

***Is Statistics Canada Over-Estimating
the Fall in Residential Investment?***

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Introduction

A really long time ago (about 35 years), a friend at CMHC said that statistics are like sausages... you don't want to know how they're made. This contributed to one of my long-held professional views: economic data can be wrong. And, therefore, it's important to understand the methodologies, to anticipate what could go wrong, and when the data doesn't feel right, to develop an opinion on what might be happening. Thus, I sometimes explain that I'm uncomfortable with estimates that come from the Labour Force Survey, the Consumer Price Index, the New House Price Index, or the various resale house price indexes.

Today, I'm uncomfortable with Statistics Canada estimates that show a sharp drop for "investment in residential building construction". As is illustrated in this chart, in inflation-adjusted terms, it is estimated that activity has dropped very quickly during the past year, and as of August was 24% lower than during 2015 to 2019.¹



Other data (on employment in residential construction as well as inventories of new housing under construction) hint quite strongly that this "real" reduction probably hasn't happened.

Ultimately, the best approach for estimating "real" construction activity might rely on the employment data. The recent employment data hints that real investment in residential construction has not yet begun its downturn.

As I explore below, I believe that for residential construction activity and related employment, a substantial drop is inevitable, but later than StatsCan is indicating.

If this argument is correct, then the broader economy ("real Gross Domestic Product") is probably doing better than Statistics Canada is estimating. But, 2024 and 2025 will be worse than is expected.

In the last section ("A Broader Implication"), I discuss some big consequences.

¹ This chart (and much of the analysis in this report) is based on Statistics Canada Table: 34-10-0175-01.



Alternative Housing Indicators

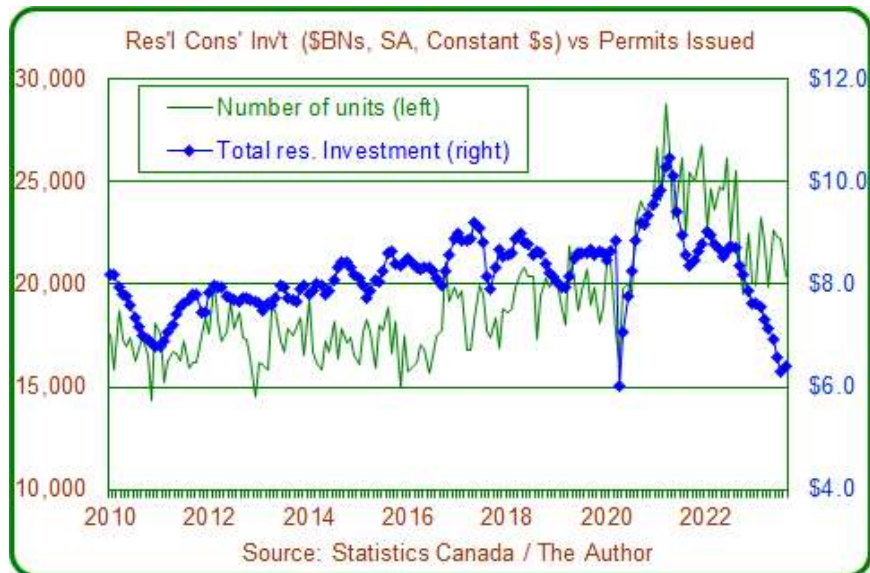
In the chart above, the entire history of the estimates contains too much variation - large movements that happen too quickly: we should feel uncomfortable with this data.² That is a starting point, but I'm also concerned that the recent data has become very highly inconsistent with other indicators of housing construction (building permits and dwellings under construction). Then, in the next section I look at the data on employment in residential construction, which is also highly inconsistent with the estimates of investment.

Statistics Canada's estimates of residential investment are based on building permits issued by municipalities. StatsCan makes assumptions about how quickly those permits result in work-put-in-place (in the discussions below, I refer to this as the "lag structure").

The estimates of investment come in four permutations of seasonal adjustment and adjustment for inflation ("unadjusted – current dollars", "unadjusted – constant dollars", "seasonally-adjusted – current dollars", and "seasonally-adjusted – constant dollars"). I consider the last of these to be most important, because it indicates how much "real" activity is happening. And, because it is seasonally-adjusted, it is easier to see how the trend changes over time.

In creating its estimates for residential investment, StatsCan looks at the total dollar values for building permits. For a reason that I will explore later (in the section "Adjusting for Inflation of Construction Costs"), I find it more useful to look at permits in terms of numbers of dwelling units (in essence, it has become devilishly difficult to apply adjustments for inflation within the analysis of "real" investment).

This chart shows the data on permits issued and the estimates of investment. Both data sets are quite volatile, which makes it very difficult to see any relationship (adding trend lines doesn't help). There are a few areas within this chart where it can be seen that the two datasets move in similar ways (eg. in the middle – during late 2016/2017 – and at the end).



There is a further wrinkle: over time, there has been a change in the shares of dwelling types, away from single-detached and semi-detached units towards town homes and, especially, apartments. The construction cost per single-detached home is double the cost

² In this chart, there is one sudden movement that is believable – the sharp drop at the start of the Covid period, which resulted from shutdowns of construction sites.



per apartment. Therefore, each unit of single-detached housing creates more investment (and more employment) compared to semis, rows, and apartments.

Because of the shifting composition of dwelling types, I have found it useful to recalculate the number of dwelling units as “single-family-detached equivalent units” (which I label as “SFD-EU”).

That adjustment reduces the volatility in the data on numbers of units, but it is still difficult to see the relationship between monthly permits issued versus monthly investment.

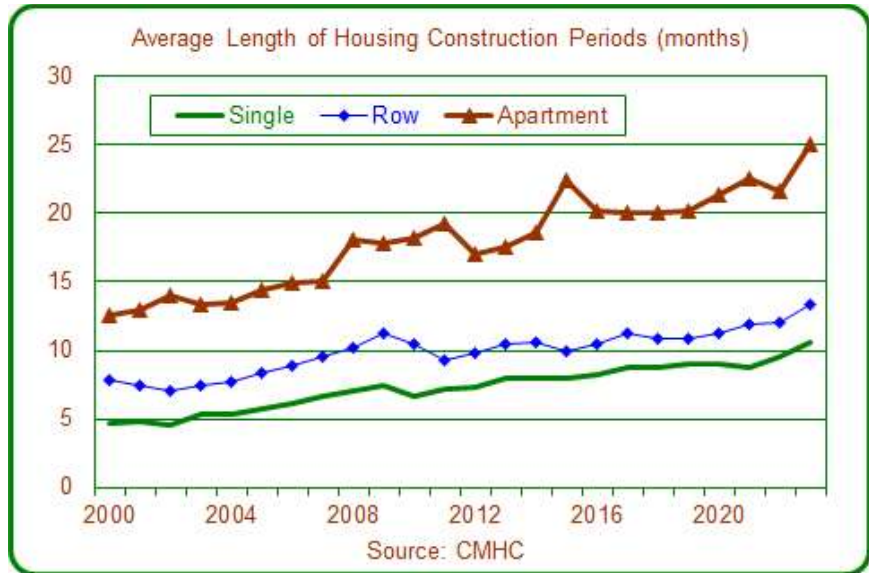


But, I don't expect to see a close relationship in the month-to-month data (and neither does StatsCan), because after a permit is issued, the actual construction work occurs with lags.

Statistical analysis of the relationship between building permits (on the SFD-EU basis) and StatsCan estimates of investment suggests to me that within the StatsCan analysis, the full impacts of building permits play out within three quarters (no more than 9 months).

Yet, data from CMHC shows that for Canada as a whole, for new single-detached and semi-detached homes, construction periods are now 10 to 11 months, for row homes the period is longer than a year, and for apartments the average period is two years or longer.

Construction periods have lengthened. This is an important consideration in the calculation of work-put-in-place, and I explore that later.



Furthermore, there is an additional period between the issuance of a permit and CMHC counting a housing start. Therefore, in the analysis by Statistics Canada (which starts from the issuance of permits), the lag

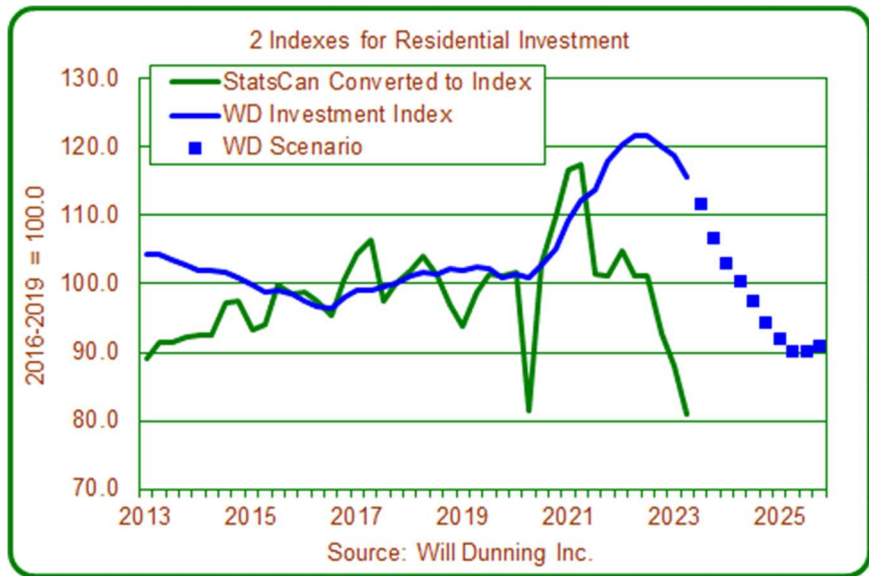


structures should be even longer than the construction periods reported by CMHC. So, in the following discussion, I assume that there is a 6-quarters lag for low-rise homes and 10-quarters for apartments.

Statistics Canada is too-quickly converting the issuance of a building permit into an estimate of investment activity, and this is distorting the estimates.

As was shown earlier, the issuance of permits is dropping. But, it appears likely that the decline in actual construction work is occurring much more slowly than Statistics Canada is assuming.

Here is an alternative index of investment in residential construction³. It is broadly similar to the Statistics Canada estimates for 2015 to 2019 (although there is much more variation in the StatsCan estimates). For 2021, the StatsCan estimates are higher than mine, but that is short-lived. My interpretation is that during 2021, an increase in permits, and then a reduction, were too-quickly converted into estimated investment. My index, which uses a longer



lag structure, shows a more gradual response, to a higher peak at a later date (late 2022). This preliminary index suggests that the recent reductions in permit issuance have just recently brought a turning point for investment (small reductions in 2022-Q4 and 2023-Q1, and a larger drop in the second quarter). As of 2023-Q2, the Statistic Canada estimate is 30% lower than mine.

I know that my alternative calculations are not definitive, because I am guessing at what the “true” lag structure might be. The point is that using a lag structure that is longer than StatsCan’s results in a much different picture. In all likelihood, the true turning point might be a bit earlier or later than indicated by my estimates. In fact, as is shown later, data on housing under construction as well as employment data hint that residential construction activity was still at its peak during the third quarter of this year.

The key point here is that it is very unlikely that there has been a deterioration to the extent that Statistics Canada is indicating.

In the chart above, I have created a scenario for the coming two and a half years. In the near-term future, investment is fairly predictable, because it will be based mostly on permits that have already been issued. Because permit issuance has fallen during the past year, it appears highly likely that there will be a

³ The calculation assumes that one-third of building permits get built-out in 6 quarters and two-thirds get built-out in 10 quarters. This chart is calculated on a quarterly basis, while prior charts are monthly.

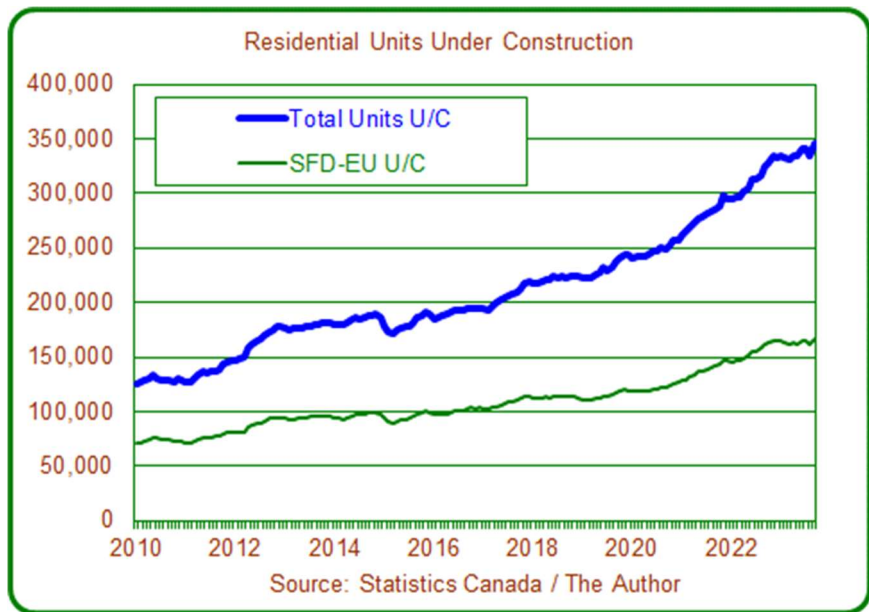


considerable reduction in construction activity during the coming year: by 2024-Q2, this estimate indicates that investment would be 17% lower than the peak.

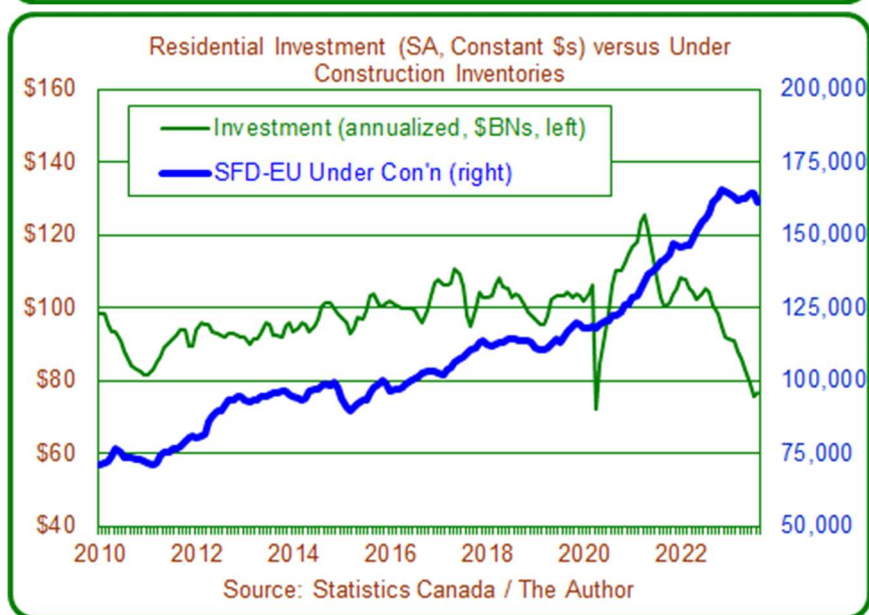
To look farther ahead requires making assumptions about permit issuance. I assume that there will be a gradual erosion of permits during the coming year (by 2.5% per quarter, which I consider a cautious assumption, because I believe that permits (and then starts) for apartment will fall sharply during 2024). This is assumed to be followed by flatness for permits during the second half of 2024, and then gradual recovery during 2025 (2.5% per quarter). Consequently:

- Investment will continue to fall until the middle of 2025 (to 26% lower than the peak).
- A turning point upwards would begin during the second half of 2025.

Another view of construction activity looks at numbers of dwellings under construction. This chart shows that numbers of units under construction have increased sharply (whether measured by total actual units or single-detached equivalent units).



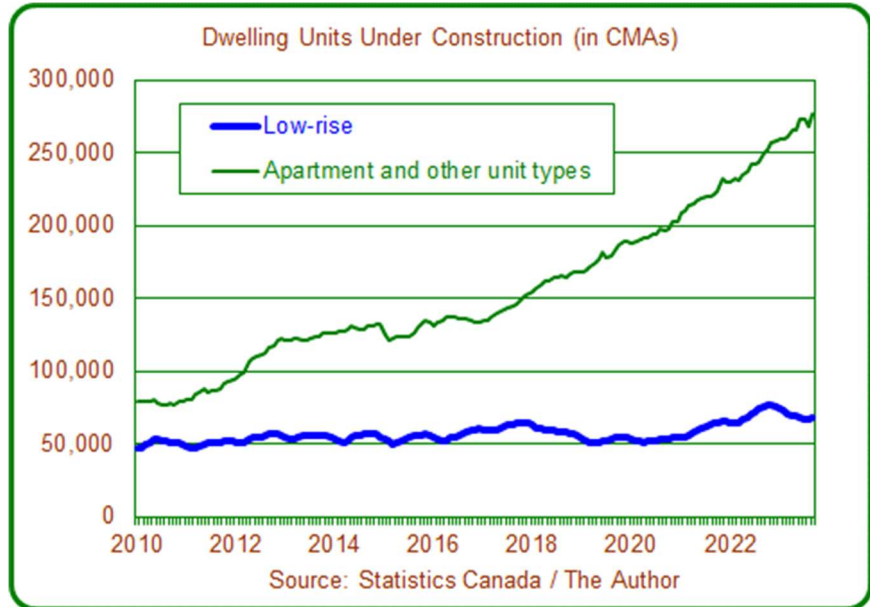
Investment in residential construction must be related to the amounts of housing that are under construction at the time. This chart provides a preliminary test of that idea, by comparing StatsCan's estimates of residential investment to numbers of units under construction (SFD-EU basis). Both of these datasets have trended upwards over time (although the rise for investment was much slower than for the





number of units under construction). At first glance, this appears to disprove that theory. But, a further examination is helpful.

Over time, there has been a shift in the composition of the under construction inventory, with little change for low-rise dwellings and very large growth for apartments. This means that the lag structure for investment has lengthened over time. For each dwelling unit created, the investment is occurring over longer periods of time - in each month, each dwelling unit results in smaller amounts of investment. Moreover, because



construction periods are lengthening, as time has gone by each dwelling unit under construction has made smaller monthly contributions to investment (work-put-in-place).

I further explore these considerations in a section “An Investment Index Based on Housing Under Construction”. For now, after examining the Statistics Canada estimates in two ways (versus building permit data and versus data on housing under construction inventories), the conclusion is:

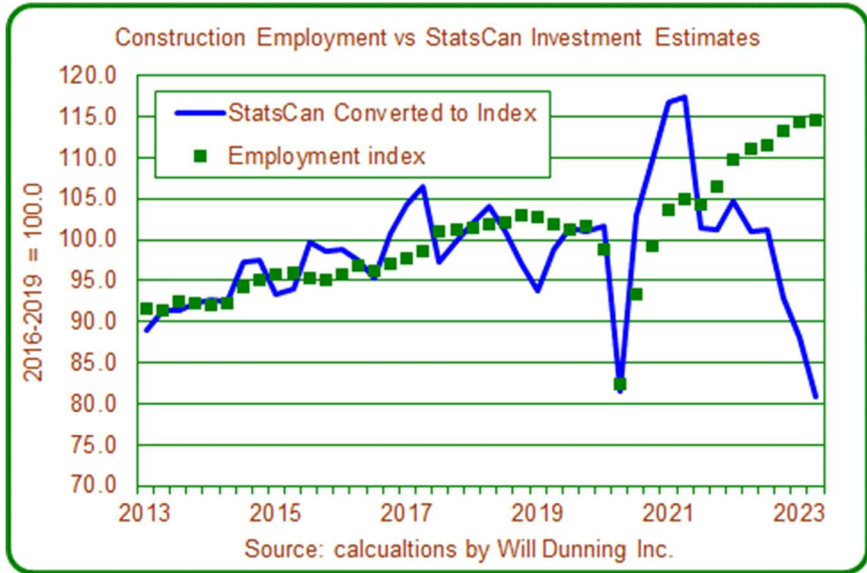
- The estimates are too volatile.
- The sharp drop that has been estimated for the past year is unbelievable.



Employment in Construction

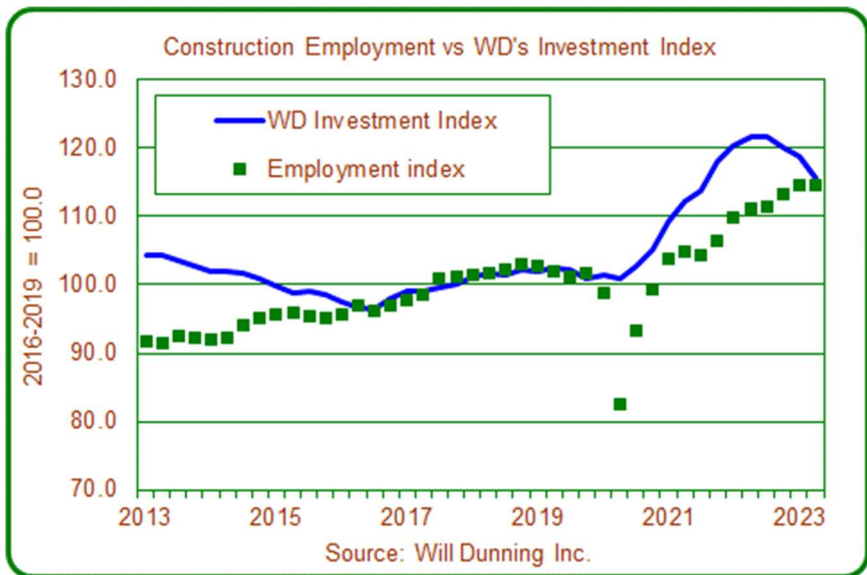
We should expect that employment in construction is closely related to inflation-adjusted investment (work-put-in-place). According to the StatsCan estimates It isn't (especially at present), and this provides further evidence that the investment data is inaccurate.

The Statistics Canada estimates do not explain the employment situation for residential construction for the past year and a half (the strength that continues to exist). In this chart, I have used data from StatsCan's Survey of Employment, Payrolls and Hours to create estimates of total employment for residential construction - for home builder companies plus related trades. Employment in construction remains very strong. If actual construction activity was anything like the StatsCan investment estimates, employment in construction have fallen by a considerable amount.



The alternative, preliminary investment index that was developed above (based on building permit data) is more consistent with the estimates for construction employment.

Based on that scenario for investment in residential construction, employment in residential construction is likely to fall by a considerable amount, possibly starting in the near future (but certainly during 2024). By the middle of 2025, employment is likely to

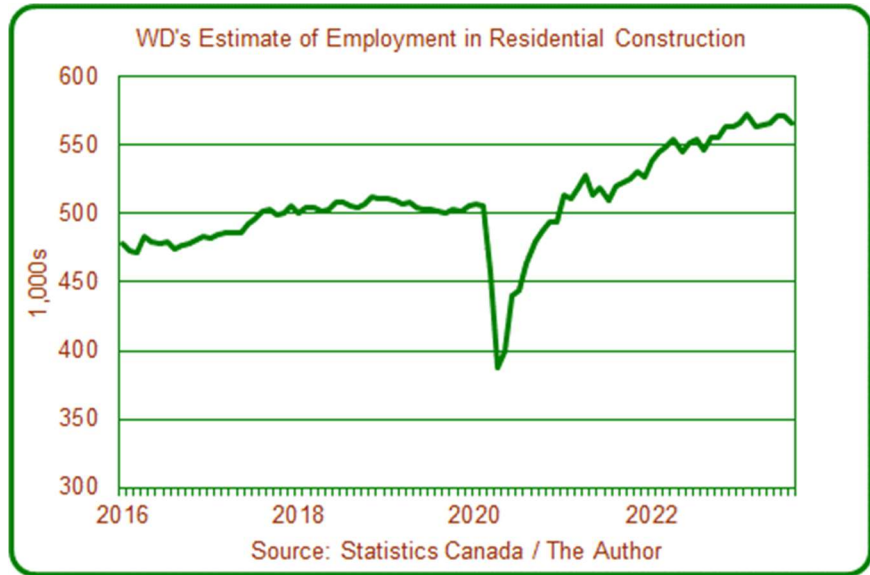


be one-quarter lower than at present, or a loss of about 150,000 jobs in construction. There would be additional jobs losses (with a similar magnitude) in industries that provide goods (building materials, fixtures, HVAC equipment, etc.) and services to the construction process (finance, planning, design, sales, management services, etc.).



In the chart above, the recent disconnect between employment and investment hints that the lag structure (the actual work) is getting longer – possibly due to shortages of labour and/or materials, or other reasons. Delays caused by those shortages would mean that the peak level of investment is overestimated in my alternative index, and it is possible that investment has not yet fallen from the “true” peak.

Looking at the recent employment data in more detail (monthly), there are small month-to-month variations, but there is no indication yet that there has been a material downward turn from the record-high level. This is also suggestive that “real” investment in residential construction is still at its peak.





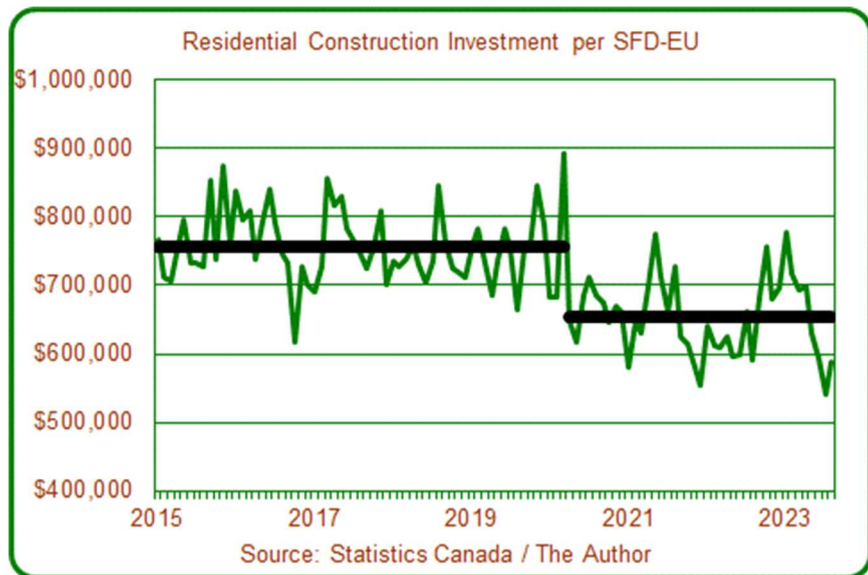
Adjusting for Inflation of Construction Costs

In the data that is used in Statistics Canada’s calculations, two different sets of assumptions are made about changes in construction costs:

- When they enter the costs amounts into the building permit applications, the applicants make assumptions about how much their costs will change during the future construction period.
- When it allocates those dollar amounts in the future, and converts them into inflation-adjusted investment, Statistics Canada makes assumptions about how much costs have actually changed.

It is possible that those two sets of assumptions about cost inflation will differ, resulting in errors when StatsCan estimates inflation-adjusted investment. (If the inflation assumptions made by applicants are lower than StatsCan’s, the downward adjustments for “real” construction activity will be too large, and the estimates of real investment will be too low.) This is a risk to the reliability of the data at all times. During the current period, when actual construction costs are highly volatile, the risk of incorrect estimates is elevated.

Here is a simple calculation of the inflation-adjusted costs per dwelling unit that are implied by the StatsCan estimates. There are distinct differences in average amounts for the pre-Covid versus the Covid periods (the averages are the thick black lines). In both periods there is month-to-month volatility in the estimates. But, during the pre-Covid period, the volatility is a bit less, and quite interestingly, the pre-Covid cost trend is flat – I find this believable. During the Covid period, the average costs are more volatile, and it appears that there is a downward trend in the average inflation-adjusted costs per SFD-EU - I find that surprising. I don’t have a comprehensive theory to explain this data, but I expect that it is at least partly related to the involvement of two different sets of assumptions about cost changes.⁴ The uncertainty about “true” inflation of construction costs is a source of further potential error in Statistics Canada’s estimates of investment.



⁴ In this part of the discussion of average inflation-adjusted construction values per dwelling unit, there is a disconnect: total residential investment for new construction plus renovation is being compared to the numbers of permits issued for new construction. This causes the average values per unit to be over-stated. However, the share of new construction in total investment is quite stable over time. As a result of this, while the average value per unit is over-stated, the slopes of the line in the chart is affected very little, and the overall conclusion appears to stand, that average inflation-adjusted values per unit were relatively flat during the pre-Covid period, but are estimated to be lower and to have trended downwards during the Covid period.



An Investment Index Based on Under Construction Inventories

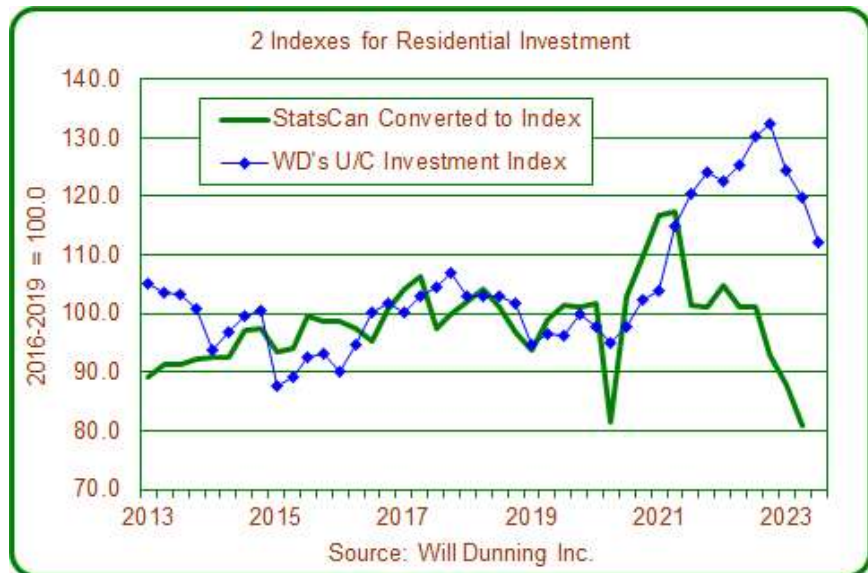
This discussion has identified several issues that complicate the estimation of investment in new housing, and it is not clear that Statistics Canada has adequately taken them into consideration. This may be affecting the reliability of the estimates:

- Construction periods are longer than Statistics Canada might be assuming.
- Furthermore, construction periods have lengthened over time.
- Therefore, the lag structure used in the calculations might be affecting the quality of the data.
- There is uncertainty about inflation of construction costs: converting actual (“current”) dollars from building permit applications into investment expressed in inflation-adjusted (“constant”) dollars is devilishly difficult and may create errors.

I suggested earlier that data on dwellings under construction might provide a better indication of inflation-adjusted investment (for each dwelling unit under construction, some quantity of investment occurs each month). This would avoid the difficulties associated with the lag structures for building permits, and with inflation factors.

One complication in the estimation is that it would be necessary to take into account the lengths of the construction periods, and how the lengths have changed over time.

Using data (for all of Canada, from CMHC) on dwellings under construction and lengths of construction periods, I have created a preliminary estimate of an index for investment in new housing.⁵ The pattern in my index is very different compared to the StatsCan data. It suggests that during the past two years, investment has been at an extremely high level, and for the past two years it has been much higher than the



⁵ This process starts with how much housing (by type of dwelling) is under construction during each quarter and then creates “instrumental” estimates of housing construction activity (inflation-adjusted) that result within each quarter. Those instrumental estimates are converted to an index.

The calculations consider the relative construction costs (per dwelling unit) as well as the lengths of construction periods, for each of the four major dwelling types.

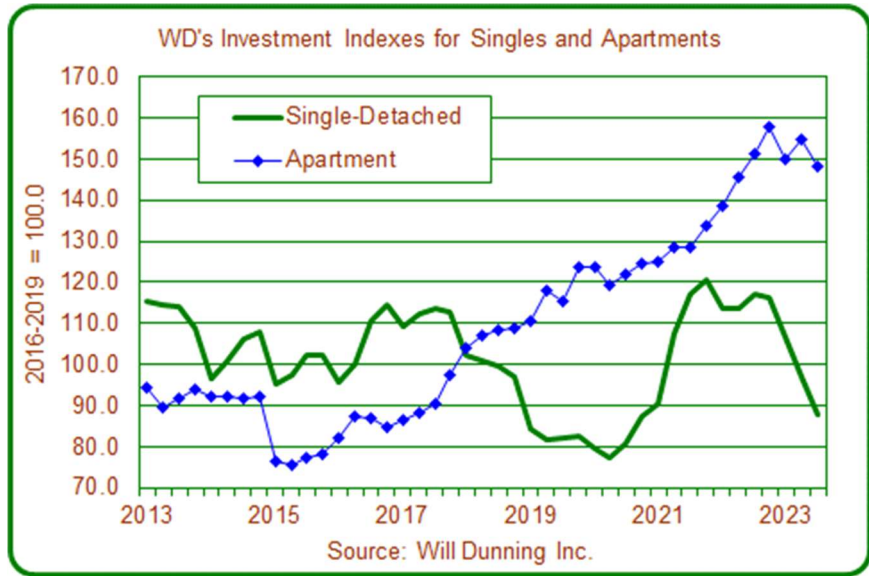
The calculations consider that the Under Construction data is for Census Metropolitan Areas only, and therefore I created estimates of under construction for Canada on an all-areas basis.



Statistics Canada estimates. My index indicates that investment has turned downwards, starting in the first quarter of 2023. This turning point is much later than StatsCan indicates (the second quarter of 2021).

My index has one more datapoint than the StatsCan index (the third quarter of this year). Comparing the data for the second quarter, the StatsCan index is 32% lower than mine (an index of about 80 versus about 120). The StatsCan estimates indicate that investment in housing is currently much lower (about 20%) than pre-Covid. My alternative estimates suggest that activity is still higher than pre-Covid (but is now, or soon, heading downwards).

Within the details of the calculations, investment in single-detached dwellings has fallen sharply during the past year, but activity for apartments remains at an extremely high level. These estimates reflect changes in the amounts of housing that are under construction (that data is in a chart on page 6).



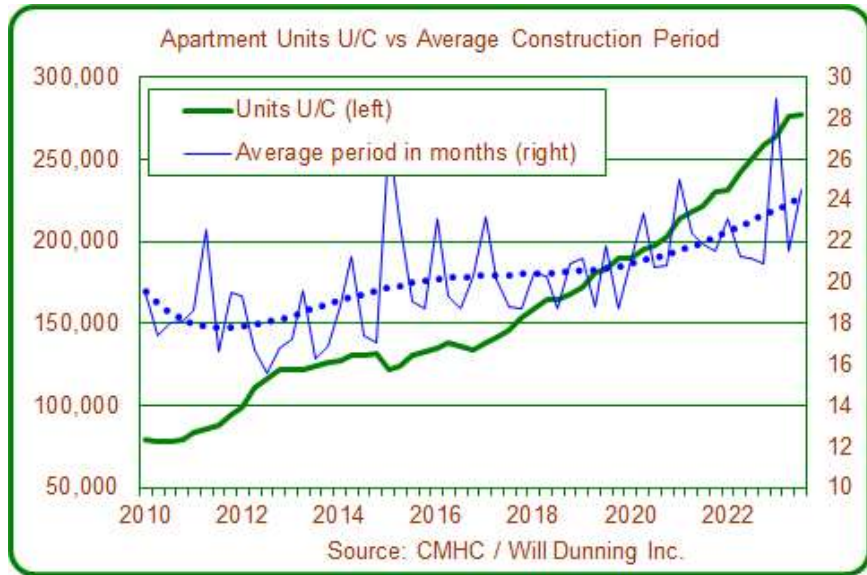
As I commented earlier, the StatsCan estimates of investment are quite inconsistent with the data on employment in residential construction (illustrated in the first chart on page 7). In recent times, my new index is also inconsistent with the employment data, but to a degree that is less severe.



I haven't settled on an explanation for this recent inconsistency. It might be that construction periods are continuing to lengthen, and that this isn't captured by the CMHC data (average construction periods are calculated for dwellings for which construction has been completed, but what will matter here is the periods for dwellings that are still under construction).

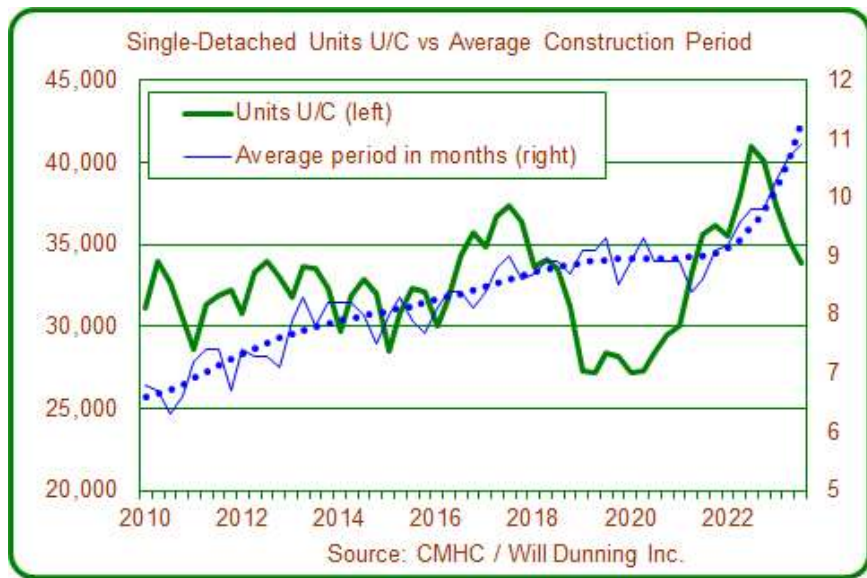


This chart compares lengths of construction periods for apartments versus numbers of units under construction. The data hints at a relationship: increased inventories result (with some lags) to longer construction periods. With the inventory having expanded recently, it is quite likely that for apartment projects currently under construction, the construction periods are continuing to lengthen, and are now longer than the CMHC data indicates.



Therefore, for apartments, inventories might be generating investment at a slower rate than is assumed. The recent very high level for investment (shown in the first chart on the previous page) might be overestimated to some degree.

For single-detached units, the data is harder to read. At the end of the data, a relatively large inventory is associated with a sharp rise in the average construction period. Since the inventory is currently shrinking, there might now be some shortening of construction periods. If so, the actual drop for investment in singles might be a bit smaller than was estimated on the previous page.



Once again, I conclude that investment in residential construction should have a close relationship to employment in residential construction, and the amounts of housing that are under construction. The StatsCan estimates fail to show that consistency - especially at present.



A Broader Implication

In recent times, Statistics Canada has produced estimates that total output (GDP) has been sluggish. As illustrated here, it has risen by less than the rate of population growth, thereby suggesting that on a per capita basis we have become worse off during the past year.

Residential construction makes a large contribution to Canada’s total economic output. The estimates of overall sluggishness for GDP

are to some degree the result of the estimated downturn for residential investment. Therefore, if the theory here is correct (that residential investment is still considerably stronger than estimated by Statistics Canada), it is possible that the overall economic picture is, at present, more positive than is indicated.

But, the discussion in this report suggests that there will be substantial downturn for residential investment next year and into 2025, and this will impact on the broader economy.

The Bank of Canada has taken note that a downturn in construction is impeding the economy. It has expressed an expectation that residential investment will begin to recover late this year (page 21 of the *Monetary Policy Report*⁶ that was released on October 25), and this will contribute to a broader improvement in the economy. The BoC’s current stance is that there is no urgent need to reduce interest rates (and they might need to be raised).

I take an alternative view, that the data on investment in residential construction and consequently GDP are misleading: in reality, most Canadians are just barely beginning to experience the effects from high interest rates (apart from increased mortgage payments, which most of those affected are able to handle, by adjusting their budgets). We aren’t yet seeing a material amount of employment impacts. More substantial negative consequences will develop during 2024, in housing construction and in the broader economy. Those effects resulting from reduced housing construction will continue to worsen well into 2025 – longer than is expected by the Bank of Canada.

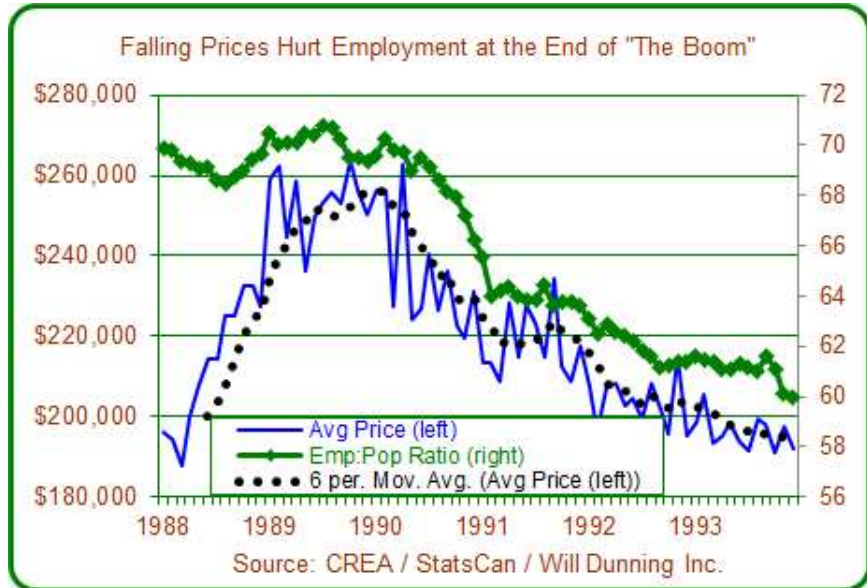


⁶ <https://www.bankofcanada.ca/2023/10/mpr-2023-10-25/>. Within the MPR, it is clear that movements in inflation during the past two years have been primarily driven by supply issues. The BoC does not draw the conclusion that high interest rates are not going to fix supply issues, they will make them worse. The BoC continues to estimate that the neutral policy interest rate for Canada is 2.5% (page 8) - the actual policy rate is now 5.0%. The MPR shows that we are now in a neutral environment for the economy, credit growth... Apart from the effects of interest rates on shelter costs, inflation is now in the BoC’s target range. Leading economic indicators are now pointing downwards. Interest rates should now be neutral.



There will be other consequences of high interest rates, which I'm not discussing in detail here:

- Current interest rates are highly likely to result in non-trivial reductions in housing values (the early stages of this appear to be developing now). The “wealth effect” from those reductions will result in job losses during 2024 and 2025. History has shown that this can be very damaging, causing a downward spiral



- between housing prices and employment (a severe, long-lasting event was seen in Toronto a generation ago).
- Mortgage renewals will increasingly weigh on consumer spending (and employment) during the coming two years (and possibly beyond).
- These job losses will have further consequences, through a “multiplier” effect.

During 2024 and 2025, the “employment-to-population ratio” (the share of adults who have jobs) will erode, reflecting real economic hardships that will afflict Canadians.

In this view, it is imperative to begin reducing interest rates now, to lessen the severity and duration of the economic consequences that will develop during the next two years.

Some people might be persuaded by the arguments made here, and conclude that the Canadian economy remains quite strong and therefore interest rates should be higher and/or remain high for longer.

That’s not my conclusion: inflation in Canada has retreated substantially despite the continued strength of the economy. This supports an argument that I have made elsewhere, including here:

https://www.wdunning.com/files/ugd/ddda71_aec5b03adc0a4046ab55fd30dbf062e1.pdf

My argument is that inflation during the past two years has been due to supply-side events (including Covid, Russian war crimes, extreme climate events, and now, potentially, war in the Middle East). The future path of inflation will be determined largely by the evolution of supply-side issues. Moreover, elevated interest rates are now adding to inflationary pressures (notably, Statistics Canada’s mortgage cost index has increased by 30.6% during the past year). In the medium term, interest rates will impede investment, adding further supply pressures.

My final conclusion here is that high interest rates are creating a substantial risk of a housing-led Canadian recession during 2024 and 2025, which is unnecessary and unjustifiable.



About the Author

I have been analyzing housing markets since 1982.

In September 2000, I opened my own consulting company (Will Dunning Inc.), specializing in analysis of housing markets. Clients include a wide range of industry associations, governments, non-governmental organizations, financial institutions, home builders, investors, and asset managers.

My prior experience includes various positions in economic and housing market analysis with Canada Mortgage and Housing Corporation (1982 to 1997).

My website – www.wdunning.com – provides a variety of reports on housing markets, including “Housing Market Digest”. The two monthly editions of the HMD reports discuss market trends for Canada and the Greater Toronto Area.