

## Core Measures of Inflation

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10/16/2025

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# HIGHER LEVEL COMMENTS



# The Game

- High-stakes game against the public.
- Communication can be misinterpreted/misconstrued. Perceptions matter.
- Public Acceptability Boundaries
- Dangers of a black box (or cherry-picking): perceived as politically motivated → threatens independence, loss of confidence → de-anchoring, etc.

# What is “core” inflation?? Terminology

- Goal: “more persistent and broad-based component of inflation” (from Scoping Note). No unanimously-accepted definition, or set of criteria.
- (We don’t know the structural model that drives inflation, or we’d use it.)
- “Core” vs. “Ex-Food-and-Energy”: good to distinguish these two, but probably not enough for the public.\*
- Saeed Zaman and I recommend: “Medium-Term Inflation Trend,” **MTT**. (or, “More Persistent Part...”)

\*Canada has led the way in de-emphasizing X measures: PCE-X measure still has too much focus in US (Verbrugge, 2022).

# Suite of Models Approach

- BoC has been using since 2016.
- A good idea. Quote from Philip Lane:  
Each [inflation trend] indicator has its advantages and disadvantages, and monitoring a range of indicators helps to guard against uncertainty from any specific approach. Our experience has been that the accuracy of individual indicators can be episodic and none of them is superior in all situations...
- No way to forecast how assessment of MTT will become more difficult in the next crisis.  
(But potential role of stress testing.)
- For addressing breakdowns in performance, useful model: Lane's blog post. BoC alternative: special briefings aimed at informed news outlets?

# The FRBC “Approach”

- Big fans of limited-influence measures: by definition, tell us if inflation is broad-based.
- Have a long real-time record, well-understood.
- Even with Mertens (2016) approach: Trimmed-mean PCE a “particularly good signal of trend inflation.”
- We continue to find them useful in forecasting; also, we see more and more applications outside of “core” inflation.
- Recent work at FRBC:
  - De-biasing median measures (Rich, Verbrugge and Zaman 2022)
  - Optimal level of disaggregation (Garciga, Verbrugge, Zaman 2025): show theoretically that for Median CPI, “more disaggregation is not necessarily better.”

# Treatment of Miserable MIC

- Interesting case. “Miserable”.\* (Rent is also miserable.) Raises good questions about limited-influence measures.
- Dropping MIC will lead to medium-term bias. It’s persistent. No theoretical reason to drop it. (Indeed, one might want to force its inclusion... though that would change properties.)
- Useful to know the “MIC effect” on various measures.
- As a price statistician: I suspect MIC is being computed incorrectly.
  - StatCan never agreed with traditional user cost measures that are still recommended in current international CPI Manuals: it drops expected appreciation term from MIC.
  - Chodorow-Reich et al. (2025): when homeownership does not fluctuate, in the aggregate, my gain is your loss: capital gains wash out.
  - MIC includes ex post capital gains, without correcting for homeownership rate changes: i.e., “too much” house price change feedthrough.
  - Improved measure will still be “miserable,” because an increase in interest rates does increase homeownership cost. (But less volatile.)
- Thus, the signal from MIC is in doubt.

\*MIC rises when interest rates rise.



## StatCan Microdata

- Replicate CPI → will help StatCan.
- Real-time measures of extensive and intensive margins. Relate to changing persistence?
- True median. (See Garciga, Verbrugge and Zaman, 2025)

# PULSE: Some Broad Comments

- Makes sense to have a DFM in the suite.
- It is quite different: all persistent parts enter MTT, not just “broad-based” part.
- ...BUT complicated, many moving parts.
- Not much real-time information about performance (tuning issue).
- Does it lead turning points in inflation? ECT analysis? (see Banbura/Bobeica 2020)
- It’s two-sided: Not good. Fn9: “Revisions tend to be modest...” -- ?? Table 1 not comforting.
- Complex + revisions → interpretation and communications challenges;  
but also sectoral breakdown: good for storytelling.

# ADDITIONAL COMMENTS ON PULSE

# Comment on Trends

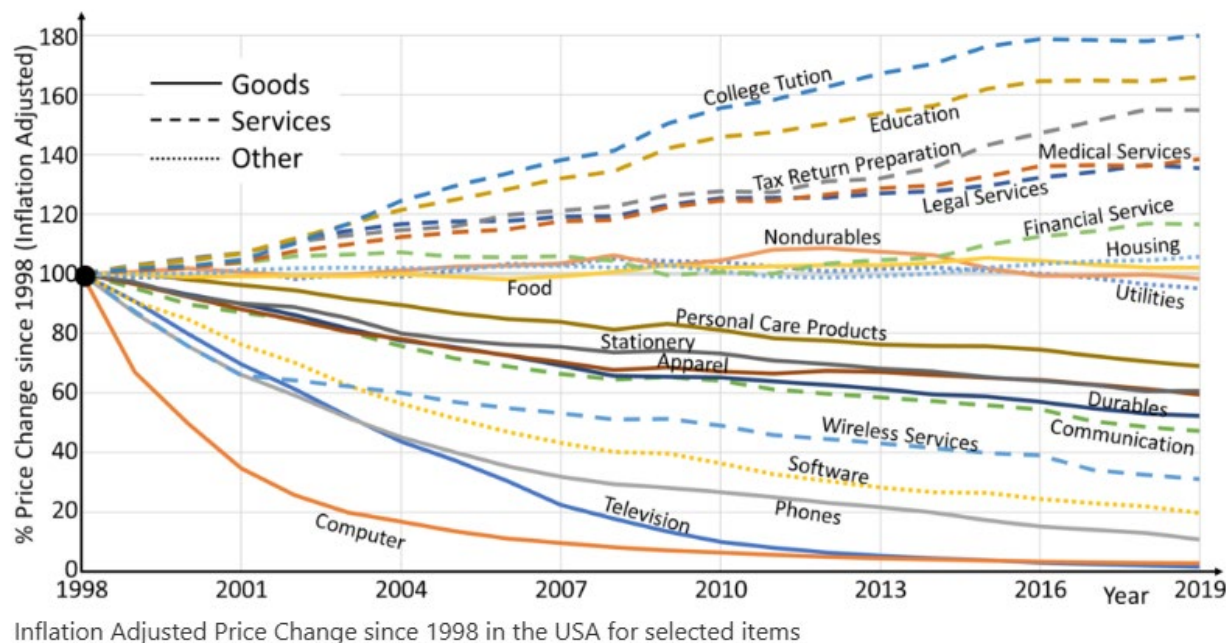


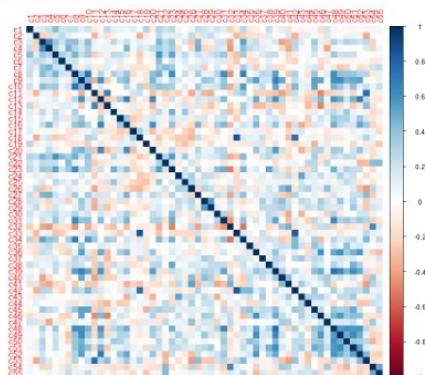
Figure from Christoph Roser, "Manufacturing drives prosperity," All About Lean.com, Feb 2, 2021.

- Issue: consider a component with far-below-average inflation; limited-influence measure may exclude it.
- These trends are addressed and picked up in PULSE via its idiosyncratic trend components: good.

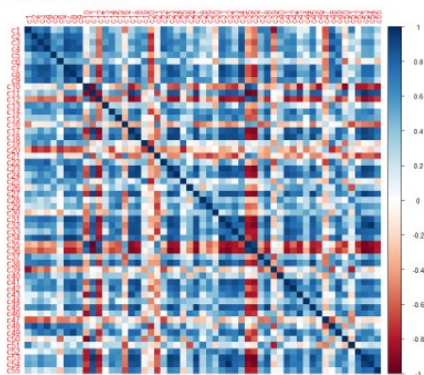
# Changing DGP Headaches

Chart 3: Correlations between the year-over-year growth rates of 55 components of the CPI

a. 1990–2019



b. 2020–2022



Note: The numbers in the legend represent correlation coefficients. Brighter colours indicate stronger correlations; duller colours indicate weaker correlations. Blue shades represent positive correlations; red shades represent negative correlations.  
Sources: Statistics Canada and Bank of Canada calculations  
Last observation: August 2022

Source: Sullivan, 2022.

- Inflation dynamics can change, covariances change in high inflation (and in recessions).
- Pandemic: CPI-Common started to break down.
- In theory, PULSE should fare better. Assumes all comovement from a single common driver (goods vs services?!), but loadings can change, allows for SV and outliers – more flexible.
- But, it's 2-sided. No track record. Suggest stress testing.

# Intrinsic versus Extrinsic Persistence

- Inflation and inflation persistence can stem from extrinsic or intrinsic source (Verbrugge, 2024)
- Extrinsic: exogenous driving force with persistence.
- Intrinsic: inflation is just sluggish, it takes a long time for inflation to return to 2%, if it is not being pushed by an exogenous force.
- PULSE does not include any exogenous drivers.
- Matters for understanding the cause of inflation, and storytelling.

# Decomposition and Terminology

- It divides into “trend” versus “Noise”?
- “Trend??” 2% is likely a better “trend” forecast.
- → “Medium-term trend” versus “Transitory” is better.
- Next-generation: Trend, Cycle and Transitory? Fewer components? – see new Tallman and Zaman model, with exogenous drivers.
- Admittedly, PULSE is a good acronym.

## Cyclicalitity of PULSE MTT

- Since PULSE MTT is a 2-sided estimate, in principle one cannot draw ANY conclusions from its cyclicalitity.  
(Shouldn't use trend series in econometric analysis.)
- 2-sided filtering induces endogeneity and thus renders all coefficient estimates **inconsistent** (Ashley and Verbrugge, 2009, 2020 (with Tsang), 2025a, **2025b**) – makes sense of much of the huge “don't HP-filter” literature in the 1990s.
- More reliable/stable PCs with MTTs.
- Since early 2000s, Ashley and I (2025a) have argued that Phillips curve is frequency-dependent.



# Communication: Practical Suggestions

- I'm a non-expert, so buyer beware!!
- I think it makes sense to continue use of formal MTT measures in communication. But at present, I suggest straddling the fence with PULSE adoption.

“BoC uses a number of measures... recently developed cutting edge model... cautiously optimistic... expect to place more and more confidence as it develops a track record... alongside it, will continue to rely strongly on methods that have stood the test of time and used in many countries...”
- Dashboard may be useful, but has risks if it's too prominent. It's too much for the uninformed to digest, and it could be a barrier to communication. (Perhaps useful counterweight to “preferred,” though.)
- Given appalling ignorance of public, I suggest always stressing the inflation target in any speech.

“Inflation is currently AA, and our target is 2. Our assessment at present, informed by our preferred models such as X, Y and Z, as well as T and W from the dashboard, is that the medium-term trend in inflation is in the BB-CC range. Our assessment of risks is RR. On this basis, the appropriate policy rate is DD. We stand ready to adjust as incoming data alters the assessment.”

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