increased costs and international competition. These so-called “trade-exposed” industries are the least able to pass on higher costs to consumers, and thus face the greatest risks from reduced competitiveness.

Accounting for both cost increases and the degree to which sectors are exposed to competition from trade, 13 industries (accounting for 7.0 percent of Canada’s economy) will face serious competitiveness pressures from the \$50 carbon tax, at least in the short-run.

Specifically, the petroleum and coal-product manufacturing sector will see an estimated cost increase of 25 percent from a \$50 carbon tax and is very exposed to competitiveness pressures. Agriculture and chemical manufacturing (pesticides, fertilizers, and others) is another sector at great competitiveness risk along with other manufacturing sectors involved in chemicals, primary metals, cement, concrete, and non-metallic mineral products.

In response to these concerns, the federal government has designed a system of compensation payments called the Output-Based Pricing System (OBPS) with the intent of limiting the harm to sectors exposed to trade and competitive pressures. However, the study concluded that the design of the compensation system is not tied specifically to factors that determine a firm’s risk of reduced competitiveness. As a result, some firms that lose significant international market share will end up worse off—even under the OBPS compensation plan.

Another important finding of the study is that many sectors of the Canadian economy will not experience much change in their production costs due to the carbon tax. This also means their emissions won’t decline much, if at all.

Finally, sectors facing the biggest competitiveness risk are unevenly distributed across the country, which means some regions will bear a heavier burden than others.

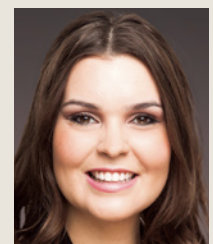
Policymakers must recognize that Canada’s carbon tax comes with serious competitiveness risks for many energy-intensive and trade-exposed industries. The loss of competitiveness could ultimately mean an exodus of economic activities out of Canada, meaning less prosperity here while emissions remain relatively unchanged. This is a lose-lose proposition for the country. [FI](#)



ROSS MCKITTRICK



ELMIRA ALIAKBARI



ASHLEY STEDMAN

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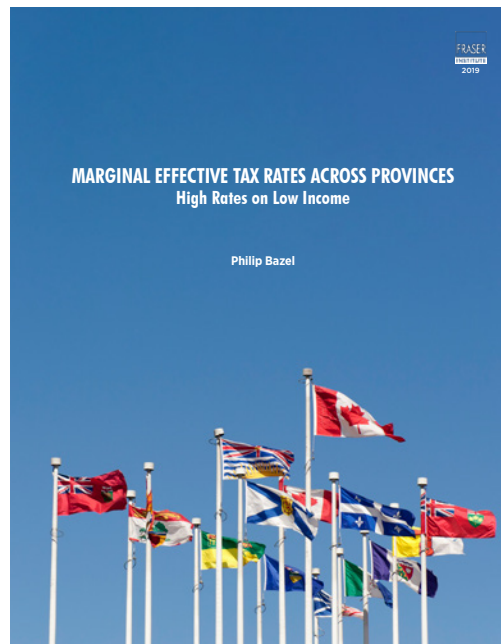
Low-income Families in Canada Hit Hard by High Effective Tax Rates

Philip Bazel

A look at effective tax rates across provinces shows something striking. Many low-income families in Canada take home 40 cents or less on the additional dollars they earn.

The marginal effective tax rate—which accounts for how much you pay in additional income taxes and lose in federal and provincial transfer benefits when you earn an extra dollar—is highest for families earning modest incomes. This is concerning from a policy perspective, given how the tax-and-transfer system changes the incentives for individuals and families to take on productive income-earning work. Currently, marginal effective tax rates (METRs) across provinces offer very low net-of-tax returns to earnings in the low- to middle-income range, reducing incentives and possibly discouraging Canadians from earning extra income.

For a family of four with two earners and two children earning roughly \$40,000, the METR on additional



earnings exceeds 50 percent in Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba, and Alberta. This same family would face a METR exceeding 70 percent in Quebec and just shy of 70 percent in Newfoundland.

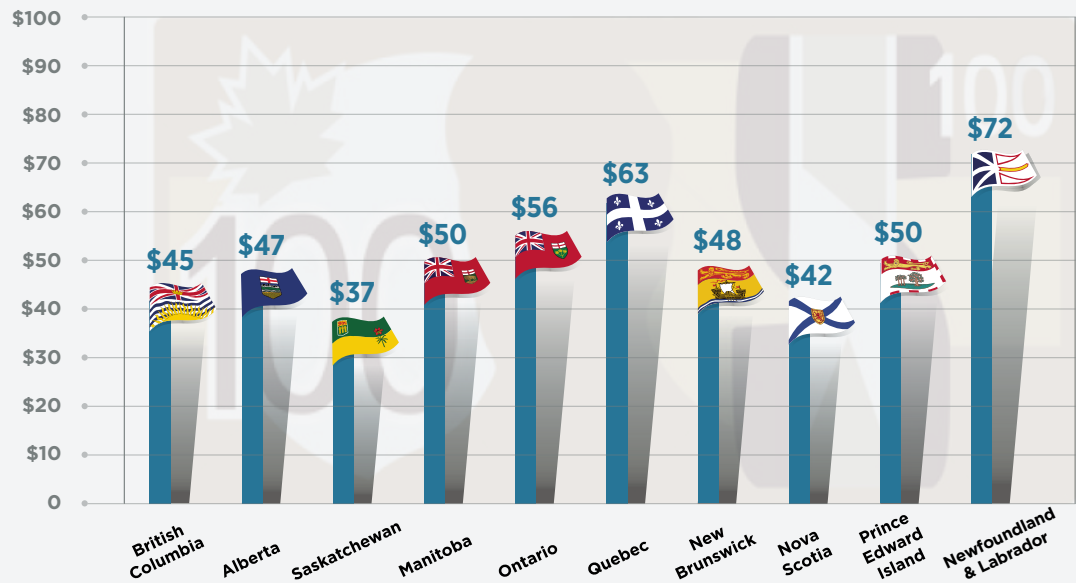
Conversations and analyses on the personal income tax system in Canada tend to focus

on statutory tax rates—the progressively tired system where incremental income is taxed at increasingly higher rates. But in assessing the overall impact of the tax-and-transfer system on individuals and families, the statutory rate on income is only part of the story. The real question is, how much money do we bring home when we earn an additional dollar at work?

To answer this question, we must account for all income-tested transfer benefits such as the federal Canada Child Benefit or Alberta's Family Employment Tax Credit. Because these benefits are reduced—clawed back—as additional income is earned, we factor in these reductions in addition to statutory income taxes, because both

Effective tax rates for families with \$50,000 in income

How much a family loses in taxes, and in benefits that are clawed back, when they earn an extra \$100



reduce the amount of money that actually makes it into an earner's pocket.

We can think of it like this—when a dollar earned at work triggers higher taxes and simultaneously reduces benefits, what is left to spend or save? This is the net-of-tax-and-transfer earnings, and it's the result of complex interaction between earnings, transfer programs, tax credits, and taxation of income.

As net-of-tax-and-transfer earnings fall below 50, 40, and even 30 cents on the dollar, we must ask how an individual's incentives to seek additional earnings are affected. When net-of-tax-and-transfer earnings are significantly diminished, producing 40 cents of spendable income for every dollar earned, how many Canadians will respond and take on additional hours?

In surveying the current METRs across provinces, one arrives at the unavoidable and troubling conclusion that individuals and families with relatively modest incomes face extremely burdensome effective tax rates, often higher than those in the top income brackets.

This is troubling because numerous international economic studies suggest that such high rates undoubtedly diminish incentives to seek additional income and, by extension, likely create barriers to upward mobility. This dynamic disproportionately affects women, especially mothers who are often the secondary earner in a family.

This is a problem with clear solutions. Low-income indi-

viduals and families facing high METRs would benefit from lower claw-back rates on their income-tested transfers, higher-income thresholds before they face reductions, an increase in the basic exemption amount on earned income, and lower statutory tax rates on employment income they earn. All these would push down those peak METR rates.

And all of those remedies mean less tax revenue or higher benefit spending by governments. And when governments are fiscally pinched, they're tempted to push the tax burden onto other groups, with potential political costs.

Given the tradeoffs and the costs involved, high marginal effective tax rates on families with low and modest income will be a continuing challenge in Canada. We should, however, be aware of the issues and keep governments on their toes when they propose increasing benefits or tax rates without an eye on the bigger picture. **FI**



PHILIP BAZEL

Philip Bazel is an associate at the School of Public Policy at the University of Calgary and author of the recent Fraser Institute study *Marginal Effective Tax Rates Across Provinces: High Rates on Low Income*.

Don't Believe Doomsday Predictions About a "Tech-Driven" Employment Apocalypse

Livio Di Matteo



Media reports often paint a dire picture of technological change and automation which they fear will spawn a future rife with massive job loss and less employment. And yet, a labour shortage—not a glut due to mass unemployment—looms in Canada thanks to retiring baby boomers and our aging population.

Furthermore, history suggests that when technological change alters the employment mix, the economy grows, creating new jobs and more opportunity.

For example, a Deloitte study of census results for the United Kingdom since 1871 notes that, despite fears of job destruction, technological change spurs job creation. Over the long run, the UK has experienced increases in both employment and the labour force. While there were declines in some occupations such as agricultural labourers, washers, launderers, telephonists, and telegraph operators, other occupations such as accountants, bar staff, hairdressers, service workers, etc. experienced employment growth.

The situation is the same in Canada. Between 1851 and 2017—an era marked by rapid technological change—our population grew from 2.4 million to 35.2 million, a 15-fold increase, while the Canadian labour force grew from an estimated 762,000 people to 19.7 million people, a 26-fold increase. And according to employment data, from 1891 to 2017, the number of employed people in Canada grew from 1.6 million to 18.4 million, a 12-fold increase, while the labour force (which includes employed people, unemployed people seeking work, and employers) grew—from 1.7 million people to 19.7 million people, also a 12-fold increase.

Our aging labour force, the retirement of baby boomers, and the creation of new jobs spurred by technology, will combine to create a period of chronic labour scarcity, which means the demand for workers will be high.

While employment and the labour force grew alongside technological progress and development, the composition of employment also changed. For example, in 1921 agriculture still accounted for nearly one-third of all employment in Canada (down from 50 percent in 1871) compared to two percent by the early 21st century. Overall, the last 150 years in Canada has seen a shift from goods production (manufacturing, for example) to services (health, for example) as the dominant source of employment. Even as demand for many traditional jobs has declined, entirely new occupations have arisen that did not exist mere decades ago—think of today’s social media strategists, solar panel installers, and genetic counsellors.

Forecasts suggest that in coming years, employment and the labour force in Canada will continue growing, but at a diminished rate with employment growing slightly faster than the labour force. The result? Low unemployment rates. Again, this is due largely to our aging population and the expected decline in labour

force participation rates. Overall labour force participation in Canada has declined over the last decade but interestingly has grown among people aged 55 and over, reflecting the progress of the demographic bulge known as the Baby Boom.

In 2016, people aged 55 and over accounted for 36 percent of Canada’s working-age population—the highest percentage since 1976, the first year of comparable data—with this proportion expected to reach 40 percent by 2026. Yet this demographic will eventually retire, opening up large areas of employment to the smaller age cohorts behind. Demand for workers is expected to be high in health care, computer system design and related services, support services for mining, oil, and gas extraction, social assistance, legal, accounting, and other professional services, arts and entertainment, and food services, such as chefs and servers.

Clearly, contrary to popular belief, history teaches that technological change has been marked by increases in total long-term employment, notwithstanding short-term job loss for individuals. That’s good news. Canada’s labour market will likely experience continued employment growth (though at lower rates than in the previous half-century) due to demographic changes and changes in labour force participation rates. Our aging labour force, the retirement of baby boomers, and the creation of new jobs spurred by technology, will combine to create a period of chronic labour scarcity, which means the demand for workers will be high. [FI](#)



Livio Di Matteo is a Fraser Institute senior fellow and professor of economics at Lakehead University in Thunder Bay. He is the author of “Demographics, Technological Change, Participation Rates, and Canada’s Future Labour Shortage” in the collection *Technology, Automation and Employment Will this Time be Different?*

After Three Years of Squeezing Demand, Governments Should Target Housing Supply

Josef Filipowicz and Steve Lafleur

Three years ago this month, the British Columbia government dramatically increased the property transfer tax rate paid by foreign nationals and corporations purchasing residential real estate in Metro Vancouver, followed by a host of similar policies—including a “speculation and vacancy tax” on homes deemed underused by the province, and an “empty homes tax” in Vancouver proper.

Other parts of Canada took note, with Ontario also raising the property transfer tax rate on

foreign nationals in the Toronto area. And the Trudeau government imposed a new “stress test” on mortgage applicants in 2018. All these initiatives share a common assumption—that there’s too much demand for housing in Canada’s most expensive cities and to boost affordability something must be done to reduce that demand.

The result?

Although it’s difficult to establish causality, targeting certain sources of housing demand (foreign nationals, summer homeowners, first-time buyers) appears to have affected prices. For example, the property transfer

tax increases on foreign buyers in BC and Ontario were followed by important declines in sale prices (approximately three to four percent in Greater Vancouver and nine percent in the Greater Toronto Area). Despite a rebound in prices (especially in Vancouver), the federal government's 2018 increase in the minimum qualifying interest rate to obtain a mortgage (the "stress test") was followed by another decrease or flatlining in home price growth in these two big markets.

So the demand-side policies of the past three years may have helped cool otherwise red hot housing markets. But the fundamental problem—broad housing affordability—remains unresolved. Compared to a decade ago, home prices remain more than 90 percent higher in Vancouver and 120 percent higher in Toronto. Virtually nonexistent rental vacancies also persist, pushing rents higher in already tough markets. For all their potential appeal (including their political popularity), demand-reducing policies have seemingly done little to restore broad housing affordability.

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So what can be done?

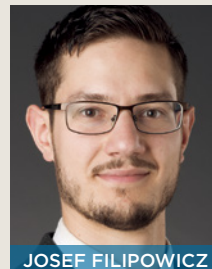
The laws of supply and demand apply to housing as they do to any other good. By focusing primarily on demand, policymakers ignore half of the equation and overlook key tools in government's arsenal to help reduce housing prices.

Thankfully, supply-side policy seems to be gaining currency in Ontario. The Ford government's "housing supply action plan" adds some much-needed perspective to the housing policy debate. Notably, the government wants to update key land-use planning policy to encourage the rapid approval and construction of more housing. This follows important legislation passed earlier

this year which, among its many elements, includes capping and streamlining the fees municipalities charge homebuilders, the deferral of such fees for rental development, and permitting more secondary suites (such as laneway and basement units). While more could be done to increase the supply of housing, such as opening up the so-called "yellow belt" of lower-density residential neighbourhoods to more development, the government appears to be moving in the right direction.

It's time to shift the housing affordability discussion away from discouraging buyers and towards the construction of more homes.

Over the past three years, governments across Canada—notably in BC, Ontario, and federally—have overwhelmingly targeted the demand-side of the housing equation. Despite recent cooling in home prices, housing in the country's most expensive cities remains in high demand and out of reach for many renters and would-be buyers. It's time to shift the housing affordability discussion away from discouraging buyers and towards the construction of more homes. Governments must recognize that supply is half of the equation. [FI](#)



JOSEF FILIPOWICZ



STEVE LAFLEUR

Josef Filipowicz is a senior policy analyst in the Centre for Municipal Studies and Steve Lafleur is a senior policy analyst at the Fraser Institute.

Health Care Cannot Modernize Unless Health Policy Changes First

Bacchus Barua and Steven Globerman



Breakthrough technologies are about to radically change the way health care is provided. Companies from Apple to Amazon are making large investments in helping connect patients with doctors, while pharmaceutical companies are developing personalized cures for hitherto untreatable diseases, and disabled children are getting 3-D printed superhero-themed prosthetics.

A recent Ipsos survey revealed that a majority of Canadians are already open to innovations such as virtual appointments with doctors, data portals to access their medical information, wearable health monitors and the use of artificial intelligence to diagnose ailments and assist surgery. In fact, the adoption of new technology is seen by surveyed Canadians as the most likely source of improvements to the health-care system.

An important question, however, is whether—and to what extent—our government will allow Canadians to fully benefit from these innovations. While Canadians may be ready to embrace new health-care technologies, there are grounds for concern that existing regulations will slow, if not suppress, the introduction and adoption of innovative health-care technologies.

Perhaps the most important potential deterrent is the Canadian Health Act's (CHA) prohibition of user fees and extra billing for "medically necessary" services. This and other sections of the CHA that discourage private financing and delivery of services have led many provinces to be risk-averse towards allowing experimentation with new technologies.

Consider one Canadian digital app Maple. On the one hand, use of the company's technology to provide virtual diagnoses has been welcomed by a public hospital in rural Prince Edward Island. However, the same company

has also been accused of violating the spirit of Medicare by charging a \$49 fee for video consultations to any Canadian who wants to use the service.

For new services not considered medically necessary by government, there's sufficient grey area to allow private providers to innovate in the form of, say, a paid subscription like Maple. But once a service is deemed "medically necessary," incorporating new technology into the service may face significant barriers, since private providers won't be able to charge for the treatment, and provincial health insurance plans may not have sufficient funding to meet demand.

Of course, if an innovation such as online physician consults is readily and cheaply available from a source outside of Canada, Canadians could simply bypass the domestic health-care system (and its restriction on private payment), by accessing international websites directly. It is unclear that the Canadian government would or could censor internet use to prevent bypass.

A simple yet controversial solution would be to modify the CHA to allow more flexibility for private payment of basic health care. Such payments are common in other countries with universal health care such as Switzerland and the Netherlands. Increased flexibility would enable Canadians to adopt economical health-care innovations, even if government insurance plans were reluctant to cover the costs.

Another related feature of Canada's current health care system—the way hospitals are paid—might also delay the use of new health-care technologies. Canadian hospitals are generally funded by extrapolating historical trends of patient populations and service provisions, a process called "global budgeting." Thus, if a new, but expensive technology is developed that would enable the hospital to treat more patients over the course of the year, its use would be rationed until the allocated budget is increased.

By contrast, most other universal health care systems have shifted towards funding hospitals according to the actual services provided. This incentivizes hospitals to treat more patients and encourages competition between providers to deliver high-quality care by adopting new and better technology, amongst other things. Under this "activity-based" funding model, hospitals would be more inclined to employ new technology in order to treat more patients.

Another promising focus for technological innovation is cutting-edge drug therapy. Personalized medicine, for example, involves tailoring medical treatments

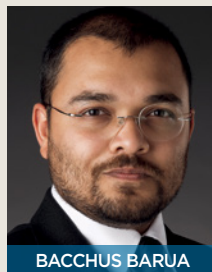
(particularly drugs) to patients' specific genetics. But these drugs are generally more expensive than conventional therapies and may only benefit small segments of the population.

While Canada regulates the maximum allowable price for new patented pharmaceuticals by referencing prices paid internationally, changes to the group of reference countries were recently announced, ostensibly to lower reference prices. While low prices for available drugs benefit Canadians, the reduction in maximum allowable prices will almost certainly result in the delayed introduction of new medicines – some of which may never make it to the Canadian market.

Making matters worse, the government is planning to use a new "cost-effectiveness analysis" to determine whether innovative drug therapies provide sufficient value to justify their cost. This is problematic, since individual patients may place higher value on their improved health than bureaucrats deem appropriate, in which case those patients might be denied legal access to beneficial drug therapies.

To remove existing barriers to innovative technologies and drug therapies, the government should allow Canadians to pay for new services directly or through private insurers, whether or not those services are classified as "medically necessary." Governments could also shift from focusing primarily on cost-containment strategies to a more balanced approach that allows patients (advised by their doctors) to determine the value of innovative drugs and services.

As technological change in health care accelerates, a more liberal attitude towards the pricing of and private payment for medical services might prove literally life-saving for a growing number of Canadians. **FI**



BACCHUS BARUA



STEVEN GLOBERMAN

Bacchus Barua is Associate Director, Health Policy Studies and Steven Globerman is Resident Scholar and Addington Chair in Measurement at the Fraser Institute.

Tax Competitiveness— BC Goes from Bad to Worse

Ben Eisen



Across British Columbia, gas prices remain sky-high, enraging commuters and prompting some British Columbians to cancel summer vacation plans. The higher prices at the pump have also stiffened opposition to the recent increase to the provincial carbon tax (although in reality, the tax hike is only responsible for a small portion of gas price increases).

Nevertheless, British Columbians should be concerned with the province's overall tax situation and its worrisome implications. Across a broad range of

taxes, BC simply isn't competitive with many peer jurisdictions.

Consider this. Like all jurisdictions, BC must compete with other Canadian provinces, US states and other countries for investment and talented people. When considering where to invest or move, tax policy isn't the only consideration, but it's an important one. Unfortunately, BC's tax system includes some unattractive features that in recent years have become worse.

Perhaps BC's biggest tax competitiveness problem stems from the design of its sales tax. In short, the sales tax design differs from those in most other provinces

in a way that increases the cost of doing business in the province. As a result, despite having a relatively low statutory corporate tax rate, the tax rate that many businesses face on new investment (known as the Marginal Effective Tax Rate or METR) is the highest in Canada.

This became even more of a problem when the Trump administration enacted sweeping tax reform, which made the business tax regime in the United States more attractive for investment. So in addition to having the highest METR in Canada, BC must now also compete with US states that have a much more competitive tax environment than in the past. Not surprisingly, BC's harmful approach to business taxation has helped produce some disturbing economic statistics. For example, real business investment per worker (excluding residential investment) is substantially lower in BC than in the rest of Canada, with the gap widening in recent years.

BC's harmful approach to business taxation has helped produce some disturbing economic statistics. For example, real business investment per worker (excluding residential investment) is substantially lower in BC than in the rest of Canada, with the gap widening in recent years.

So what can be done to reverse these trends?

The Horgan government should reduce the tax burden and make the province more attractive for talent and investment. Unfortunately, the government's 2019 budget did nothing to improve tax competitiveness. Indeed, quite the opposite was the case: the government has gone in exactly the wrong direction by raising—not reducing—a host of taxes since taking office in 2017.

The limits of space preclude a comprehensive list of harmful tax changes by this BC government, but a few are worth mentioning specifically. In January 2018, the

government increased the general corporate income tax rate by one percentage point, making the previously discussed problem of business taxes even worse.

Also in 2018, the government significantly increased the province's top personal income tax rate (BC now has the ninth highest income tax rate for entrepreneurs, professionals, and business owners among all 60 US states and Canadian provinces). Consequently, skilled workers in the top tax bracket now face a combined federal/provincial tax rate of 49.8 percent. Compare this to a top rate of 37 percent in neighbouring Washington state. Evidence shows that such a high tax rate discourages productive activities such as work, savings, and investment, which BC needs more of—not less.

Add the higher carbon tax, a new employer health tax, higher property transfer tax rates on certain properties, and new or higher excise taxes on high-end items (luxury vehicles, for example) and items purchased predominantly by lower-income folks (cigarettes, for example) and a picture emerges of BC as an increasingly high-tax jurisdiction.

Taken together, all these tax hikes have made it more expensive to live and work in British Columbia and diminished the province's attractiveness for entrepreneurship, business investment, and skilled professionals. There's nothing new about BC's tax competitiveness problem—it's been a problem for a while. But it's worrying that, instead of taking steps to fix this problem, the government in Victoria seems determined to make matters worse. [FI](#)



Ben Eisen is a senior fellow in Fiscal and Provincial Prosperity Studies at the Fraser Institute.

Something Is Extreme— But It's Not the Weather

Ross McKittrick



While he was visiting Vancouver in June, Prime Minister Trudeau said that the federal carbon tax, a key pillar in his government's climate policy, will help protect Canadians from extreme weather. "Extreme weather events are extraordinarily expensive for Canadians, our communities and our economy," he said, citing the spring tornadoes in Ottawa and wildfires in Western Canada. "That's why we need to act."

While members of the media may nod along to such claims, the evidence paints a different story. Roger Pielke, Jr. is a scientist at University of Colorado in Boulder who did world-leading research on climate change and extreme weather up until a few years ago. He found convincing evidence that climate change was not leading to higher rates of weather-related damages worldwide, once you correct for increasing

population and wealth. He also helped convene major academic panels to survey the evidence and communicate the near-unanimous scientific consensus on this topic to policymakers. For his efforts he was subjected to a vicious, well-funded smear campaign backed by, among others, the Obama White House and leading Democratic congressmen, culminating in his decision in 2015 to quit the field.

A year ago he told the story to an audience at the University of Minnesota. His presentation was recently circulated on Twitter. With so much misinformation nowadays about supposed climate emergencies, it's worth reviewing carefully.

His public presentation begins with a recounting of his rise and fall in the field. As a young researcher in tropical storms and climate-related damages, he reached the pinnacle of the academic community and helped organize the so-called Hohenkammer Consensus Statement,

named after the German town where 32 of the leading scientists in the field gathered in 2006 to sort out the evidence. They concluded that trends toward rising climate damages were mainly due to increased population and economic activity in the path of storms, that it was not currently possible to determine the portion of damages attributable to greenhouse gases, and that they didn't expect that situation to change in the near future.

Globally, there's no clear evidence of trends and patterns in extreme events such as droughts, hurricanes, and floods.

Shortly thereafter, the Intergovernmental Panel on Climate Change (IPCC) released its 2007 report, largely agreeing with the Hohenkammer Consensus, while cherry-picking one unpublished study (and highlighting it in the *Summary for Policymakers*) that suggested a link between greenhouse gases and storm-related damages. But the author of that study—who just happened to be the IPCC lead author who injected it into the report—later admitted his claim was incorrect, and when the study was finally published it denied the connection.

In 2012 the IPCC *Special Report on Extreme Weather* came out and echoed the Hohenkammer Consensus, concluding that once you adjust for population growth and economic changes, there is no statistical connection between climate change and measures of weather-related damages. In 2013 Pielke testified to the United States Congress and relayed the IPCC findings. Shortly thereafter, Obama's science advisor, John Holdren, accused him of misleading Congress and launched a lengthy but ill-informed attack, which prompted congressional Democrats to open an investigation into his sources of funding (which quickly fizzled amid benign conclusions). Meanwhile, heavily funded left-wing PR groups succeeded in getting him fired from a popular Internet news platform. In 2015, Pielke quit the climate field.

So where did the science end up?

In the second half of his talk, Pielke reviews the science as found in the most recent (2013) IPCC *Assessment Report*, the 2018 US National Climate Assessment, and the most up-to-date scientific data and literature. Nothing substantial has changed.

Globally, there's no clear evidence of trends and patterns in extreme events such as droughts, hurricanes, and floods. Some regions experience more, some less, and some no trend. Limitations of data and inconsistencies in patterns prevent confident claims about global trends one way or another. There's no trend in US hurricane landfall frequency or intensity. If anything, the last 50 years has been relatively quiet. There's no trend in hurricane-related flooding in the US. Nor is there evidence of an increase in floods globally. Since 1965, more parts of the US have seen a decrease in flooding than have seen an increase. And from 1940 to today, flood damage as a percentage of GDP has fallen from about 0.2 percent per year to less than 0.05 percent.

And on it goes. There's no trend in US tornado damage (in fact, 2012 to 2017 was below average). There's no trend in global droughts. Cold snaps in the US are down but, unexpectedly, so are heatwaves.

The bottom line is there's no solid connection between climate change and the major indicators of extreme weather, despite Prime Minister's Trudeau's claims to the contrary. The continual claim of such a link is misinformation employed for political and rhetorical purposes. Powerful people get away with it because so few know what the numbers show. Many scientists who know better remain silent. And the few who push back against the propaganda, such as Pielke, find themselves on the receiving end of abuse and career-threatening attacks, even though they have all the science in their corner. Something has gotten scary and extreme, but it isn't the weather. **FI**



ROSS MCKITTRICK

Ross McKittrick is a professor of economics at the University of Guelph and a Fraser Institute senior fellow. He is the author of *Apples to Apples: Making Valid Cost-Benefit Comparisons in Climate Policy*.

Trudeau Government Continues to Spread Misinformation About Middle-Class Tax Burden

Jason Clemens, Jake Fuss,
and Tegan Hill



As the federal election approaches, it's imperative that facts inform the public discourse. Instead, there's been an unfortunate increase in political rhetoric from the federal government along with some flawed reporting about taxes.

On June 5, Joël Lightbound, the Parliamentary Secretary to the Minister of Finance, rose in the House of Commons in response to a question about taxation in Canada and said: "I find it somewhat troubling that the member for Carleton still refers to a Fraser Institute study that's been debunked by just about anyone who can read and count and has taken five minutes to look at it."

The study in question, *Measuring the Impact of Federal Personal Income Tax Changes on Middle Income Canadian Families*, calculated the overall personal income tax changes made by the newly-elected federal government in 2016. As promised during the 2015 campaign, the government lowered the personal income tax rate for middle-income individuals—those with earnings between \$45,916 and \$91,831 in 2016—from 22 percent to 20.5 percent. As the government has rightly argued, this change resulted in lower personal income taxes for Canadians with income in this tax bracket.

However, what the government conveniently and consistently ignores is that it also eliminated a number of tax credits—income splitting, children's fitness, public

transit, and children’s arts programs. Although eliminating these tax credits is good policy since it simplifies the tax system, their removal also acts to increase personal income taxes for Canadian families.

Our study compared the savings from the middle-income tax reduction against the loss of the tax credits. Overall, when both the tax rate reduction and the elimination of tax credits are included in the analysis, 81 percent of middle-income families with children experienced a net increase in personal taxes.

Our study compared the savings from the middle-income tax reduction against the loss of the tax credits. Overall, when both the tax rate reduction and the elimination of tax credits are included in the analysis, 81 percent of middle-income families with children experienced a net increase in personal taxes.

The common response from the government—including the parliamentary secretary himself—is that this analysis ignores changes to the Canada Child Benefit (CCB), an income transfer for families with children that the government created to absorb and expand on two previously existing programs.

This response is at best disingenuous and perhaps misinformed, and at worst purposefully misleading. The government committed to lower personal income taxes for middle-income families. By including income transfers such as the CCB when calculating the middle-class tax burden, the government is equating tax relief—middle-income families keeping more of their own income—with government transfers funded by other people’s money.

Common sense and volumes of economic research reject this rationalization. Keeping more of your own income is vastly different than receiving larger handouts from government. And yet, the federal government continues to make this argument.

Indeed, we sent queries to both Lightbound and Finance Minister Bill Morneau asking about any study that “debunked” our tax analysis. While Lightbound had said on the House floor that it takes just “five minutes” to debunk our study, after four days his office was only able to provide the same standard response that uses government transfers (the CCB) to substantiate the tax reduction.

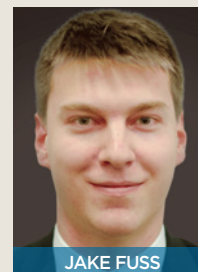
Another mistake is to ignore deferred taxes. Indeed, a recent CBC article that evaluated this government’s track record on taxation completely ignored deferred taxes. Basic economics tells us that governments can either tax today for the programs and income transfers they provide, or they can delay future tax increases by borrowing.

Given that the Liberal government entered office with essentially a balanced budget and decided to increase borrowing (since assuming power it’s incurred \$75.5 billion in debt) to finance new spending, it seems important to include these deferred taxes. While the CBC piece rightly notes that overall the Liberals have not materially increased current taxes, they’ve certainly increased the overall tax burden, particularly when deferred taxes are included.

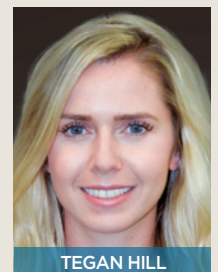
It’s important Canadians have facts when assessing the performance of the federal government. And the facts tell us that the federal government has raised personal income taxes for the vast majority of middle-income families while also deferring additional taxes to the future to finance more spending. Nothing the federal government has produced refutes this reality. [FI](#)



JASON CLEMENS



JAKE FUSS



TEGAN HILL

Jason Clemens is executive vice-president and Tegan Hill is a policy analyst at the Fraser Institute. They are the co-authors, with Milagros Palacios, of *Federal Deficits Then and Now: Is Canada Repeating the Fiscal Mistakes of 1965 to 1995?* Jake Fuss is a policy analyst at the Fraser Institute.

Here's How the Ford Government Can Actually Make Ontario "Open for Business" Again



Premier Doug Ford likes to say his government will make Ontario “open for business” again. His (correct) implication is that the previous government undermined Ontario’s attractiveness as an investment destination. He promised to implement policy reforms to reverse this trend.

The Ford government has made progress on some fronts. Reversing the ill-conceived Wynne-era expansion of rent controls has helped encourage

investment in rental housing, which is certainly good news. On government spending, the government has exercised slightly more spending restraint than its predecessor during its final years in office.

Still, much more must be done for the Ford government to consider itself a successful reform-oriented government that is transforming Ontario as an attractive destination in which to invest. Here are just a few things it must do.

First and foremost, Ontario must address its tax competitiveness problem. On personal income taxes, Ontario's top marginal rate is the second-highest in Canada and the United States. This creates terrible

Premier Ford can't claim to have successfully made Ontario "open for business" unless he addresses Ontario's daunting debt problem by restraining spending

incentives for work, savings, and investment. On the corporate income tax, recent tax reform in the United States has badly undermined the province's competitiveness. A meaningful reduction in Ontario's general corporate income tax rate (such as is being implemented in Alberta) would be a prudent response to increased competitive pressure.

Second, Premier Ford can't claim to have successfully made Ontario "open for business" unless he addresses Ontario's daunting debt problem by restraining spending. Again, there has been some progress in this area, but not nearly enough. The government's current fiscal plan calls for continued deficits throughout its entire first term, leaving the job of balancing the budget to a second term—or a future government. A much more ambitious approach—one that acknowledges the need to reform and reduce spending—is needed to get the job done faster and stop the flood of red ink.

Third, the Ford government must recognize that Ontario's labour laws are not optimal for investment. For instance, one 2017 study showed that the minimum wage in Ontario is currently set at 51.3 percent of the median wage. That's fully 10 percentage points higher than in Pennsylvania, for example. Such a large gap makes a difference when firms in industries that employ younger, less-skilled workers decide where to invest. Given the lack of evidence that high minimum wages significantly reduce poverty, and the strong Canadian evidence that they do reduce employment growth, the

Ford government should hold to its commitment to not further raise the wage floor.

Lastly, to restore the province's manufacturing sector, the government must clean up the policy fiasco that drove Ontario's electricity prices through the roof for residents and businesses. The Wynne government's only real "solution" to this problem was to provide short-term relief by transferring the burden onto future taxpayers by taking on debt through the "Fair Hydro Plan." Obviously, the province badly needs more ambitious strategies and a long-term commitment to affordability as a key objective of electricity policy.

Given the lack of evidence that high minimum wages significantly reduce poverty, and the strong Canadian evidence that they do reduce employment growth, the Ford government should hold to its commitment to not further raise the wage floor.

Making Ontario "open for business" is a big job—so big, in fact, that it is sometimes difficult to define. However, the policy reforms listed here are a checklist to which we can refer to at the end of Ford's mandate to determine how much progress his government has made on the biggest issues facing the province and its people. [FI](#)



Ben Eisen is a senior fellow in Fiscal and Provincial Prosperity Studies at the Fraser Institute.

Uncompetitive Policies Continue to Hammer Canada's Energy Sector

Elmira Aliakbari and Ashley Stedman



The outlook for Canada's energy sector remains poor, thanks to a perfect storm of weak commodity prices, positive reforms by our competitors, and poor policies at home.

Consider some recent developments. Two controversial federal bills—C-69 and C-48—were passed into law in late June after more than a year of fierce opposition from senators, provincial policymakers, and industry leaders.

Bill C-69, which overhauls Canada's environmental review process, will make the regulatory system for major energy projects even more subjective and uncertain than it has been, raising serious questions about whether future pipeline projects will ever be built due to the increased costs associated with the new process and its heightened uncertainty.

Similarly, Bill C-48, which bans large oil tankers off British Columbia's northern coast, is another barrier

to exporting Canadian oil to Asian markets, where oil commands a higher price.

All of this comes on top of other changes by the federal government and many provincial governments (including the previous government in Alberta) that include a provincial cap on greenhouse gas emissions, new regulations of methane emissions, stricter ethanol regulations, and a mandated coal phase-out.

Bill C-69, which overhauls Canada's environmental review process, will make the regulatory system for major energy projects even more subjective and uncertain than it has been, raising serious questions about whether future pipeline projects will ever be built due to the increased costs associated with the new process and its heightened uncertainty.

The Trudeau government is also developing a clean fuel standard designed to cut carbon emissions by 30 million tonnes annually by 2030. Essentially, Ottawa will mandate that firms selling gas, liquid, and solid fuels must reduce the amount of greenhouse gases generated per unit of fuel they sell. And of course, Canada's energy sector continues to suffer from a lack of pipeline capacity, which greatly reduces the price Canadian oil producers receive for their products.

On the tax front, governments across Canada have raised or maintained already high taxes on the energy sector. For example, Ottawa's federal carbon tax came into effect earlier this year at \$20 per tonne and is set to reach \$50 a tonne in 2022. Saskatchewan currently has the highest marginal tax rate on new oil and gas investment in North America, while British Columbia has some of the highest marginal tax rates on new natural gas investments.

In stark contrast to the Canadian experience, the US energy sector has enjoyed significant deregulation and sweeping tax reforms. The US government has reduced its business and personal income tax rates and significantly reduced the regulatory burden for the energy sector by scrapping or scaling back several energy-related regulations including controls over power-plant emissions and fuel economy standards, all of which are making the country more competitive.

The cumulative effects of Canada's policy changes, particularly compared to the United States, has damaged the investment climate for Canada's energy sector. Many investment analysts and industry executives are now warning that oil and gas investment is increasingly moving from Canada to the United States. Not surprisingly, recent data underscore the deteriorating investment climate in Canada. Between 2016 and 2018, the US enjoyed an increase in investment in upstream oil and gas (essentially, exploration and production) of more than two-and-a-half times that of Canada.

Crucially, Canada's decline in capital investment in the oil and gas sector wasn't inevitable—it was created right here in Canada by poor policy decisions made by multiple governments. Yet there's been little, if any, action by governments to reverse these decisions.

Given the importance of Canada's energy sector to the economy, policymakers should move quickly to restore the sector's competitiveness by striking a better balance between environmental protection and resource development. **FI**



ELMIRA ALIAKBARI



ASHLEY STEDMAN

Elmira Aliakbari is associate director of Natural Resource Studies and Ashley Stedman is a senior policy analyst at the Fraser Institute. They are co-authors of the study *The Cost of Pipeline Constraints in Canada, 2019*.

Essay Contest

We asked students...

What in the World Would Adam Smith Say?



Protectionism: Learning from Past Failures

By **Norman Zeng**,
Bell High School
High School Category



Future of Automation in the Workplace

By **Isabella Germinario**,
Western University
Graduate Category



Adam Smith: A Proponent of Automation

By **Tyler Legg**,
Queens University
Undergraduate Category

Each winner received \$1500 and will have their essays published in the fall edition of the *Canadian Student Review*.

Here is what students are saying about the contest...

It was very fun and interesting to dive into Adam Smith's books, and contrast his principle ideas to the present day state of the world's economy!

Without this contest and without the Fraser Institute I would've never learned about Adam Smith's Invisible Hand Theory nor the applications of his moral philosophy to economics. Thank you for raising awareness of his important theories.

I am delighted that the task was about Adam Smith. My work on the contest made me aware of the impact that Adam Smith's work continues to have on our lives. I am thankful for this wonderful opportunity.

New Canadian History Curriculum Released

Debbie Henney, Director of Curriculum for the Foundation for Teaching Economics and long-time economic educator for the Fraser Institute, has created a new economics curriculum for Canadian teachers.

Economic Episodes in Canadian History applies an economic lens to important events in Canada's formative history from the fur trade to the Gold Rush to women entering the workforce, in order to help students better understand these events and hone their critical thinking skills. [FI](#)



Here is what teachers are saying about the history workshop and curriculum...

Not only did I learn about economics but I also have a number of simulations to use in my classroom! Perfect!

—Teacher, SK

I attended this workshop to gather resources and activity ideas to help with teaching Canadian economic events. I came away with impactful games and content for my students.

—Teacher, SK

I really appreciate the new lessons. I am sure my students will be able to better understand and remember these ideas when I introduce the new curriculum activities.

—Teacher, BC



Annabel Addington

What's your role at the Institute?

As the Director of Education Programs, I lead a team that executes an active suite of programming for high school students, university students, teachers, and journalists. We aim to engage new audiences and a new generation with our material. Our challenge is to think beyond getting people to attend a single program—we want to develop relationships with life-long learners..

How did you arrive at the Institute?

I am one of the Institute's longest-serving staff members; I joined the Institute in the 1990s after graduating from university. My father, a strong Institute supporter and long-time board member, encouraged me to apply for a temporary contract position in the media reporting centre we ran at the time, the National Media Archive, under the direction of Lydia Miljan who is now an Institute senior fellow. Shortly thereafter I moved onto a permanent position in our busy events department working under my mentor, Lorena Baran. I have had the opportunity to grow in my roles and change departments over the years—always working with incredible team members from our interns to our executive team. I feel very fortunate to have landed at the Institute all those years ago.

Tell us something exciting you're working on now for the immediate future.

Over the summer, we have been working with several economic curriculum creators who are developing new lesson plans for Canadian teachers that will help them teach economics in inventive and fun ways. One curriculum focuses on the often-cited but little understood notion of inequality. Another uses comics, cartoons, and movies to engage students.

What do you enjoy doing in your spare time that your colleagues many not be aware of?

After 30 years, I think my colleagues know quite a lot about me. One thing that I have only recently taken up is snorkeling; I can spend hours in the water exploring ocean habitats and looking for sea creatures.

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