Economics

IN FOCUS

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Rotten to the core? Why some old measures of inflation are back

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The Canadian economy is clearly sluggish, but core inflation remains stubbornly high. What gives? It may just be a matter of measurement, or perhaps mismeasurement. The nature of the shocks associated with the pandemic, and how shelter cost measures applied here but not in many other countries, has meant that Bank of Canada's (BoC) preferred measures of core inflation aren't telling the full story. Fortunately, there are signals that the BoC is aware of that issue, and is broadening the list of indicators they look at. That will pave the way for easing policy, with a change in tone in the April Monetary Policy Report, and the first actual rate cut in June.

In this In Focus report, we dig deeper into core inflation in Canada, and re-evaluate the effectiveness of a wider range of core inflation measures. We go back to the very statistical tests that the Bank of Canada used to select its current list of core inflation indicators, but now add the additional years of data since the BoC completed its work. Our bottom line is there is a solid justification to lean more on so-called "exclusionary measures" of core inflation — those that fully remove a specified list of volatile items from the inflation basket, including CPIX (inflation excluding eight volatile items) or CPI excluding food and energy.

Those measures would imply that underlying inflation is actually somewhere between 2-3% as opposed to the BoC's official measures (CPI trim and CPI median), which are still running above 3%. Not only is underlying inflation lower, it has progressed more materially over the past year in line with the weakening of the economy, suggesting that fears that inflation has been "stuck" were off the mark.

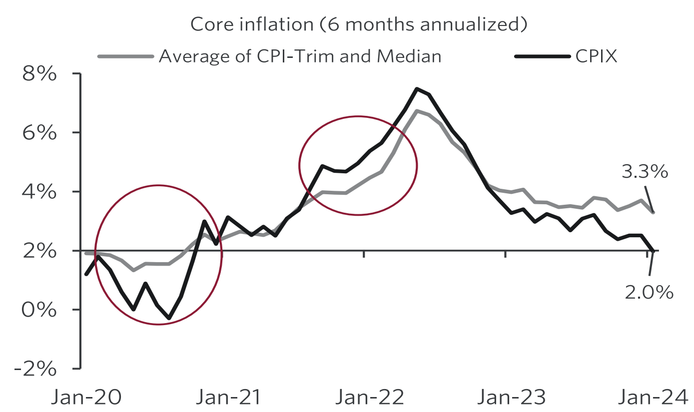
A three-headed monster is born

The average of two of the Bank's main preferred core inflation measures — CPI-trim and CPI-median — has sat stubbornly above 3% for nearly a year despite GDP growth averaging 1%. But at the same time, what had formerly been the Bank's core indicator, CPIX[1] has been trending down over the same period and now sits at 2% on a 6-month annualized basis (Chart 1). Why has the BoC been ignoring that gap?

To answer that, you have to rewind to 2016, when the BoC moved away from CPIX as its primary core inflation metric. The argument made at the time was that CPIX was not filtering out transitory shocks from volatile electricity and auto prices, ultimately obscuring the relationship of underlying inflation and slack in the economy. The BoC's answer was a three-headed monster of statistical measures of underlying inflation: CPI-trim, CPI-median and CPI-common. In data available up to that time, the three measures were less volatile and tended to move more closely with the BoC's output gap measure. CPI-common was essentially abandoned during the pandemic when it became clear that its methodology resulted in large historical revisions, leaving two new benchmarks.

CPI-trim excludes the 20% of the basket that is rising the most, and the 20% that are slowing the most in a given month. CPI-median picks the middle component of the inflation basket as the measure of underlying inflation. Neither of these two has

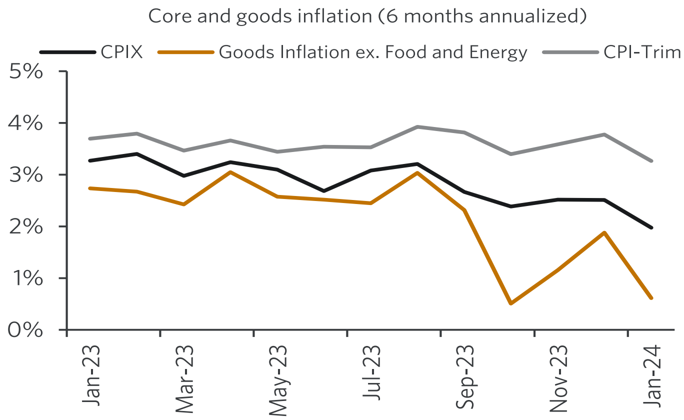
Chart 1: CPIX is now at 2% and has been better at predicting turning points this cycle



Source: Statistics Canada, CIBC calculations

[1] CPIX is an inflation measure that excludes a fixed set of 8 volatile items: fruit, vegetables, gasoline, fuel oil, natural gas, mortgage interest costs, intercity transportation and tobacco products. It was the BoC's core inflation measure from 2001 to 2016.

Chart 2: Disinflation in goods prices is not being fully reflected in Trim but is captured in CPIX



Source: Statistics Canada, CIBC calculations

been viewed as superior to the other, but both were deemed better than CPIX, which was dropped out of the central bank's list of preferred core inflation metrics and subsequent policy reports.

Wheels start to fall off

The BoC deserves credit for trying to refine its measure of underlying inflation. It was also wise to choose a range of measures rather than hitch their wagon to a single benchmark. But other central banks like the Fed still value exclusionary measures as much as statistical ones, and recent trends suggest that the BoC may have been too hasty in fully abandoning its CPIX measure.

Part of the problem is that the Bank ran its statistical tests on the 1992-2019 period, in which inflation was particularly quiescent, and trend-like. The only breakouts in inflation were generated by transitory spikes here and there and having CPI-trim and median would have helped to separate the signal from the noise. These measures try to seek out a middle ground and remove the skew in the inflation basket by assuming that large moves in the basket in that month are a transitory phenomenon. The Bank also liked the stronger correlation between its new metrics and measures of slack like the output gap, relative to what they saw in CPIX. But because inflation had been so steady globally, most central banks had judged that the slack-inflation link was weaker no matter how you measured it, and even measuring economic slack in real time was challenging.

The wheels started to fall off during the pandemic. In the spring of 2020, when the economy was in a deep recession, CPIX better reflected the weakness in demand, a conclusion that the Bank also came to in a subsequent policy report. Then in 2021, CPIX gave a better advance warning of the subsequent surge in inflation than the average of the two official core measures (Chart 1).

Looking at the recent trend of core goods prices suggests that CPIX might again be providing an important signal (Chart 2). Declines in goods prices are being partially stripped out, in part because mortgage interest and other shelter costs are pushing on CPI-trim in the other direction. While MIC has been trimmed out by being in the top 20%, its presence in the calculation means that other higher-than-average components of the CPI that would be in the top 20% if MIC was not involved are being left in the trimmed mean, thereby skewing it higher. This could be a problem because the weakness in goods prices might not be transitory, given the weak state of the Canadian and global economies, and the pattern of goods disinflation south of the border. CPI-trim and median could be slow to catch on and miss the turning point once again.

A concept, not a number

The good news is that the Bank of Canada seems to have caught on. During the January MPR press conference, the Governor remarked that underlying inflation "is more of a concept than a measure" and noted the Bank was also indeed looking at CPIX and CPI excluding food and energy, in addition to its preferred measures and the breadth of price increases. Mentions of CPIX and CPI excluding food and energy have also returned to recent MPR reports and the BoC minutes make it clear that they are looking at the full gamut of inflation measures.

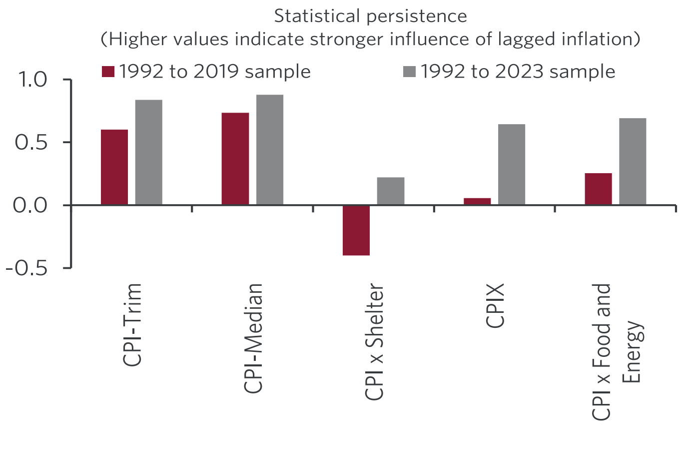
Even if you ignore all the misgivings we just highlighted, the BoC has strong statistical grounds on which to welcome back CPIX or other exclusionary measures. In 2016, they outlined four criteria for what an effective measure of core inflation

Table 1: Summary of evaluation of different core inflation measures (1992 to 2023)

Criteria	CPI-trim	CPI-median	CPIX	CPI x Food & Energy	CPI x Shelter
Tracks headline inflation on average over the long-term (i.e. unbiased)?	Yes	Yes	Yes	Yes	Yes
Low volatility and high persistence?	Yes	Yes	Yes	Yes	No
Sensitive to the BoC output gap?	Partially	Partially	No	Partially	No
Easy to understand?	No	No	Yes	Yes	Yes

Source: Statistics Canada, CIBC calculations

Chart 3: The tendency of CPIX and CPI excluding food and energy to continue moving in the same direction has improved



Note: Statistical persistence is defined as the sum of five lag coefficients on a univariate regression of quarter-over-quarter inflation rates following Khan et al (2015).

Source: Statistics Canada, CIBC calculations

looks like. In short, they were seeking measures that over long periods are a reasonable proxy for total inflation, are less volatile and more persistent than the total CPI measure, are correlated with economic slack, and are easy to understand.

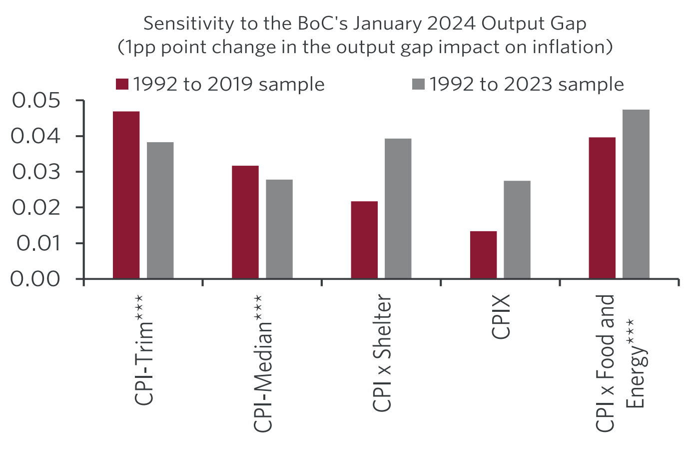
Using these criteria and methodology the BoC staff laid out, we compare five measures of core inflation (Table 1): CPI-trim, median, CPIX, CPI excluding food and energy and CPI excluding shelter. But we now have the benefit of adding in the post-pandemic high inflation episode by taking data from 1992 to 2023.

The main take away is that CPIX and CPI excluding food and energy would share a bronze medal if the BoC ran this same horse race again and are no longer markedly inferior to CPI-trim or median. We prefer CPIX to CPI excluding food and energy, because the latter includes mortgage interest costs, which have the undesirable property of increasing whenever the Bank of Canada has been hiking rates to cool inflation.

Unlike what the Bank found in 2019, by adding subsequent years, we found that CPIX and CPI excluding food/energy no longer fall short on “persistence” (Chart 3), their tendency to continue moving in the same direction. In terms of the sensitivity to measures of economic slack, CPI excluding food and energy now takes the top spot, and CPIX shows substantial improvement as well (Chart 4). While its relationship with the output gap is still weak, that may not be problematic. The BoC’s output gap measure has been subject to unusually large revisions during the pandemic, and when we use our own measure of labour market slack — the unemployment rate gap — no measure of core walks away with a strong link with economic conditions.

That said, CPIX does seem to be responding to the weakening in Canadian domestic demand of late, and not simply easing due to other forces that could dissipate. We borrow the methodology applied by researchers at the San Francisco Fed to decompose CPIX into slack-sensitive and slack-insensitive forces, and conclude that slack-sensitive inflation has effectively normalized (Chart 5). Perhaps the economy is now soft enough to quell inflation ahead.

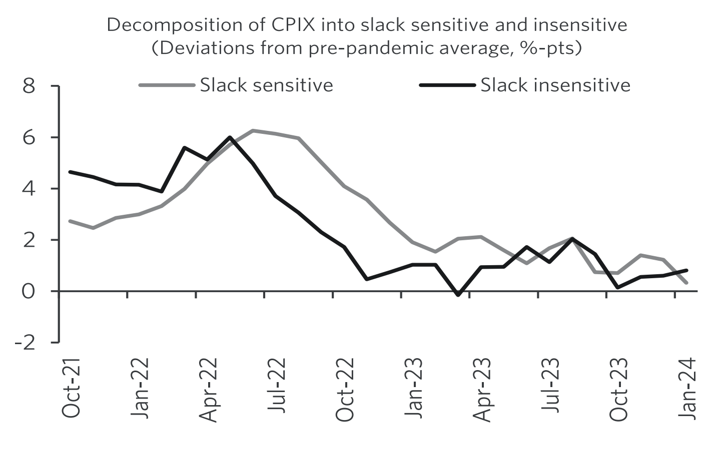
Chart 4: CPI ex. food and energy is the most sensitive to slack now, trim and median have gotten worse



Note: Based on Philips Curve regressions of quarterly changes in inflation on long-term inflation expectations, the output gap, lagged changes in CADUSD and lagged changes in commodity prices. Statistical significance at the 99% level is indicated by ***.

Source: Statistics Canada, Bank of Canada, Goldman Sachs, Consensus Economics, CIBC calculations

Chart 5: Monetary policy has done its job: the slack-sensitive part of CPIX has normalized



Note: Slack sensitive CPIX inflation is based on regressions of CPI components on the unemployment rate gap. Components with a statistically significant and negative relationship classified as slack sensitive (Mahedy and Shapiro, 2017). The remaining are defined as slack insensitive.

Source: Statistics Canada, CIBC calculations

Signal first in April, cut in June

Don't expect a grand announcement by the Bank of Canada about its inflation measures, let alone a mea culpa about its earlier decision to drop CPIX. But the Bank is clearly taking a broader view of underlying inflation of late, and importantly, no longer is as convinced that it's "stuck".

There are still legitimate concerns over wage inflation and its impacts on purchasing power and business costs, so the central bankers will likely want to see some signs that labour market slack is quelling such pressures. And in this week's announcement, the Bank will likely want to temper any material changes in its messaging until it has a new forecast and estimates of potential growth and the neutral rate, all of which will await its April MPR. But by then, it could use the full suite of underlying inflation measure, including CPIX, to justify a change in tone that would presage an actual rate cut in June.

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