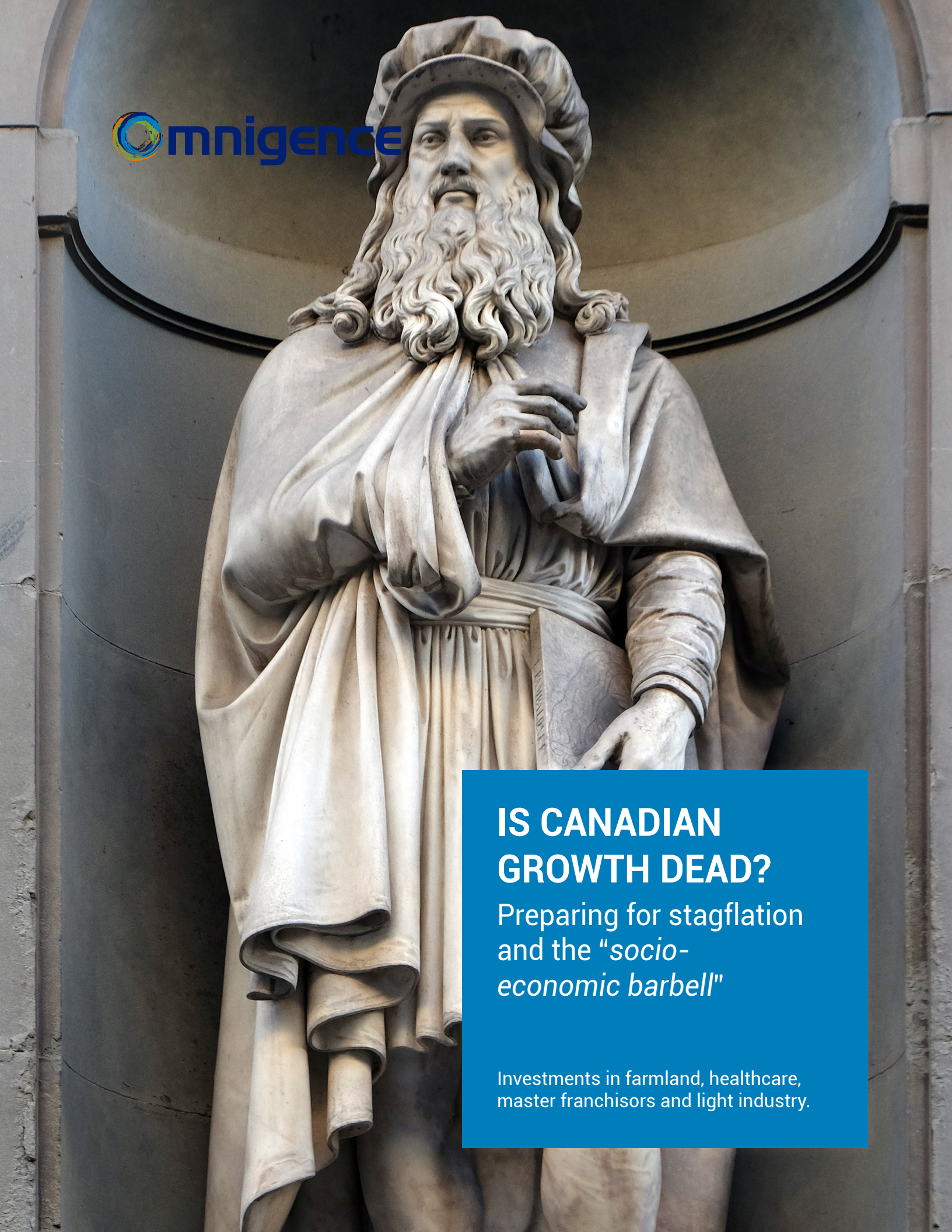

IS CANADIAN GROWTH DEAD?

Preparing for stagflation and the "*socio-economic barbell*"

Investments in farmland, healthcare, master franchisors and light industry.

INTRODUCTION:

Some topics are controversial because they are novel, or dispute strongly held beliefs or are simply too grim to contemplate. Stagflation is a topic that perhaps has all these elements. Regardless, the consequences of stagflation are so detrimental to the middle class and in turn to investors in general that it's a topic that must not be ignored.

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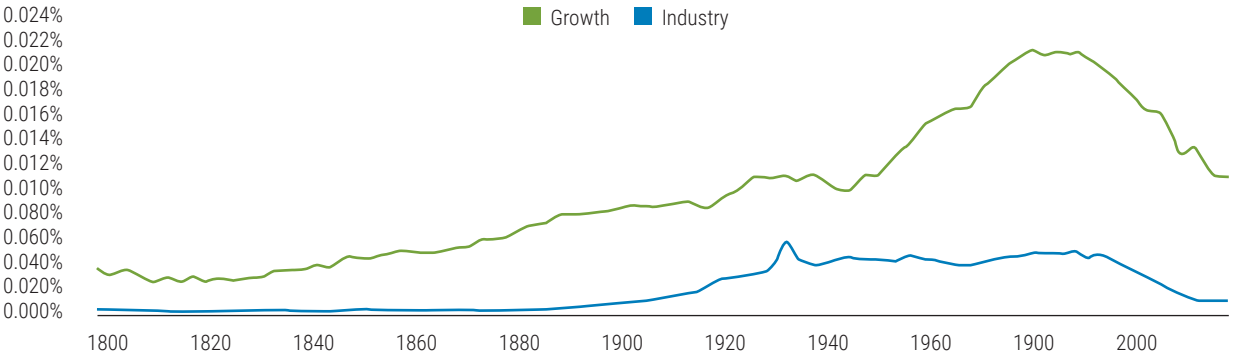
For clarity, let us first establish a common understanding of the term. A good starting point is that stagflation is best described as the condition of material, positive annual inflation combined with nominal growth which is lower or negative resulting in negative real growth. Rather than focusing on very high absolute inflation environments – the conditions just described are likely to "*feel*" as stagflationary to investors as the world of the 1970s with 10%+ inflation and stagnant GDP. Simply stated, stagflation is a protracted period of seemingly positive nominal growth hiding negative real growth.

What follows does not purport to be definitive or even a high probability prediction. It is a thought experiment relying on first principles to answer the question – Will Canada experience a period of stagflation? We started by putting together a list of variables that we believe may provide an answer, but it is not exhaustive by any means. Then we moved on to creating a simple modelling representation of those variables and forecasted them out over the next three decades.

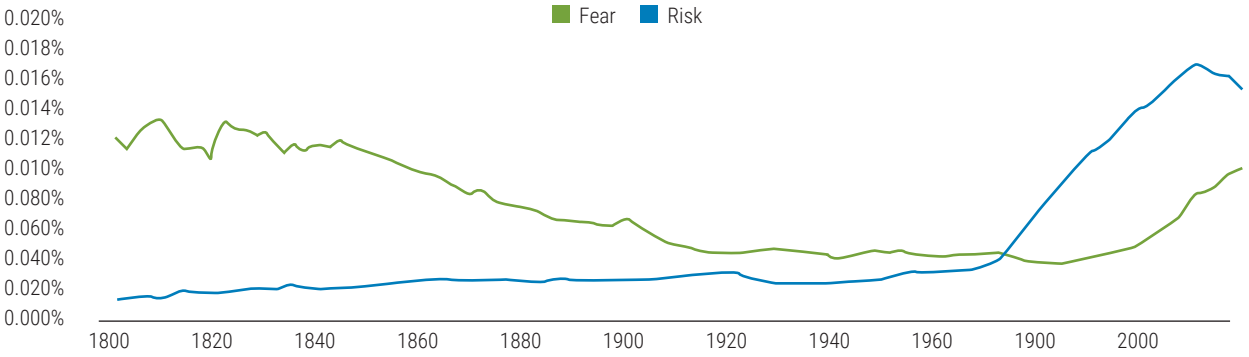
Before we move on to that detailed analysis, we want to share some Google Ngrams that may provide some insight into the prevailing Zeitgeist of the developed world. If cultures and eras have dominant, defining characteristics just like individuals – what are these trends telling us? Are they signaling a subconscious expectation of stagnation and decline? Impossible to say definitively but intriguing, nonetheless.

Chart 1: Growth & Industry Ngram – growth/industry references down



"It is the mark of an educated mind to be able to entertain a thought without accepting it" — Aristotle

Chart 2: Fear & Risk Ngram – fear/risk references up



STAGFLATION DASHBOARD – FACTOR ANALYSIS:

When you look at Canada's inflation data over the last two years and its real GDP/capita growth levels over the last ten – arguably we have been experiencing mild stagflation for quite some time, however the factors below lead us to believe it may be about to become more ferocious.

	Description	Impact	Page
Inflation	Elevated and trending back up? 1970s redux?	High	*4*
Real GDP Growth	Lowest GDP growth in OECD for next 30 years.	High	*5*
Real GDP Growth per Capita	Flat since 2015, trend is downwards.	High	*6*
Regulatory Policy	Net Zero cost estimate @ 3%-5% of GDP. What is the expected funding source? Deficit spending? Inflation?	High	*7*
Capital Flows	Net outflows, averaging ~$40B-$60B pa. Canada is experiencing persistent capital flight.	High	*9*
Current Account	Negative, steady at around ~$40B pa. Consume more than we produce – anti-growth.	Low	*9*
Productivity	Labor productivity poor compared to peers, stagnant/declining.	Mid	*10*
Fiscal Account	Large structural deficits, rapid increase in size of government, rapidly growing cost to service federal debt.	Mid	*11*
Gross Debt	High and growing, interest and principal repayments will increase, consuming tax revenues.	Mid	*12*
Household Savings	Low and declining. Savings = capital = future growth.	Mid	*14*
Capital Formation	Low, chronic underinvestment, overweight housing.	High	*14*
Population	Rapid population growth, highest immigration rate in developed world, entering population trap?	High	*15*
Demographics	Aging, 65+ cohort experiencing rapid growth, increases entitlement spending and dependency ratio.	Mid	*16*
Dependency Ratio	Increasing, dropping to two workers per dependent, drives need for tax increases.	Mid	*16*
Currency	Tendency to be weak against USD$, twin deficits (current and fiscal), low capital investment, net capital outflows.	Mid	*17*
Housing Supply	Large supply/demand mismatch, 3+ million-unit structural shortage and growing, no clear path to resolution, decades to fix?	High	*17*
Housing Investment	Over-reliance, high percent of capital formation, consumption good – not highly productive capital investment, crowds out higher order capital formation.	Mid	*18*
Energy Costs	Trending upwards, materially above long-term average in G7 – from approximately 4% GDP to >8% GDP.	Mid	*19*

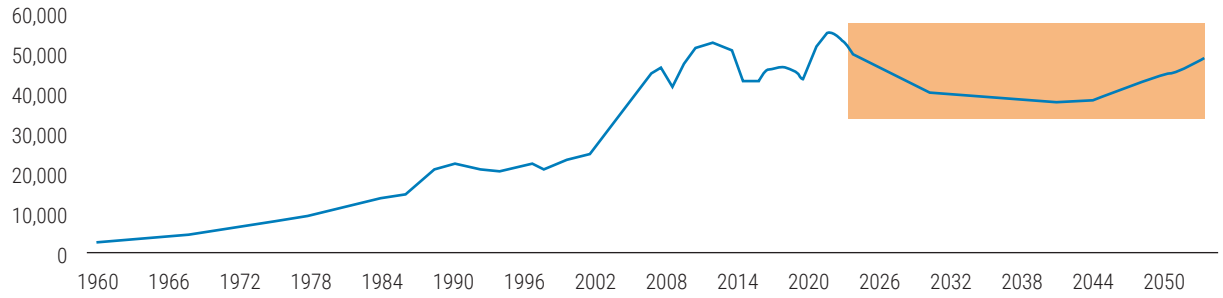
"Economic medicine that was previously meted out by the cupful has recently been dispensed by the barrel. These once unthinkable dosages will almost certainly bring on unwelcome after-effects. Their precise nature is anyone's guess, though one likely consequence is an onslaught of inflation." — Warren Buffet

STAGFLATION SIMULATION MODEL:

We created a simple Monte Carlo simulation using four key stagflation variables derived from the list above – nominal GDP growth, population growth, inflation and CAD$/USD$ exchange rate – to attempt to make some concrete real GDP/capita forecasts. It seems plausible that Canada will continue to experience stagnant real GDP/capita over the next two decades as the issues above are resolved before returning to the more historically typical growth trajectory.

However, this means that Canadian real GDP/capita could be effectively unchanged as late as the 2050s after experiencing a material stagflationary decline in the next two decades. Note that this would be occurring while other developed economies are forecast to improve their standards of living on a real, per capita basis. Perhaps this should not surprise Canadians after the three previous decades of underinvestment, capital flight and debt-fueled consumption.

Chart 3: Canadian Real GDP/Capita (USD$) – stagnant for almost a decade



Source: Omnigence Asset Management

Accepting this scenario as a possibility, are there investments that will generate returns in such a climate? The answer is yes, if we understand that stagflation can be a return enhancer for certain asset classes and that it also exacerbates the socio-economic "*barbell*" as the middle class shrinks.

Combining stagflation and the socio-economic barbell drivers together leads us to weight 1) real asset investments displaying asymmetric payoffs to inflation and 2) investments with growth that is linked less to absolute domestic GDP and more to growth from aging demographics, or from downward adjustments in the size and purchasing power of the middle class, or driven by exporting to markets with more robust macro conditions. Examples of some of these sectors and asset classes can be found in the Conclusions section.

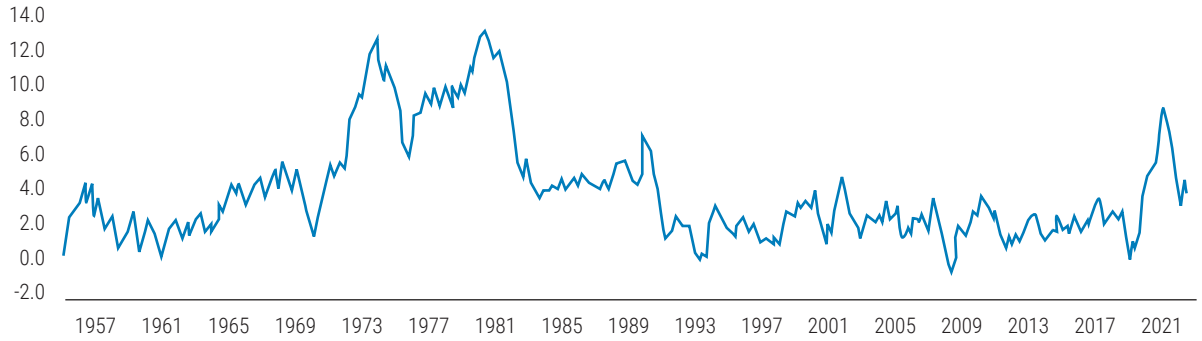
1.1 INFLATION:

It is widely accepted that inflation is a pernicious economic force for the middle class and that stagflation is its even more malign relative. The question arises then if current stagflation trends will be as difficult to extinguish as those of the 1970s. Certainly, a large contingent of financial analysts believe that this will be the case and that current expectations of a rapid return to a world of sub-2% inflation is not justified. If history is any guide, it could take years for inflation to return to 2%. Assuming that is the case, can the developed world tolerate a large increase in real rates and more importantly one that is sustained for years?

"For developed market countries that see CPI exceed 5%, it takes ~10 years for CPI to fall back to 2%."

Source: JP Morgan "Thoughts on the Terminal Rate"

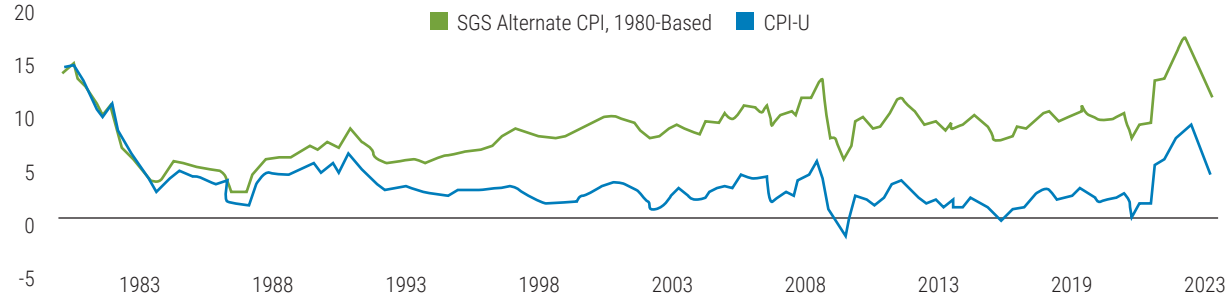
Chart 4: Canada CPI (5) – significantly above 20-year trend



Does CPI understate actual inflation rates? Why ask that question? Because if it does then inflation is going to be even more difficult to stamp out. The method to calculate CPI has undergone significant modification over the years in both the US and Canada – reductions for increased quality (hedonics), changes to the measurement basket of goods and services, changes to home ownership cost attribution and use of rental equivalents to name just a few of the most important. In fact, some wags have quipped that CPI is calculated in such a way as to measure a low and constant change in the cost of an ever-declining standard of living.

Regardless, in the US there are services which take current data and calculate CPI based on past (some would argue more accurate) methodologies to arrive at revised estimates. While no such source exists in Canada many of the CPI calculations changes are similar in the two economies. Using the US CPI methodology from the 1980s reveals inflation at over 10% while currently reported rates are under 5%. Anecdotally does inflation feel like it is under 5% or over 10% in Canada. Food for thought.

Chart 5: Consumer Inflation – Official vs ShadowStats (1980s-based alternative) – inflation underreported?

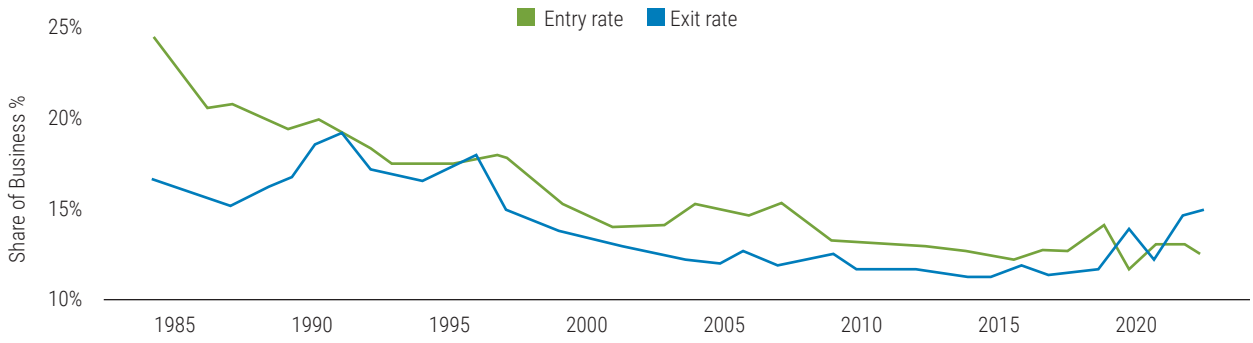


1.2 REAL GDP GROWTH:

Let's agree to accept the obvious statement that unless your economy grows in real, per capita terms you are stagnating. What does the OECD forecast for Canadian growth? Canada is expected to have the lowest real growth rate in the OECD over the next three decades – quite an accomplishment! Also note this is aggregate and does not account for rapid population increases so Canada's inflation adjusted GDP/capita is forecast to drop materially. If this seems implausible, consider the rate of business entries to exits. Canada's economy is suffering from a clear lack of dynamism – if you consider that new business formation is at multi-decade lows with a clear downward trajectory.

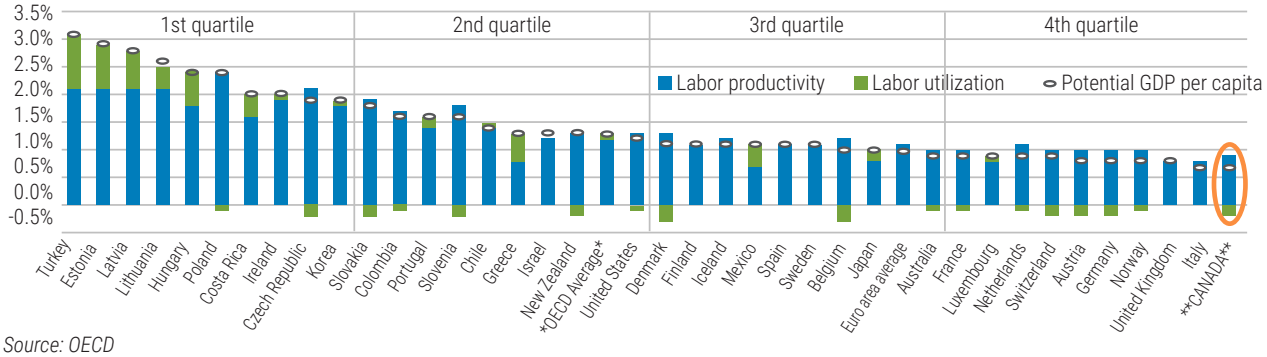
> *"The life of the inflation in its ripening stage was a paradox which had its own unmistakable characteristics. One was the great wealth, at least of those favored by the boom. Many great fortunes sprang up overnight... Side by side with the wealth were the pockets of poverty. Greater numbers of people remained on the outside of the easy money, looking in but not able to enter. The crime rate soared." — Jens Parsson – Dying of Money*

Chart 6: Annual Business Entry and Exit Rates in Canada



Soucre: Trevor Tombe, StatsCan

Chart 7: OECD 10-year Real GDP Growth CAGR: 2020-2030 – worst performer

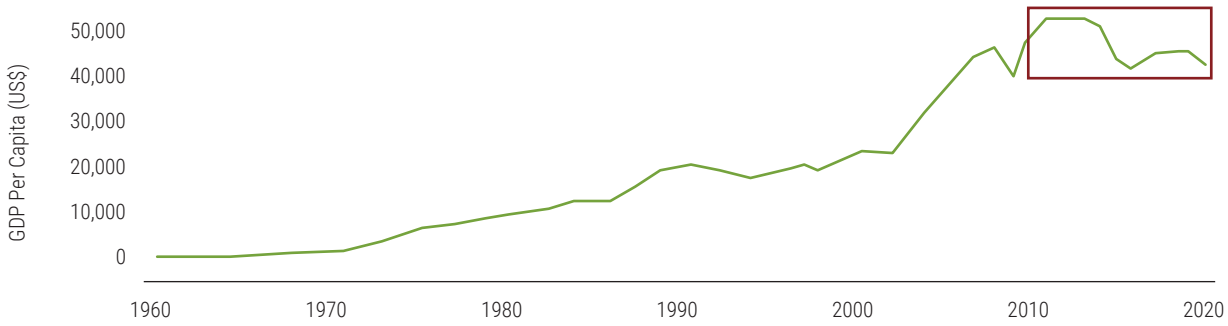


Source: OECD

1.3 REAL GDP GROWTH PER CAPITA:

Inflation adjusted GDP/capita is the metric that matters in the real world. Arguably Cananda has been experiencing early onset stagflation for the better part of a decade if you refer to the only metric that matters to the individual – real GDP per capita. That has been flat in USD$ terms beginning around 2013 after decades of consistent increases.

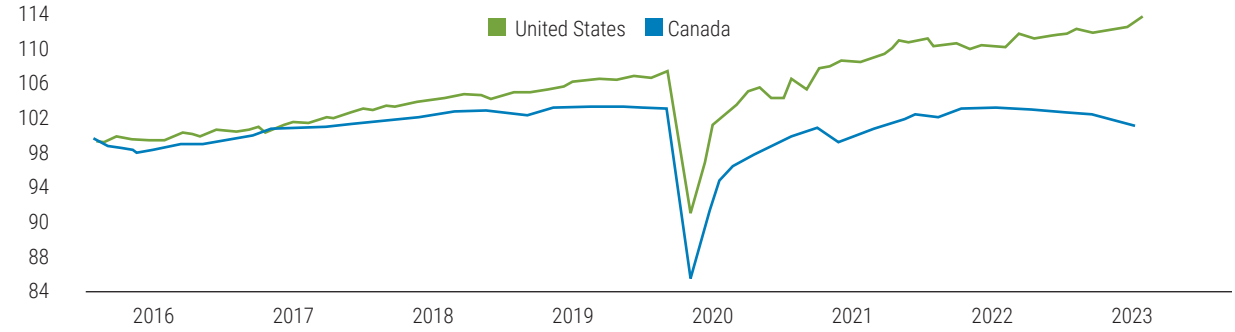
Chart 8: Canadian GDP per Capita Measured in USD$ – stagnant for ~10 years



Source: World Bank

Notice this has not been the case in the US which has recovered and grown since COVID on an absolute and per capita basis, while Canada is struggling to regain pre-COVID GDP/capita levels and appears to be heading downwards again.

Chart 9: Real GDP per Capita – Canadian Standard of Living versus US – falling behind

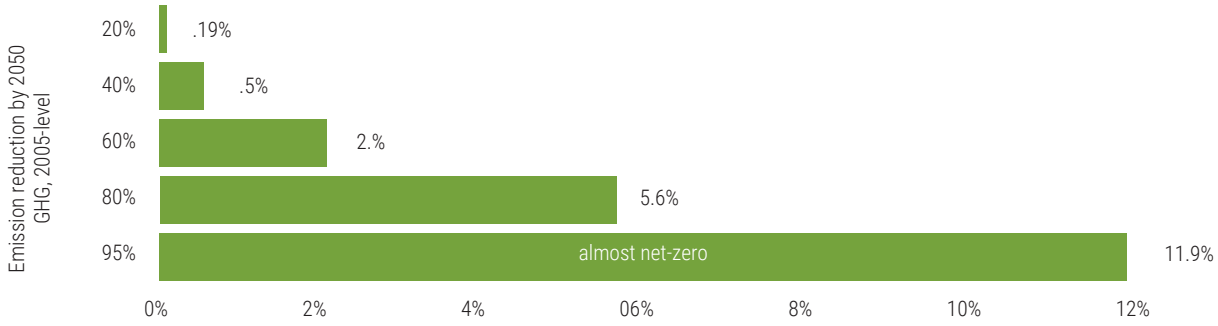


Source: Nation Bank Economics, StatsCan

1.4 REGULATORY POLICY:

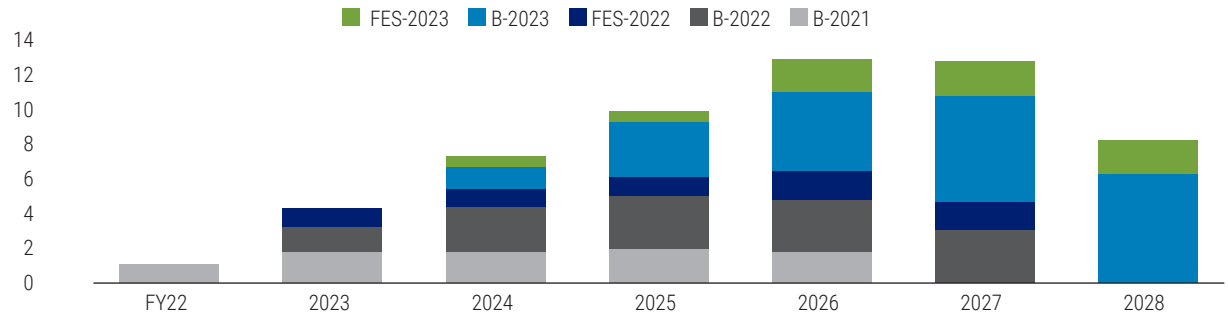
Regulatory policy obviously can have a large impact on a nation's growth conditions. With the implementation of a myriad of mandates targeting Net Zero 2035 and 2050 we must be realistic about consequences. Firstly, Net Zero 2050 will require an enormous amount of capital and secondly it will increase the cost of energy. We believe it will also drive fiscal deficits far beyond what the Federal government is already conceding.

Chart 10: Net Zero 2050 (Annual Cost $ GDP versus Estimated Emissions Reduction) – deficits increasing



Source: Bjorn Lomberg, Bank of America

Chart 11: $B Announced Climate Spending Budget 2021 Onwards – deficits increasing



Sources: ScotiaBank Economics, Finance Canada

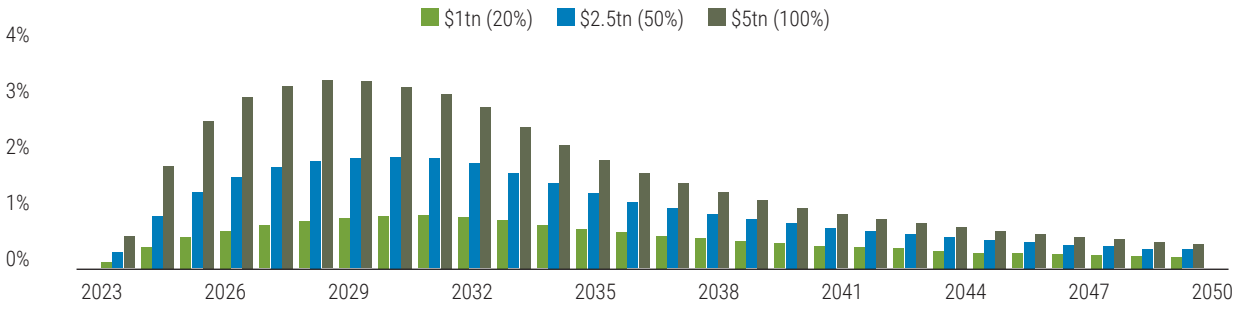
"Blessed are the young for they shall inherit the national debt." — Herbert Hoover

Mandated transition will also (intentionally) create amounts of stranded capital which will act as a serious drag on growth as those losses must be absorbed by investors. It is also likely that, faced with reluctance on the part of the private sector to fund Net Zero capital costs, governments will choose some mount of monetization of these costs to force the process. However, the market cannot be fooled and either the capital will be invested directly under the guise of mandates or indirectly under the guise of inflation.

Just how much inflation could this entail? Below you will find some selected excerpts from the recent, influential report of Bank of America – ""*Transwarming*" World". The report is a detailed analysis of the expected costs to reach 2050 Net Zero – along with our light-hearted real time translation tool. The synopsis of the report is that the 2050 Net Zero targets will require a **minimum** (emphasis mine) of $150 trillion in capital – approximately 2 times current global GDP. Our expectation is this estimate will prove highly optimistic given the complex and unprecedented nature of the undertaking.

Q: What is the economic impact of net zero? A: Elevated net zero funding could be inflationary, but the impact looks manageable at 1% to 3% per annum *(emphasis mine) depending on central bank monetization rates, particularly if government spending is targeted and contributes to accelerate the rate of global GDP growth. The IEA also has a productive outlook for their net zero scenario, where the change in the annual growth rate of* ***GDP accelerates by somewhere between 0.3% and 0.5%*** *on a sustained basis over the next 10 years as a result of a shift to a green economy. (Emphasis mine)*

Chart 12: Increase in Inflation Relative Assuming Various Levels of Cost Monetization – driving inflation



Source: Bank of America, Haver, assumes $500billion of spending in 2021 increasing by $500 billion every year until reaching $5 trillion in 2030 for ***perpetuity*** *(emphasis mine)*

Translation – This is an explicit recognition that **Net Zero 2050 is expected to be funded in a highly inflationary manner**. While Bank of America forecasts that 2050 Net Zero expenditures will generate up to 0.5% nominal GDP growth, if funded by 50% monetization (which is reasonable given the direct taxation challenge) they are also expected to generate approximately 2% annual inflation for next decade (i.e. in addition to the already elevated inflation rates that are unfolding). Net Zero targets will therefore create modest GDP growth but material inflation growth over the next decade – i.e. they are forecast to reduce real GDP which intuitively makes sense as it will involve the stranding and early retirement of US$ trillions in legacy capital.

"At first inflation stimulated production because of the divergence between the internal and external values of the mark, but later it exercised an increasingly disadvantageous influence, disorganizing and limiting production.... It provoked a serious revolution in social classes, a few people accumulating wealth and forming a class of usurpers of national property, whilst millions of individuals were thrown into poverty."
— The Economics of Inflation — A Study of Currency Depreciation in Post War Germany

Q: How much will it cost? A: <u>The energy transition to a net zero greenhouse gas (GHG) economy by 2050 will be a very expensive exercise</u>, *(emphasis mine) estimated by the IEA at $150tn of total investment, over a period of 30 year. At $5tn p.a, the IEA see it costing as much as the entire US tax base every year for 30 years. BNEF has a higher estimate that the total investment needed for energy supply and infrastructure could be as high as $173tn through 2050, or up to $5.8tn annually, which is nearly three times the amount invested on an annual basis today.*

Translation – This cannot be funded by from tax revenues, certainly not without a taxpayer revolt. Inflation is the most expedient way forward.

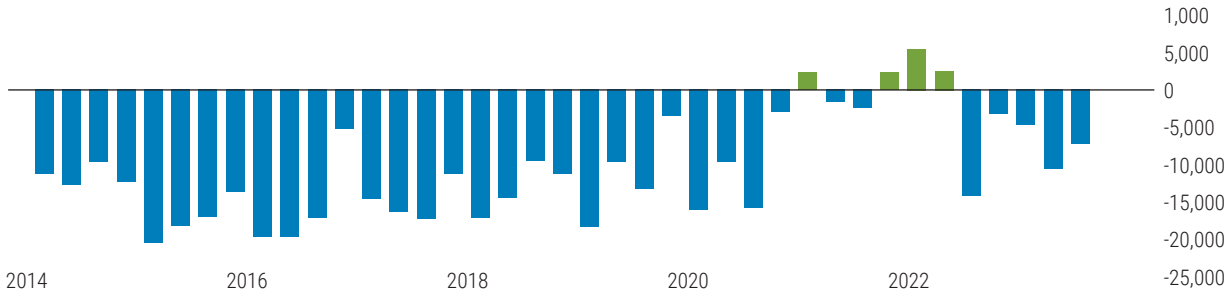
Q: Who will pay for it and how? A: *A combination of corporate bond issuance, commercial bank balance sheet capacity, government debt, and carbon taxes will likely be required to achieve full decarbonization. It will be very challenging to boost funding resources to the $5tn a year required to get to net zero emissions, …Decarbonisation bill of $5tn a year is equivalent to 25% of current global tax revenues ($20tn); assuming that global tax revenue grows at the 10y average over the next 30 years and a progressive spending path, the decarbonization bill would amount to 15% of global tax revenues by 2030, meaning accommodating climate action finance likely required far beyond fiscal budgets.*

Translation – The taxpayer will pay for all of it, most likely through the redistribution effects of inflation and higher energy costs. Both impacts are highly stagflationary.

1.5 CAPITAL FLOWS:

Capital is a necessary precursor to economic growth. Canada is experiencing material capital flight – capital that is vital for investment in productive assets and consequently the life blood of domestic growth. Alas, this is not a recent development, Canada has been doing extremely poorly in this area for decades – i.e. much more capital is leaving the country than entering on a consistent year on year basis.

Chart 13: Net Foreign Direct Investment ($M) – capital and financial account deficit ~$40-$60B pa



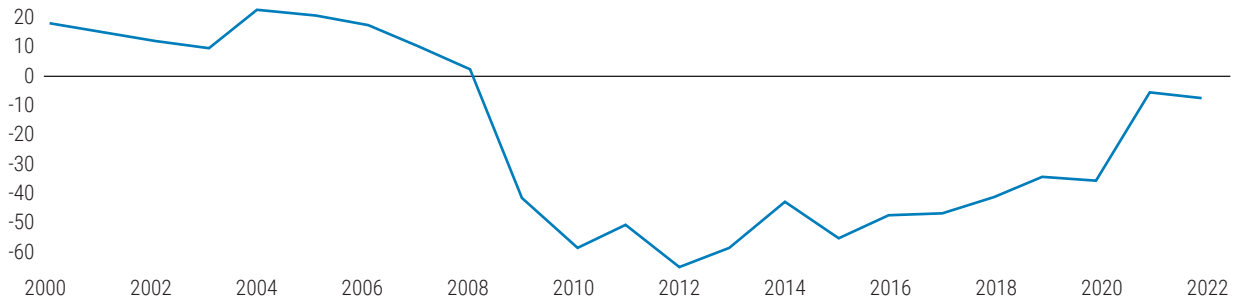
Source: StatsCan

1.6 CURRENT ACCOUNT:

Current account deficits are a sign that an economy is not sufficiently focused on producing goods and services the world requires and is, in effect, living beyond its means. Other than the momentary COVID improvement, Canada's current account deficit has been consistently in the range of $40B-$65B for a decade.

"The champions of socialism call themselves progressives, but they recommend a system which is characterized by rigid observance of routine and by a resistance to every kind of improvement. They call themselves liberals, but they are intent upon abolishing liberty. They call themselves democrats, but they yearn for dictatorship. They call themselves revolutionaries, but they want to make the government omnipotent. They promise the blessings of the Garden of Eden, but they plan to transform the world into a gigantic post office. Every man but one a subordinate clerk in a bureau." — Ludwig von Mises

Chart 14: Canadian Current Account Balance ($B) – persistent trade deficit

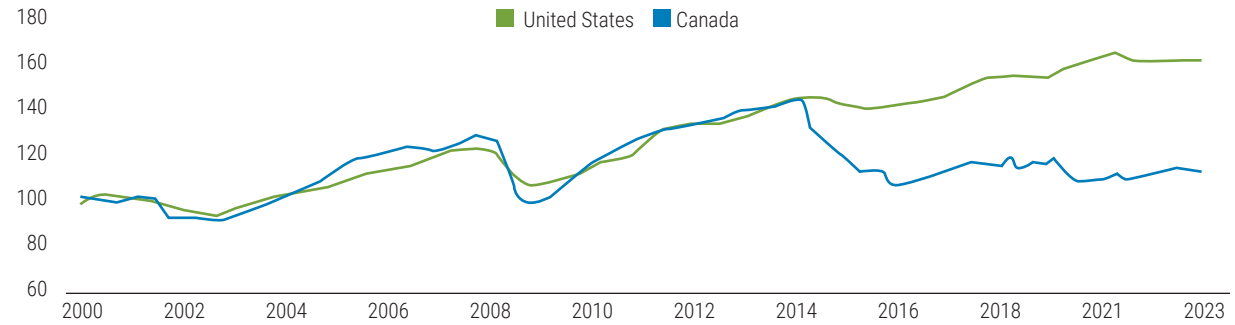


Source: IMF

1.7 PRODUCTIVITY:

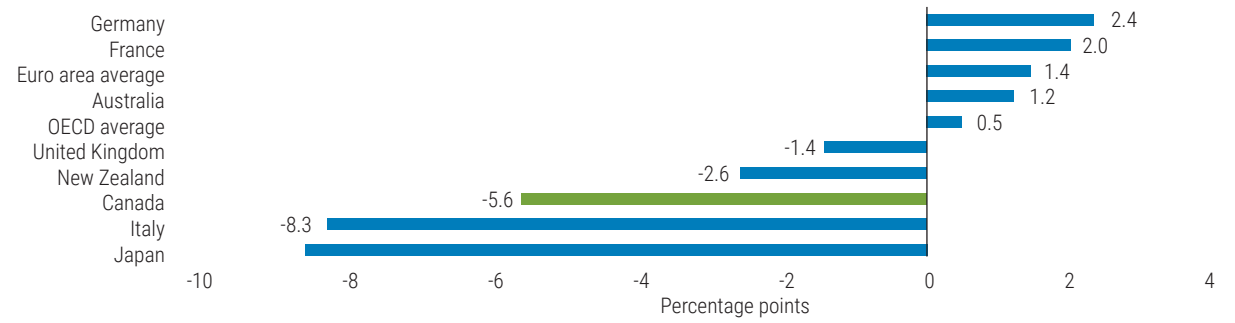
Productivity is another precursor to economic growth. To grow our economy on a per person basis, the productivity of Canadian labor must increase. Sadly, this is yet another area in which Canada has been lagging.

Chart 15: Canadian Investment in Workers – persistent underinvestment



Source:StasCan, BEA, TD Economics

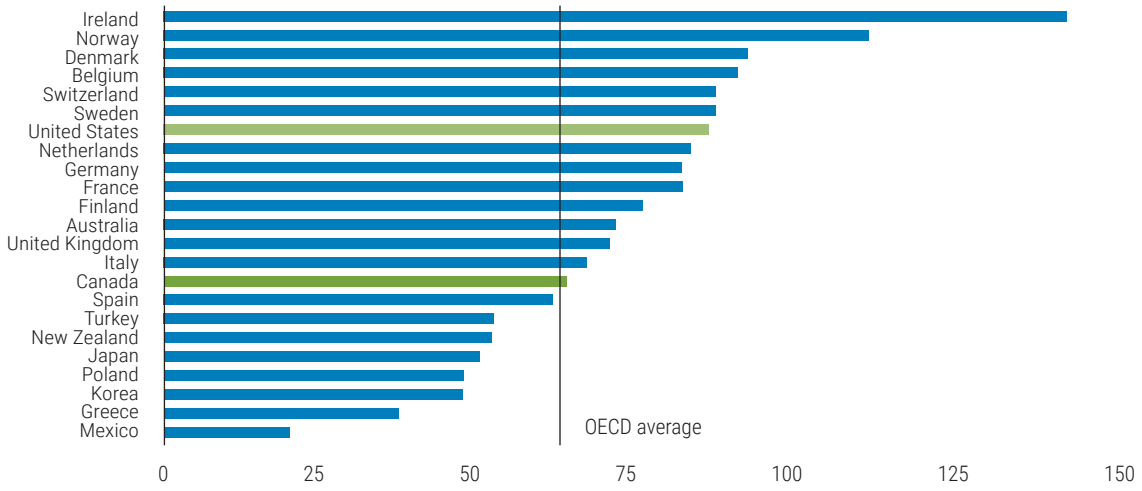
Chart 16: Canadian Labor Productivity Relative to US levels since 2000 – persistent underperformance



Source: BMO Economics, change in real GDP per hour worked as a percent of US levels 2020 vs 2000

In fact, Canada is generally a poor and deteriorating performer when it comes to labor productivity versus virtually all of its peers.

Chart 17: Dropping Down the Global Ladder – 2021 Labor Productivity – low productivity



Sources: BMO Economics, OECD, current prices at PPP exchange rates – US$ terms, GDP per hour worked

1.8 FISCAL ACCOUNT:

Expanding government spending is not a precursor to either growth or low inflation. Canada is currently operating in the nonsensical world of restrictive monetary policy (high interest rates set by the BoC) to reduce inflation while at the same time it is running an expansionary fiscal policy in the form of rapidly growing government spending and fiscal deficits. The Parliamentary Budget Office has even forecast that federal deficit spending could last until 2070 – 50 years!

According to a study by the Montreal Economic Institute, the Federal government has:

- increased the size of the federal public service by 38%, or ~100,000 additional employees, since 2015, bringing the total number of federal employees to 357,247 (March 31, 2023)
- overseen the largest staff increase since 1984
- increased its employee levels to nine for every 1,000 Canadians — 25.3% higher than in 2015 (i.e. even after accounting for population growth)
- increased annual (ex interest payment on debt) by ~ 75% since 2014- $256 billion to a projected $453 billion in 2023—24 (Fraser Institute)

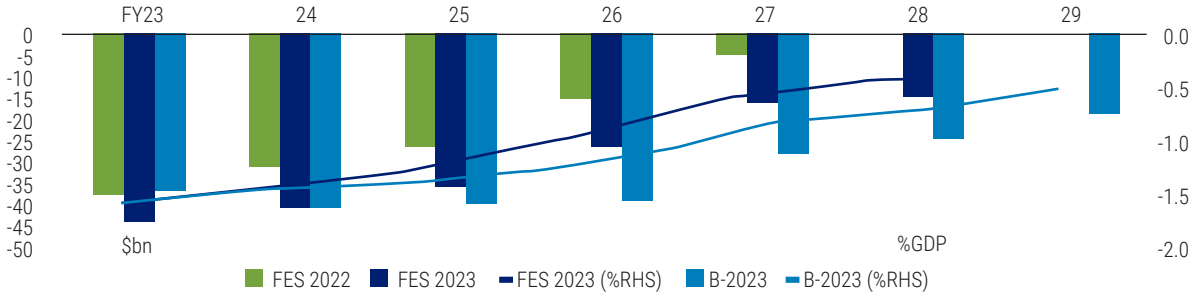
It is no surprise, then, that Canada's structural fiscal deficit has increased by over 1% of GDP and over a six-year period and the Federal government has increased Canada's national debt by ~300%. This two-fold impact will have consequences for managing inflation as the federal government is likely to find debt reduction or program cuts politically unpalatable.

We think it fair to say that the pace of the accumulation of Canada's government debt is not on a sustainable trajectory and, in fact, over the last 6-7 years has provided the accumulation of necessary fuel for the current burst of inflation.

Looking forward and deconstructing the federal budget to evaluate new and ongoing permanent programs costs, it appears that there is no plan to stop adding fuel to this fire. Canada's structural budget deficit at the federal level has been increased by more than $20 billion per annum (without accounting for federal spending on Net Zero 2050 initiatives – see Regulatory section). This higher level of structural, and arguably permanent, deficit effectively acts as on offsetting inflationary force against any BoC tightening and keeps the consequences of BoC tightening on the private sector rather the public sector. This thesis is even starting to be discussed in mainstream banking circles.

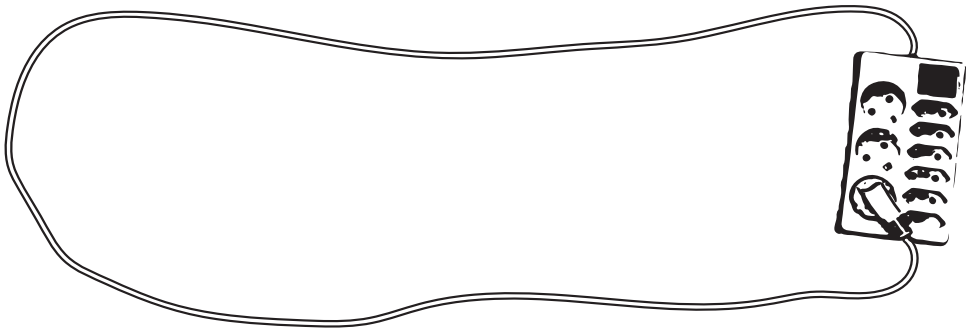
A report by Scotiabank Chief Economist Jean-Francois Perrault and Rene Lalonde concluded that *"the output losses that the BoC must engineer to rein in inflation are falling disproportionately on the private sector…In effect, high levels of fiscal spending will necessitate an unnecessarily large crowding out of private spending…Less government consumption would lead to a lower path for the policy rate and take some of the burden of adjustment away from the private sector."*

Chart 18: Structural Fiscal Deficits (Federal Expenses versus Revenues – 2023 – 2029) – no end in sight



Source: ScotiaBank Economics, Finance Canada

Low growth in the private sector and high growth in the public sector is not a recipe for favorable long-term economic outcomes. In that frame of mind, the image below is hard to beat as both an amusing and perceptive representation of how our government is supposedly fighting inflation with expansive fiscal policy and contractionary monetary policy. Or to translate, with the short-term political goal of a retaining power and the long-term economic goal of heading off an inflationary conflagration of their own creation, or more likely just shifting the blame for it.



1.9 GROSS DEBT:

All debt must be repaid *de jure* (formal repayment or default) or *de facto* (inflation to reduce value). It follows then that the use of debt to fund consumption is simply borrowing growth from the future. We must face the fact that Canada is one of the most indebted countries in the world, and it has done so to fund a consumption spree of epic proportions while neglecting its capital base.

> *"The man who has gone through a college or university easily becomes psychically unemployable in manual occupations without necessarily acquiring employability in, say, professional work. All those who are unemployed or unsatisfactorily employed or unsatisfactorily unemployable drift into the vocations in which standards are least definite or in which aptitudes and acquirements of a different order count. They swell the host of intellectuals whose numbers increase disproportionately. They enter it in a thoroughly discontented frame of mind. Discontent breeds resentment. And it often rationalizes itself into … social criticism … amounting to moral disapproval of the capitalist order." — Joseph Schumpeter*

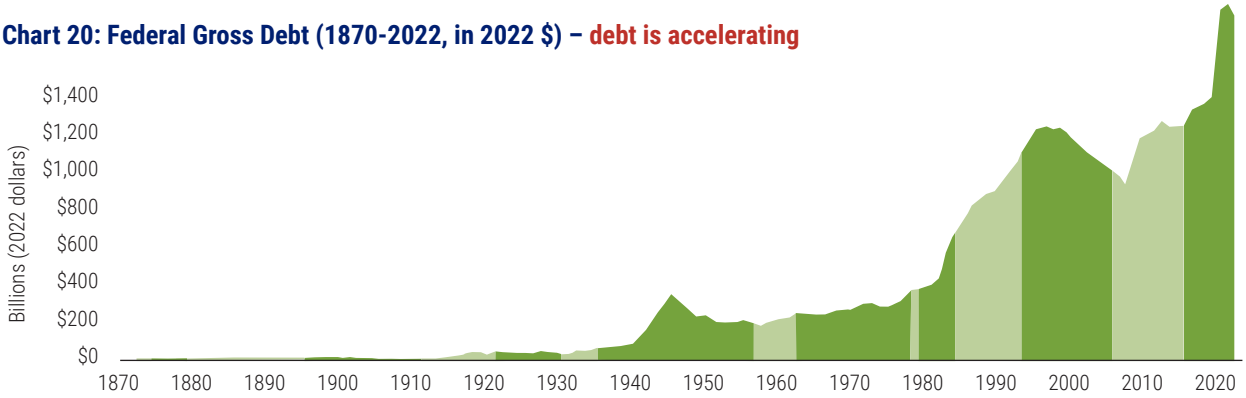
Chart 19: Country by Country Total Aggregate Indebtedness – highly indebted

	Debt as % of GDP	Govt debt as % of GDP	Private debt as % of GDP
Japan	444.7	237.1	207.6
Canada	356.1	89.9	266.2
France	351.4	98.4	253
US	318.7	106.9	211.8
UK	310.8	86.8	224
Italy	301.6	135.5	166.2
South Korea	283.7	37.9	245
China	258.4	50.6	207.8
Australia	236.9	41.4	195.5
Germany	215.8	61.7	154.1
Russia	211.4	14.6	196.8
Turkey	200.1	30.2	170
Mexico	170.1	35.4	134.7
Brazil	157.5	87	70.5
South Africa	128.5	56.7	71.8
India	122.9	68.1	54.8
Argentina	108.4	86.1	22.3
Indonesia	70.3	30.1	40.2
Average	235.96	75.24	160.72

Sources: IceCap Asset Management

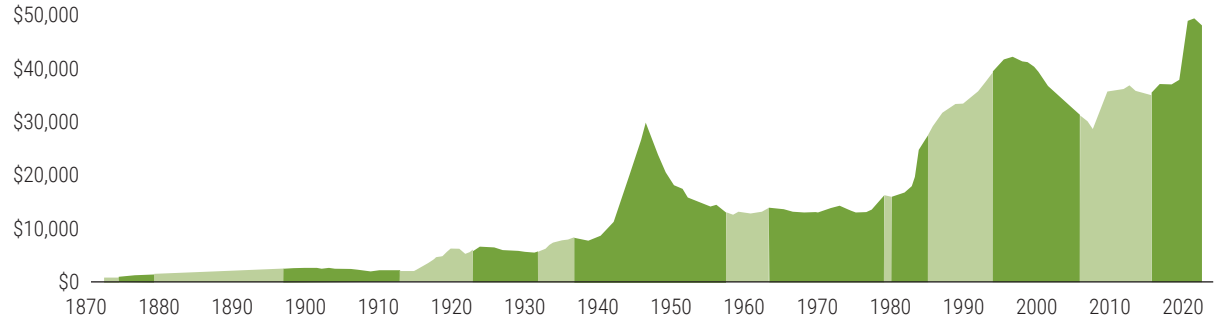
Elected officials trying to disguise this fact by quoting "net debt" levels – as if CPP was available to pay off Federal debts – is neither honest nor conducive to good policy decision making. Before a problem can be solved it must be properly defined and acknowledged.

Chart 20: Federal Gross Debt (1870-2022, in 2022 $) – debt is accelerating



Sources: Canada Department of Finance, Fraser Institute

Chart 21: Federal Gross Debt/Capita (1870-2022, in 2022 $) – debt is accelerating



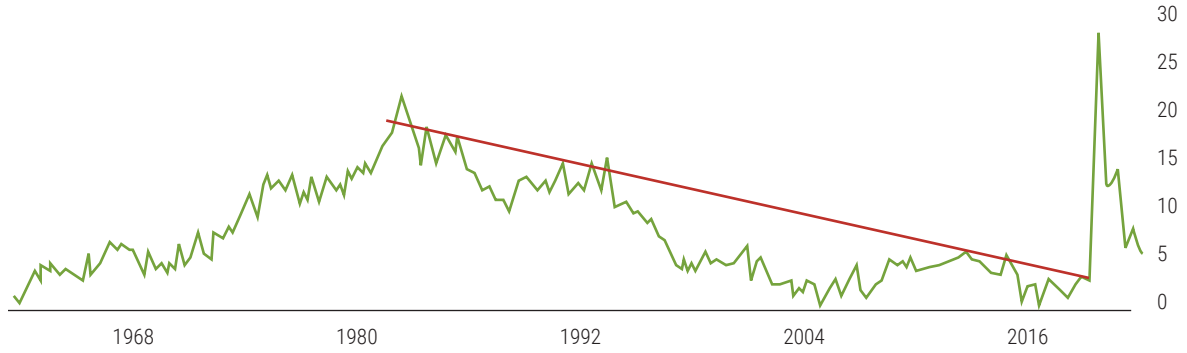
Source: Fraser Institute, Canada Department of Finance

"It is no crime to be ignorant of economics, which is, after all, a specialized discipline and one that most people consider to be a 'dismal science.' But it is totally irresponsible to have a loud and vociferous opinion on economic subjects while remaining in this state of ignorance." — Murray Rothbard

1.10 HOUSEHOLD SAVINGS:

Household savings are a raw material for economic growth – capital. Savings are recycled by intermediaries into investments in productive assets (ideally). This is yet another area in which Canada is creating growth challenges. Our household saving rate has collapsed. By becoming a nation of consumers we steal from future growth potential.

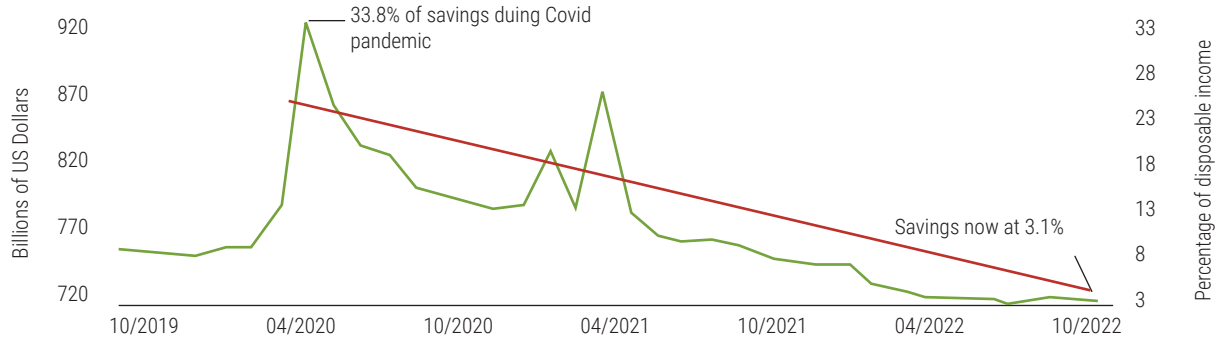
Chart 22: Canada Personal Savings Rate – declining



Source: Trading Economics, StatsCan

Poor household savings is a common G7 problem.

Chart 23: US Personal Savings Rate – declining



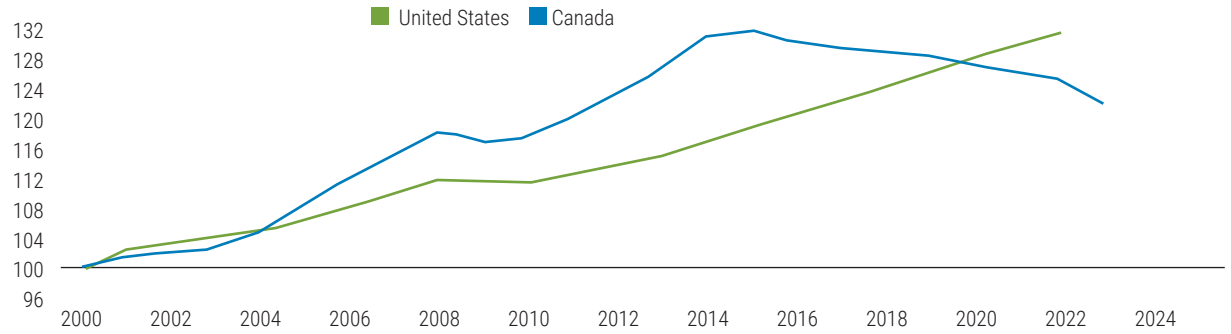
Source: Bloomberg, Lombard Odier

Low savings rates must reverse unless we intend to try to rely on the kindness of strangers (foreign lenders) to subsidize an unsustainable, consumption-oriented lifestyle indefinitely.

1.11 CAPITAL FORMATION:

Canada's private, non-residential capital stock to population ratio has been declining for years and is currently no higher than it was in 2012, while it is at a record high in the US. Capital formation is another raw material for future growth – capital formation shortfalls today = growth shortfalls tomorrow.

Chart 24: Net Real Non-residential Capital Stock/Capita at Year-end (2023 est. Canada, 2022 est. US) – declining

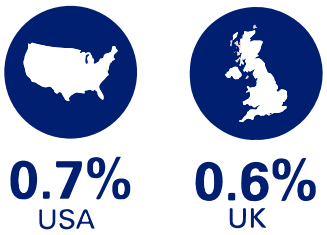


Source: NBF Economics, StatsCan

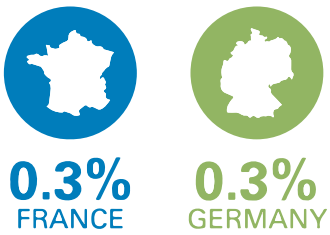
1.12 POPULATION GROWTH:

When a population is growing so fast that all available savings are needed to maintain the existing capital–labour ratio, making any increase in living standards impossible, it has entered a population trap (Oxford dictionary). According to a report published by National Bank, Canada is now caught in such a trap, with immigration set at unprecedented levels by current administrative policies. For a mainstream, federally regulated institution like National Bank to speak out on this point should give you some idea of the severity of this issue.

Canada has recently been the fastet growing country in the G7

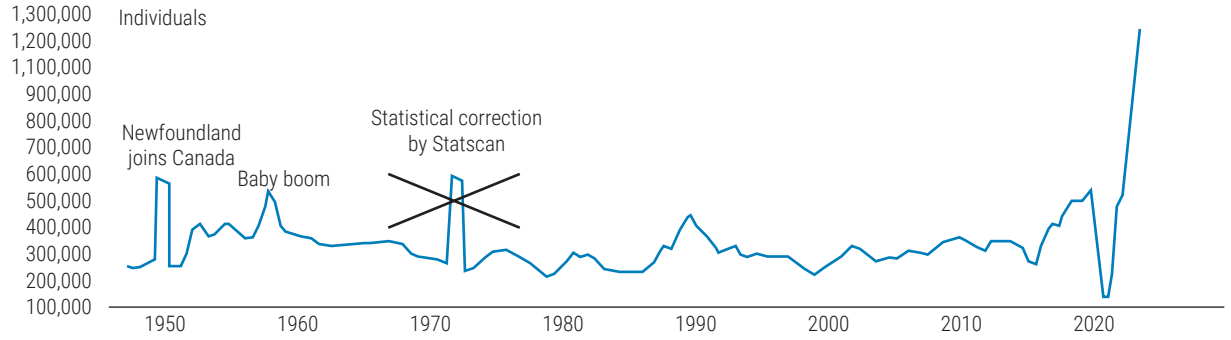


Canada's population is rising over double to the rate of US & UK



Canada's population is rising over four times the rate of France & Germany.

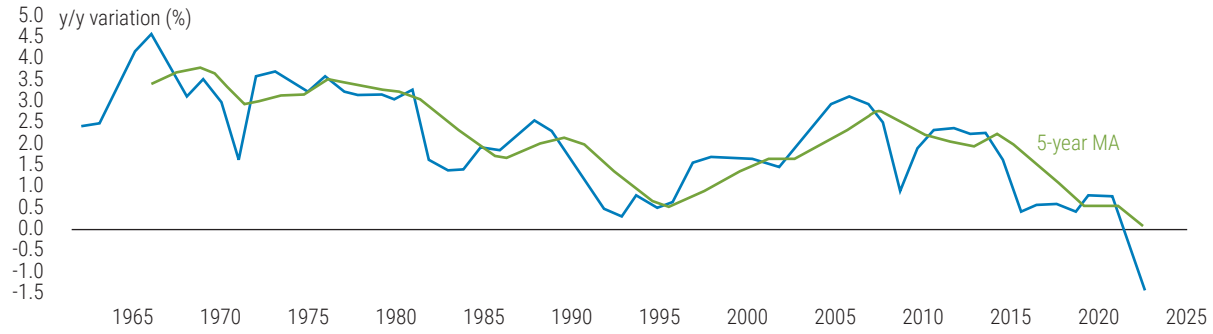
Chart 25: Annual Growth in Total Population – materially above trend and peers



Source: NBF Economics, StatsCan

> *"Socialism in general has a record of failure so blatant that only an intellectual could ignore or evade it."*
> — Thomas Sowell

Chart 26: Net Real Capital Stock at Year-end per Person, all Sectors (NBF est. for 2023) – population trap

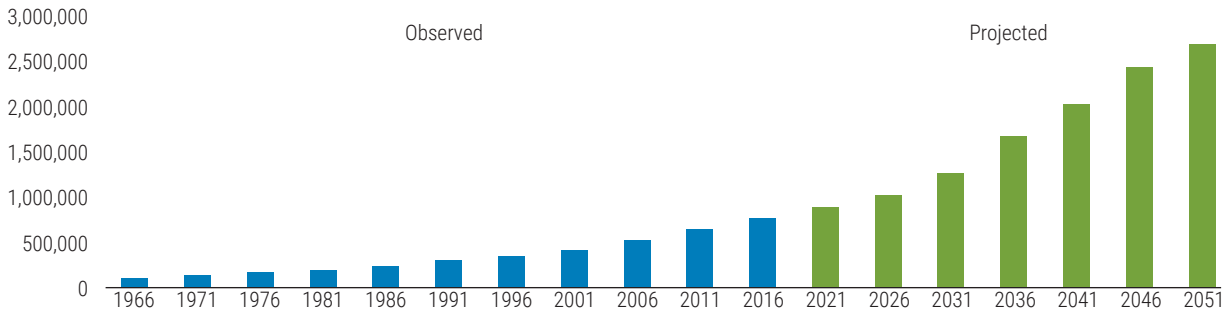


Source: NBF Economics, StatsCan

1.13 DEMOGRAPHICS:

It has been said that demographics are destiny. While that is a simplification, it is directionally accurate. Aging demographics eventually have negative consequences for entitlement spending levels, fiscal deficits, labor productivity and a host of other variables that impact the growth potential of an economy. Canada has just such a rapidly aging population and will start to experience an acceleration in this trend as the large boomer generation retires over the next decade(s).

Chart 27: Population Aged 85 and Older, Canada 1966 to 2051) – aging



Sources: StatsCan

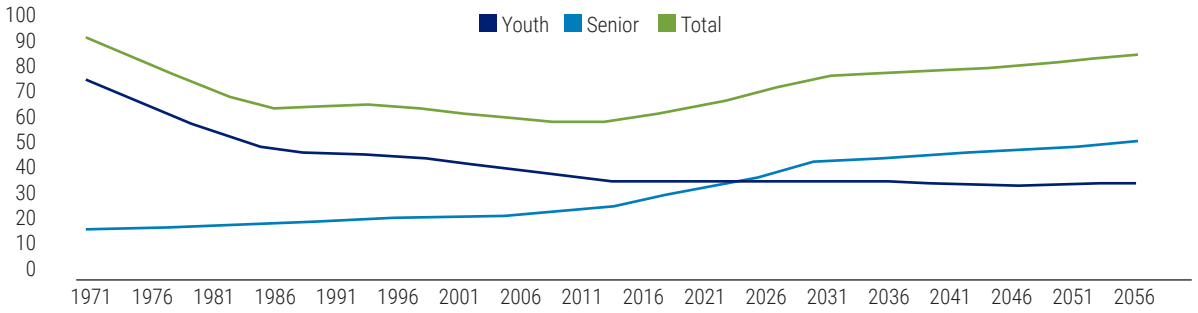
1.14 DEPENDENCY RATIO:

Dependency ratios are a measure of the age structure of a population. They relate the number of individuals that are likely to be economically "dependent" on the support of others. Dependency ratios contrast the ratio of youths (ages 0-14) and the elderly (ages 65+) to the number of those in the working-age group (ages 15-64).

Changes in the dependency ratio provide an indication of potential social support requirements resulting from changes in population age structures. In 2010 there were approximately 4.4 people aged 20 to 64 for everyone aged over 65. In 2050, that ratio is expected to fall to 2.2 people for every retiree, which means there will be fewer working people supporting each retirement income. This will drive unfunded fiscal deficits and/or tax increases and be another factor straining the sustainability of federal government spending.

"The first lesson of economics is scarcity: There is never enough of anything to satisfy all those who want it. The first lesson of politics is to disregard the first lesson of economics." — Thomas Sowell

Chart 28: Number of Dependents per 100 Population of Working Age – shrinking worker pool to dependents

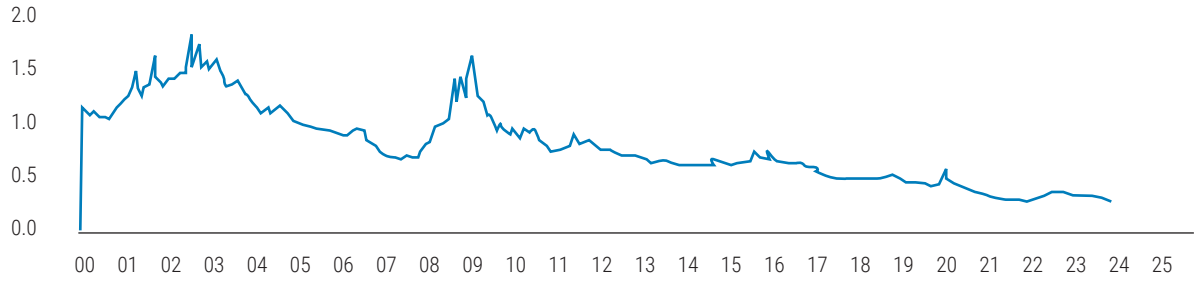


Source: StatsCan

1.15 CURRENCY:

Canada's low growth, high inflation economy should continue the long-term trend of a weakening CAD$ against its key trading counterpart (USD$). Layer on Canada's material current account deficit (which will worsen precipitously as Net Zero mandates eliminate O&G exports unless an equally large export replacement can be found) and this will add to stagflation pressures.

Chart 29: USD vs. CAD – multi-decade weakening trend

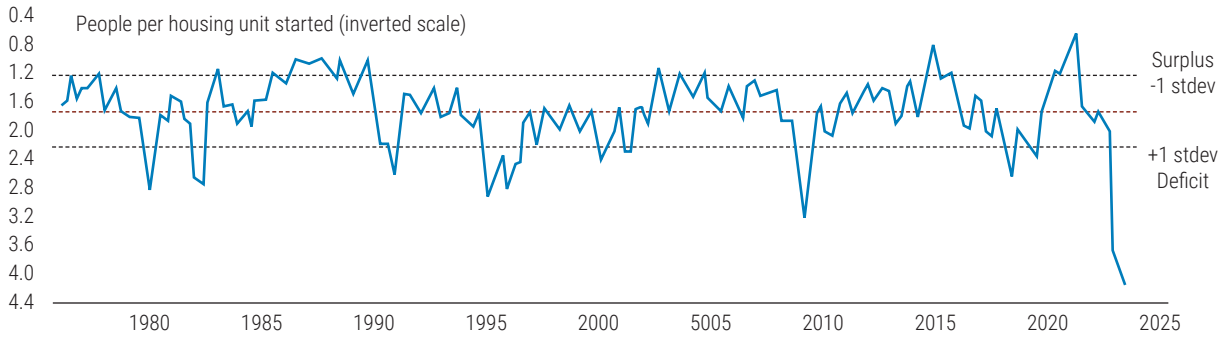


Source: Bank of Canada

1.16 HOUSING SUPPLY:

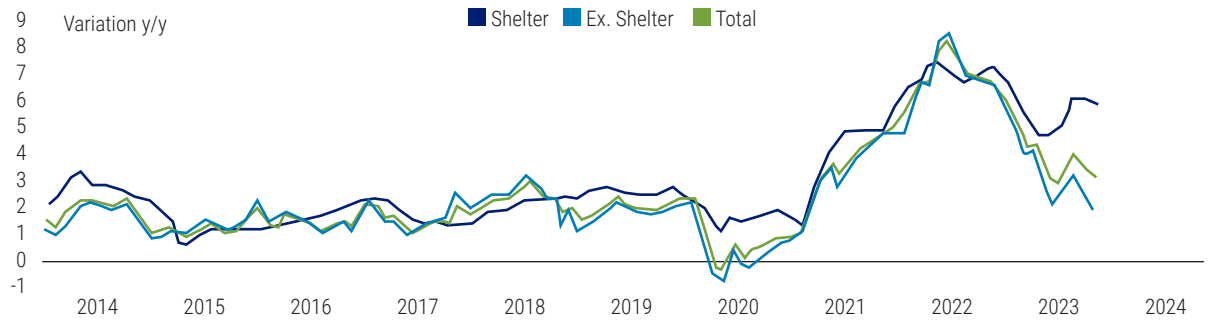
Canada has a record-breaking 3+ million, and growing, housing shortfall and no clear path to resolution. This is both a source of inflation (rental costs) and its solution will divert capital away from productive use to a consumption item (homes).

Chart 30: Rate of Growth in Working Age Population to House Starts (quarterly) – structural shortfall



Source: NBF Economics

Chart 31: Shelter Costs Keep Inflation Above 3% (CPI inflation: total, housing, and ex housing) – driving inflation

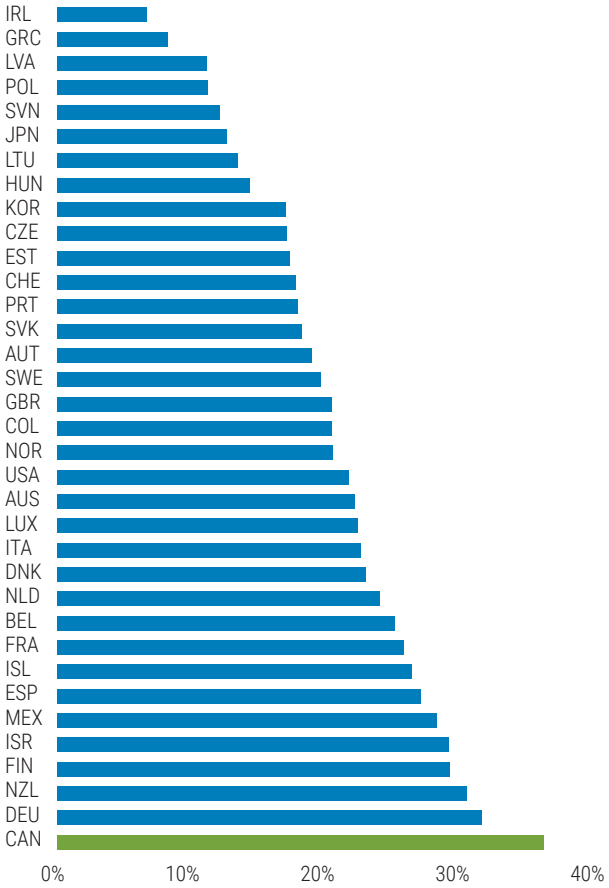


Source: NBF Economics

1.17 HOUSING INVESTMENT:

Even with a massive housing shortfall, Canada is overly reliant on housing to drive GDP growth. In fact, it is plausible that residential real estate has been a contributor to the unimpressive trend in Canadian GDP per capita as it has been diverting large amounts of scarce domestic savings/capital into what is ultimately a consumption good that makes only a marginal contribution to the overall productive capacity of the economy.

Chart 32: OECD Share of Investment Spent on Housing (annual share of fixed capital formation) – housing capital heavy



Source: OECD, US Federal Reserve

Table 1: Gauges of Residential Price Risk – overpriced market

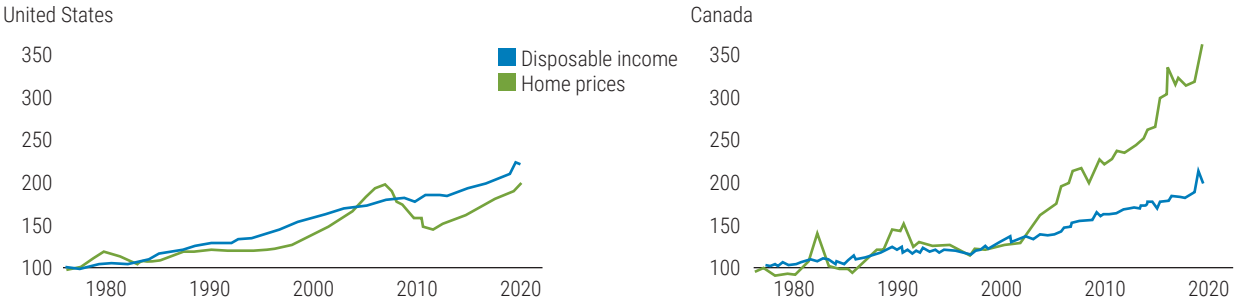
	Rank	Price-to-Rent Ratio	Price-to-Income Ratio	Real Price Growth (%)	Nominal Price Growth (%)	Credit Growth (%)
New Zealand	1	156.8	143.9	27.6	23.1	1.5
Czech Republic	2	169.7	140.9	25.8	20.2	2.4
Hungary	3	160.5	131.4	19.5	11.2	-0.5
Australia	4	141.5	119.7	23.7	21.1	-3.3
Canada	5	154.9	143.0	17.6	12.2	-4.7
Portugal	6	156.0	146.8	11.6	9.4	-2.0
US	7	139.2	135.9	18.7	11.7	-2.5
Austria	8	134.1	140.9	14.9	11.9	-1.3
Russia	9	157.6	99.8	22.8	11.6	-1.4
Luxembourg	10	166.5	143.7	12.1	8.2	-5.7
Netherlands	11	148.8	137.8	16.7	7.8	-3.3
Germany	12	147.6	135.9	12.2	7.2	-0.9
Sweden	13	129.2	116.3	11.1	8.0	-1.2
Switzerland	14	121.7	121.2	8.3	7.0	-1.7
UK	15	126.8	120.1	10.5	6.0	-4.1
Chile	16	132.3	124.5	11.9	6.9	-7.8
South Korea	17	113.5	100.4	9.9	6.7	3.1
Japan	18	114.8	109.1	7.3	7.4	1.3
France	19	127.3	112.6	7.3	4.5	-2.3
Spain	20	129.5	124.7	6.3	2.2	-6.4
Poland	21	121.4	108.2	12.1	3.4	-6.4
Greece	22	129.6	103.7	7.9	6.4	-7.0
Ireland	23	124.6	114.8	13.9	7.0	-12.6
Colombia	24	121.8	114.1	7.7	2.2	-6.2
Denmark	25	126.4	114.1	4.1	0.6	-6.4
Belgium	26	117.3	108.3	6.0	1.4	-5.6
Norway	27	122.4	111.0	8.1	4.3	-13.6
Finland	28	101.0	101.6	3.9	0.7	-2.3
Italy	29	103.0	94.7	4.1	0.9	-3.3
South Africa	30	103.6	100.0	3.4	-2.2	-7.1

Sources: Bloomberg Economics, BIS, OECD

Residential real estate is also a disproportionate part of the Canadian economy at a time when real rates are rising, and affordability is low. Simply put, Canadians spend far too much on housing, use excessive amounts of leverage to do so, at prices that are far beyond any reasonable interpretation of affordability. It is important to consider the potential contractionary economic pressures created if these variables were to revert to anything close to historical averages.

An instructive visual of just how misaligned Canadian disposable incomes have become versus house prices can be found below. This is a relationship that is strongly mean reverting. When and how will it revert? With a large increase in disposable incomes or a large drop in real (inflation adjusted) house prices?

Chart 33: Disposable Income to Home Prices (US and Canada) – affordability is stretched



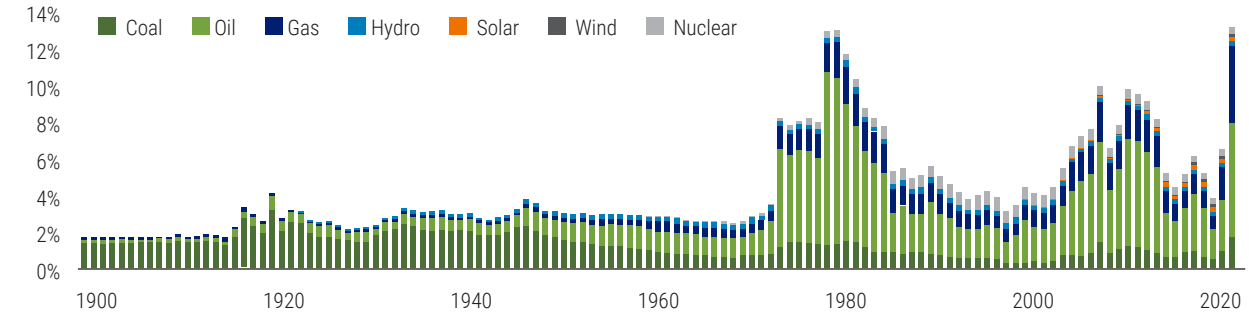
Sources: Mack A. and E. Martinez-Garcia, Federal Reserve of Dallas. Real disposable income and real home price index rebased to 1975 (100) 1975 Q1 to Q4 2020.

1.18 ENERGY COSTS:

The CEO of Siemens Energy (one of the largest wind turbine manufacturers in the world) recently told The Telegraph: *"Every transformation comes at a cost and every transformation is painful. And that's something which the energy industry and the public sector – governments – don't really want to hear. I believe that for a while [customers] need to accept higher pricing."*

Just how much higher are energy costs from the averages of the last two decades. For comparison, the recent strong upward trend in energy spending as a percentage of GDP is on par with the 1970s stagflationary shock driven by 1) the OPEC embargo and oil re-pricing after the Yom Kippur war and 2) the US default on gold convertibility which ended Bretton Woods. We have just experienced a spike to energy expenditure levels of 13% of GDP (wwhich has subsided somewhat) and is still well above the long-term trend of 4% of global GDP since 2000. Energy prices are also up on average across all sources – i.e. there are no cheaper options to which to switch.

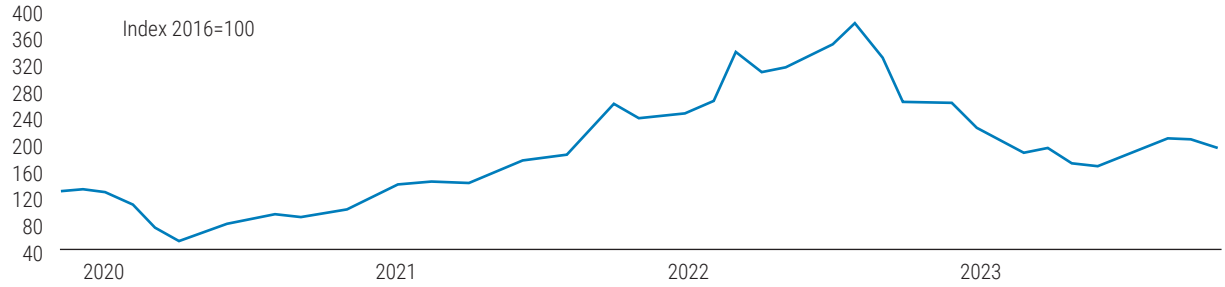
Chart 34: Price Levels (Percent GDP) All Energy Sources – price shock



Source: Thunder Said Energy

A sustained price change of this magnitude combined with resilient demand is likely to have serious long-term effect on growth for the net energy importing G7 community:

Chart 35: Global Price of Energy Index (~50% increase in 4 years) – price shock



Source: St Louis Fed

Chart 36: CRB Commodity Index – price shock

Source: CRB

The seriousness of shock can be seen in the scramble to source cost effective sources of energy, a scramble that is seeing inexpensive coal returning to the G7 energy mix although globally it never left despite claims to the contrary. China expects to double coal fired power plant capacity by the end of 2023 building new coal-fired power plants with a capacity of at least 165 gigawatts – which is equivalent to more than double of Germany's current total electric power demand. That figure is estimated to rise to a total of 270 gigawatts by 2025. China's planned added capacity would be more than the rest of the world combined.

MODELLING STAGFLATION:

We used the stagflation factor discussion to model a highly simplified stagflation forecast using four key parameters: nominal GDP growth, population growth, inflation, and the CAD$/USD$ exchange rate to produce a forecast GDP per capita series in real USD$ terms. USD$ was used as the base currency as USD$ is the worlds reserve currency and the current monetary yardstick with which to measure absolute economic progress. The forecasting period in model has been arbitrarily divided in to three, decade-long cases with the following presumed characteristics:

> *"Lenin is said to have declared that the best way to destroy the capitalist system was to debauch the currency. By a continuing process of inflation, governments can confiscate, secretly and unobserved, an important part of the wealth of their citizens. By this method they not only confiscate, but they confiscate arbitrarily; and, while the process impoverishes many, it actually enriches some. ... all permanent relations between debtors and creditors, which form the ultimate foundation of capitalism, become so utterly disordered as to be almost meaningless; and the process of wealth-getting degenerates into a gamble and a lottery" — John Maynard Keynes*

Period	Macro description									
2024-2033	Stagflation through most of the decade, high gross debt levels with highly expansionary fiscal policy, BoC forced to go through cycles of lowering and then raising rates to extinguish resurgent inflation or re-ignite nominal GDP growth, tendency for declining currency against USD$, immigration policies stable at high current levels, debt overhang suppresses growth									
		Min				Max				
	Nominal growth (low)	Mean 1.1%	SD 1.1%	Min -2.0%	Max 1.2%	Same				
	Population growth (high)	Mean 1.0%	SD 1.0%	Min 0.75%	Max 1.75%	Mean 1.1%	SD 1.0%	Min 0.75%	Max 1.85%	
	Inflation (high)	Same				Mean 4%	SD 0.5%	Min 1.75%	Max 7%	
	CAD$ – depreciating/stable	Mean 0%	SD 5%	Min -5%	Max 0%	Mean 0%	SD 0%	Min 0%	Max 0%	
2034-2043	Economy recovering, moderate inflation, slow reduction in debt overhang, poor fundamentals being rectified, population growth returning to historic norms, currency stable									
		Min				Max				
	Nominal growth (average)	Same				Mean 1.6%	SD 1.6%	Min -2%	Max 2.2%	
	Population growth (average)	Same				Mean 1%	SD 1%	Min 0.75%	Max 1.75%	
	Inflation (high)	Same				Mean 4%	SD 0.5%	Min 1.75%	Max 7%	
	CAD$ – stable	Mean 0%	SD 0%	Min 0%	Max 0%	Same				
2044-2053	Improved growth, average historic levels of inflation, debt overhang and poor fundamentals rectified, low population growth, high productivity, tendency for currency to appreciate									
		Min				Max				
	Nominal growth (above average)	Mean 1.6%	SD 1.6%	Min -2%	Max 2.2%	Mean 2.2%,	SD 1.7%,	Min -2%	Max 3.5%	
	Population growth (below average)	Mean 0.75%	SD 1%	Min 0.25%	Max 1.5%	Mean 1%	SD 1%	Min 0.75%	Max 1.75%	
	Inflation (average)	Same				Mean 2.25%	SD 0.5%	Min 1.5%	Max 3.5%	
	CAD$ – stable/appreciating	Mean 0%	SD 0%	Min 0%	Max 0%	Mean 0%	SD 5%	Min 0%	Max 5%	

Table 2: Stagflation Simulation Annual Parameter Settings

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Nominal Growth Rate	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Population Growth Rate	High	High	High	High	High	High	High	Base	Base	Base
Inflation	High	High	High	High	High	High	High	High	High	High
Forex	Declining	Declining	Declining	Declining	Declining	Declining	Declining	Declining	Stable	Stable

	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Nominal Growth Rate	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base
Population Growth Rate	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base
Inflation	High	High	High	High	High	High	High	High	High	High
Forex	Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable

	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
Nominal Growth Rate	Base	Base	Base	Base	High	High	High	High	High	High
Population Growth Rate	Base	Low	Low	Low	Low	Low	Low	Low	Low	Low
Inflation	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base
Forex	Stable	Stable	Appreciating	Appreciating	Appreciating	Appreciating	Appreciating	Appreciating	Appreciating	Appreciating

The behavior of these toggles is as follows:

Table 3 Monte-Carlo Simulation Distribution Parameters for Case Settings

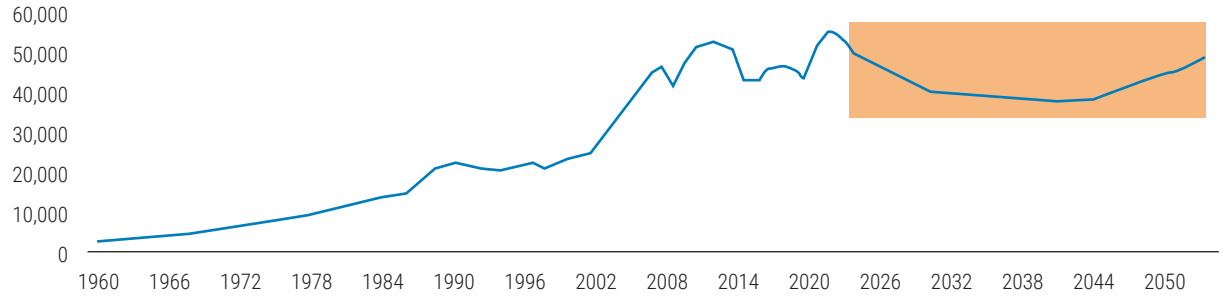
GDP Growth	Min	-2.00%	Mean	2.20%	Max	3.50%	SD	1.70%
	Min	-2.00%	Mean	1.60%	Max	2.20%	SD	1.60%
	Min	-2.00%	Mean	1.10%	Max	1.20%	SD	1.10%
Pop Growth	Min	0.75%	Mean	1.10%	Max	1.85%	SD	1.00%
	Min	0.75%	Mean	1.00%	Max	1.75%	SD	1.00%
	Min	0.25%	Mean	0.75%	Max	1.50%	SD	1.00%
Inflation	Min	1.75%	Mean	4.00%	Max	7.00%	SD	0.50%
	Min	1.50%	Mean	2.25%	Max	3.50%	SD	0.50%
	Min	0.75%	Mean	1.60%	Max	2.75%	SD	0.50%
Forex	Min	0.00%	Mean	0.00%	Max	5.00%	SD	5.00%
	Min	0.00%	Mean	0.00%	Max	0.00%	SD	0.00%
	Min	-5.00%	Mean	0.00%	Max	0.00%	SD	5.00%

We then ran a Monte-Carlo simulation with 1,000 iterations for each year using the probability distributions from Table xxx to produce a simulation mean annual, real, annual USD$ GDP/capita over the forecast period.

Real GDP/Capita (USD)	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**
	51,092	49,443	47,839	46,296	44,792	43,347	41,940	40,607	40,233	39,862
Real GDP/Capita (USD)	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
	39,677	39,485	39,295	39,106	38,918	38,731	38,544	38,359	38,174	37,990
Real GDP/Capita (USD)	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**
	38,468	38,423	39,261	40,125	41,347	42,609	43,903	45,245	46,619	48,043

Resulting in the following probabilistic, real USD$ GDP/capita trend.

Chart 37: Canadian Real GDP/Capita (USD$)



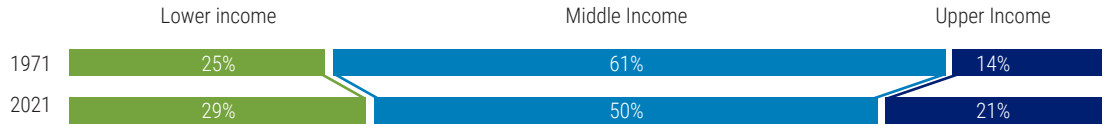
CONCLUSIONS:

Canadian investors need to seriously consider the potential effects of a protracted bout of stagflation on their investment holdings. On one hand, based on 1970s behaviour, the residential real estate market may be negatively impacted by stagflation – manifested via rising nominal interest rates – and perhaps even more so due to stretched valuations. On the other hand, Canada has a large and competitively priced universe of commodity and commodity-linked assets that can be expected to behave more positively in inflation/stagflation conditions, and which are also trading at conspicuously low valuations in relation to stocks and bonds.

Will the BoC and the federal government, by attempting to balance all the conflicting pressures, simply end up with a low growth, high interest rate, high inflation economy – i.e., mild stagflation as a "muddle-through" solution that in the end will simply delay the inevitable adjustments to government spending and debt levels. The answers remain to be seen. Certainly, unless the trends above are addressed, stagflation must be considered a possibility in Canada and then the question becomes whether there are investments that will generate returns in such a climate?

The answer is yes, if we understand that stagflation can be a return enhancer for certain asset classes and that it also creates novel returns drivers as it shrinks the middle class exacerbating the socio-economic "barbell". The socio-economic barbell is the concept that middle income share of aggregate income has been declining for decades.

Chart 38: Share of adults in U.S. middle class since 1971 – shrinking



Source: Pew Research Center, adults are assigned to income tiers based on their size-adjusted household incomes in the calendar year prior to the survey year.

Combining stagflation and the socio-economic barbell drivers together leads us to weight 1) real asset investments displaying asymmetric payoffs to inflation and 2) investments with growth that is linked less to absolute domestic GDP and more to growth from aging demographics or from downward adjustments in the size and purchasing power of the middle class or driven by exporting to markets with more robust macro conditions.

Some examples:

Casual Dining: When individuals face financial constraints or when the prices at mid-range or upscale restaurants increase, they tend to opt for affordable dining options. Lower-cost food chains, offering meals at significantly lower prices, become appealing alternatives. This shift in preference is not necessarily driven by a change in taste but by the economic necessity of getting similar value for less money. The sustained preference for lower-cost dining options tends to drive change in the restaurant industry, with increased growth in the quick-service & low cost, casual dining sectors.

Automotive Maintenance: Less disposable income is expected to drive a shift from premium automotive services to basic maintenance and repairs. There is also a tendency for increased demand in aftermarket and second-hand parts as alternatives to new. Also, new car sales tend to decline and the average age of vehicles on the road increases. Older vehicles typically require more maintenance and repairs, which drives demand for automotive maintenance services over time.

Farmland: Canadian farmland is largely export driven to economies with more robust growth prospects than domestic market and viewed through the lens of productivity-adjusted pricing, offers a material value proposition to other developed markets. Farmland also tends to provide an asymmetrical upside in stagflationary market conditions as it is a unique, non-depleting commodity production asset that discounts the production of an infinite series of crops, those crops have highly inelastic demand, low stock to flow and are consumed 100%.

Canada's significant stagflation risk combined with the ongoing magnification of the socio-economic barbell indicate a need for an investment strategy that overweights assets that have drivers that are markedly different from those that have driven returns for the last three decades.

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