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Inflation Targeting and Inflation Prospects in Canada

CPP Interdisciplinary Seminar

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Overview

Objective: answer questions of the organizers:

1. Will the Bank of Canada be successful at achieving the inflation objective? ***YES***

2. Is it possible that inflation will reach [and be sustained at] high levels over the foreseeable future? ***NO***

3. What will the target inflation rate [likely] be over the next three decades? ***2%***

Overview

1. Will the BoC be successful at reaching its inflation objective?

   – roots of inflation targeting (Macklem 2005)
   – how inflation targeting works
   – the Canadian experience

Overview

2. Is it possible that inflation will reach [and be sustained at] high levels over the foreseeable future?

   – symmetry of policy response
   – inflation persistence

Overview

3. What will the target inflation rate [likely] be over the next three decades?

   – decision-making process
   – on-going research at the Bank of Canada and elsewhere

1.1 The Roots of Inflation Targeting

- Bank of Canada Act (1934)
  - “regulate credit and currency in the best interest of the nation”
  - “…to mitigate by its influence fluctuations in the general level of production, trade, prices and employment, so far as may be possible within the scope of monetary action, and generally to promote the economic and financial welfare of Canada.”

1.1 The Roots of Inflation Targeting

- Providing the conditions for good economic performance is a broad mandate
  - nothing in the act tells us how to achieve the goal

- The best contribution monetary policy can make is to preserve the value of money

1.1 The Roots of Inflation Targeting

- in the 1960s many believed that to reduce unemployment you had to accept higher inflation (“Phillips curve”)
  - fit the empirical facts of the 1950s and 1960s
  - Friedman and Phelps argued that no long-run trade-off existed
  - the 1970s and the “Great Inflation” proved them right!!
    - there is evidence that suggests that higher inflation would lead to higher unemployment

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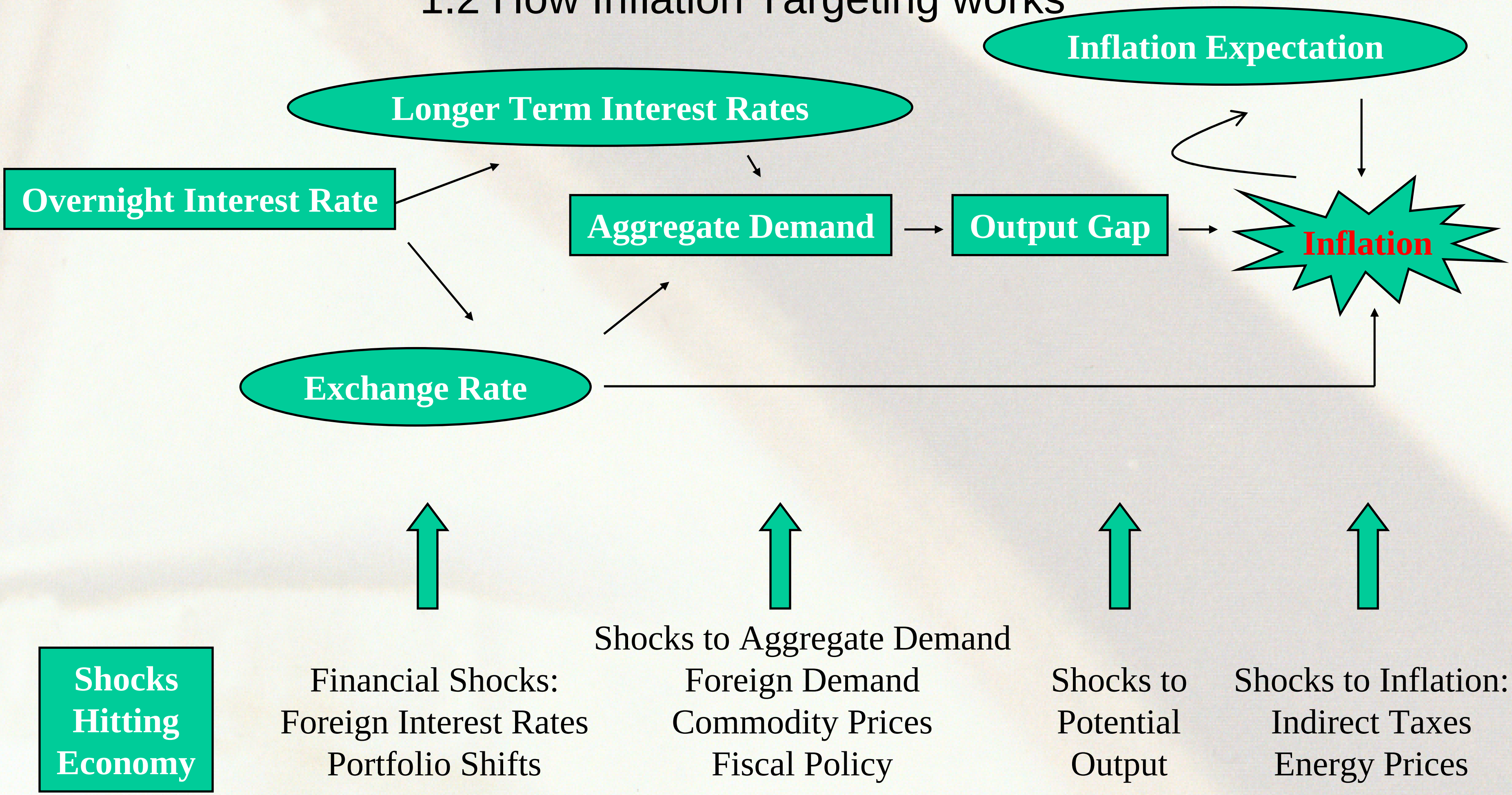
1.1 The Roots of Inflation Targeting

- In 1977 Kydland and Prescott identified the time-inconsistency problem
    - consumers and firms realize that the central bank has the incentive to promise low inflation and then once its promise is believed, focus on higher growth
    - people catch on to this and begin to expect higher inflation
    - central bank doesn't want to face costs of changing these expectations (lower GDP) so it validates expectations
    - end result….too much inflation
    - Nobel prize in 2004

1.1 The Roots of Inflation Targeting

- Need to find a way to make a credible commitment to low inflation
- Inflation Targeting (IT):
  - a framework for policy decisions in which the central bank makes an explicit commitment to conduct policy to meet a publicly announced numerical inflation target within a particular time frame

1.2 How Inflation Targeting works



1.2 How Inflation Targeting works

- Lags in the impact of monetary policy mean that it needs to be forward-looking

- Emphasize the factors that influence the underlying trend rate of inflation
  - the output gap
  - the expected rate of inflation

1.2 How Inflation Targeting works

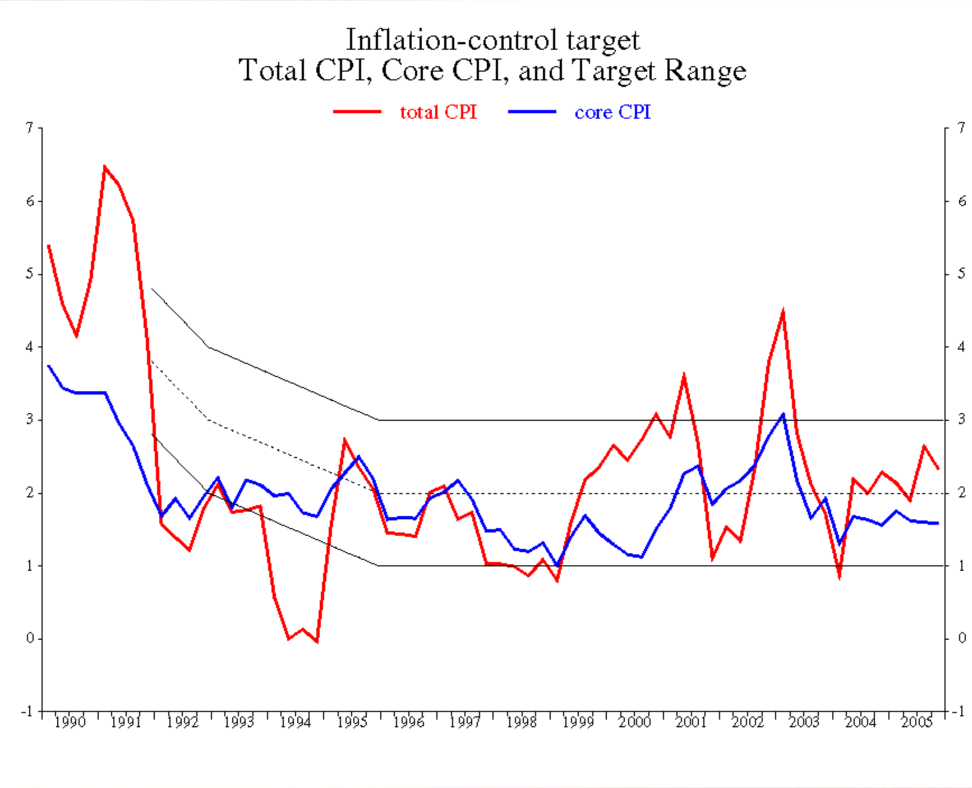
- Transparency and accountability are crucial for managing expectations
  - accountability in democratic societies
  - increased transparency and accountability help anchor long-term expectations
  - increased transparency helps consumers and firms anticipate the central bank's future intentions and thus magnifies the impact of policy

1.3 Inflation Targeting in Canada

- In 1991, the Canadian government and the Bank jointly announce inflation reduction targets
  - 12-month rate of change of the consumer price index (CPI)
  - CPI is familiar and relevant to Canadians
- Second country, after New Zealand, to set out formal medium-term inflation targets

1.3 Inflation Targeting in Canada

- Initial agreement:
  - 3% by the end of 1992
  - 2% by the end of 1995
- 3 subsequent agreements
  - 2% until the end of 2006
- Next agreement (2007-2011) is currently under negotiation

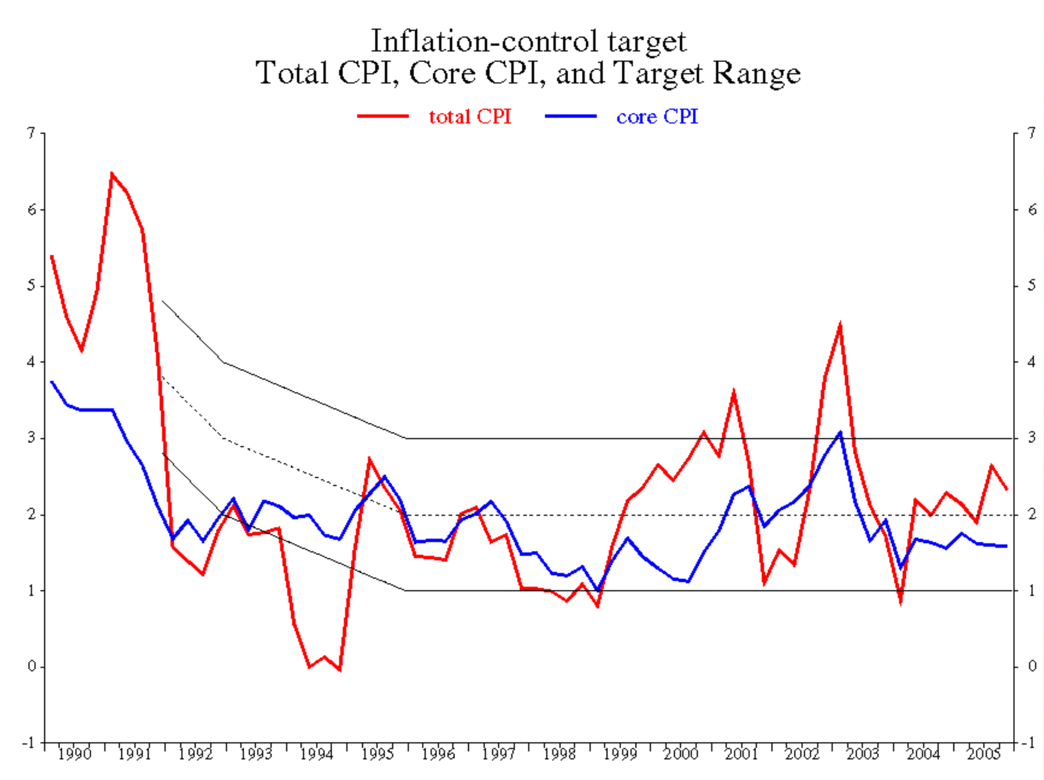


1.3 Inflation Targeting in Canada

- The target has been specified as the mid-point of a +/- 1% range

  -range reflects inherent volatility of inflation

  -range DOES NOT reflect zone of indifference

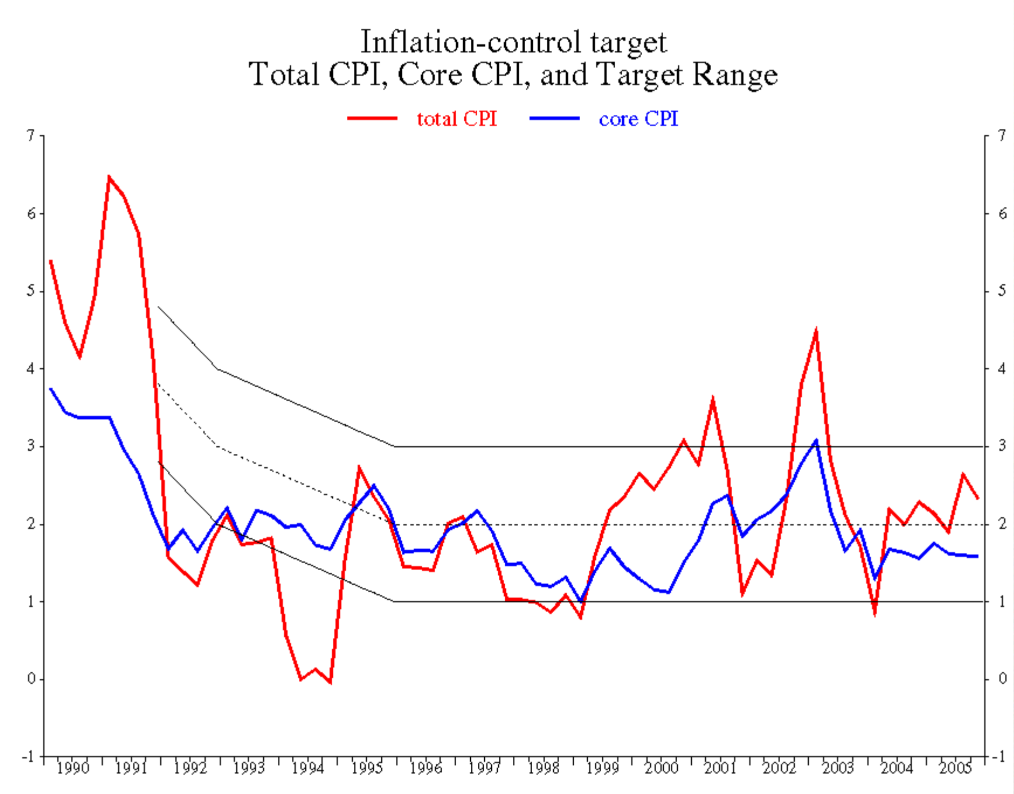


1.3 Inflation Targeting in Canada

- For operational purposes the Bank focuses on a core measure of inflation, CPIX

- CPI ex. the 8 most volatile components and the direct effect of indirect taxes

- Core inflation provides a better forward-looking indicator of trend CPI inflation



1.3 Inflation Targeting in Canada

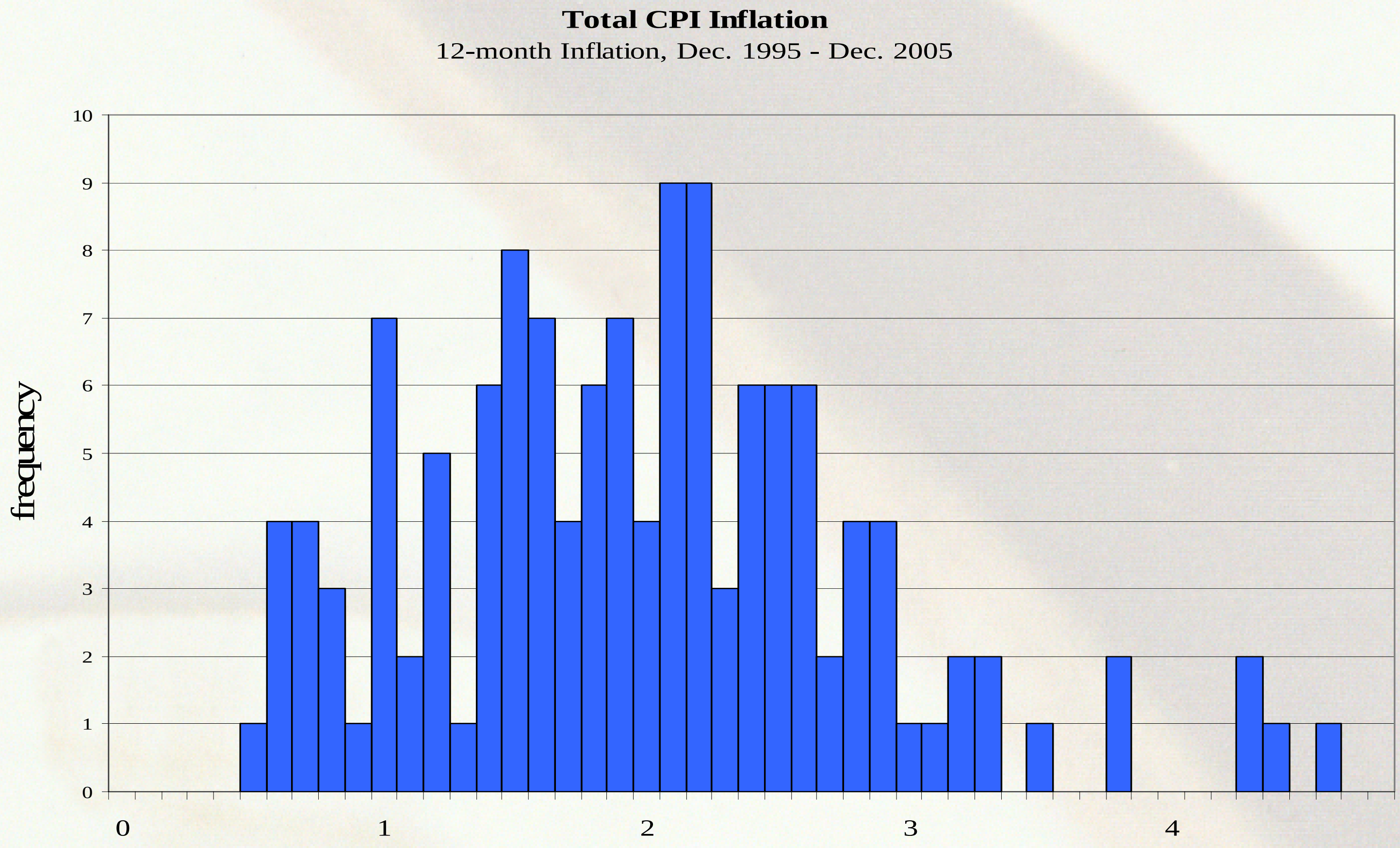
- Managing Expectations

1. clear and open about the objective
2. communicate our strategy for meeting the objective
   - The Bank has dramatically increased the number of opportunities for updating Canadians on the economic outlook
     - twice annual Monetary Policy Report (1995)
     - twice annual Monetary Policy Report Update (2000)
     - 8 Fixed announcement dates (2000)
     - Speeches

1.3 Inflation Targeting in Canada

- Deviations from the target cannot be completely eliminated
  - unpredictable disturbances
  - imperfect knowledge about the economy
- If monetary policy acts systematically to move inflation toward the target, the target range should contain the inflation rate a high percentage of the time

1.3 Inflation Targeting in Canada

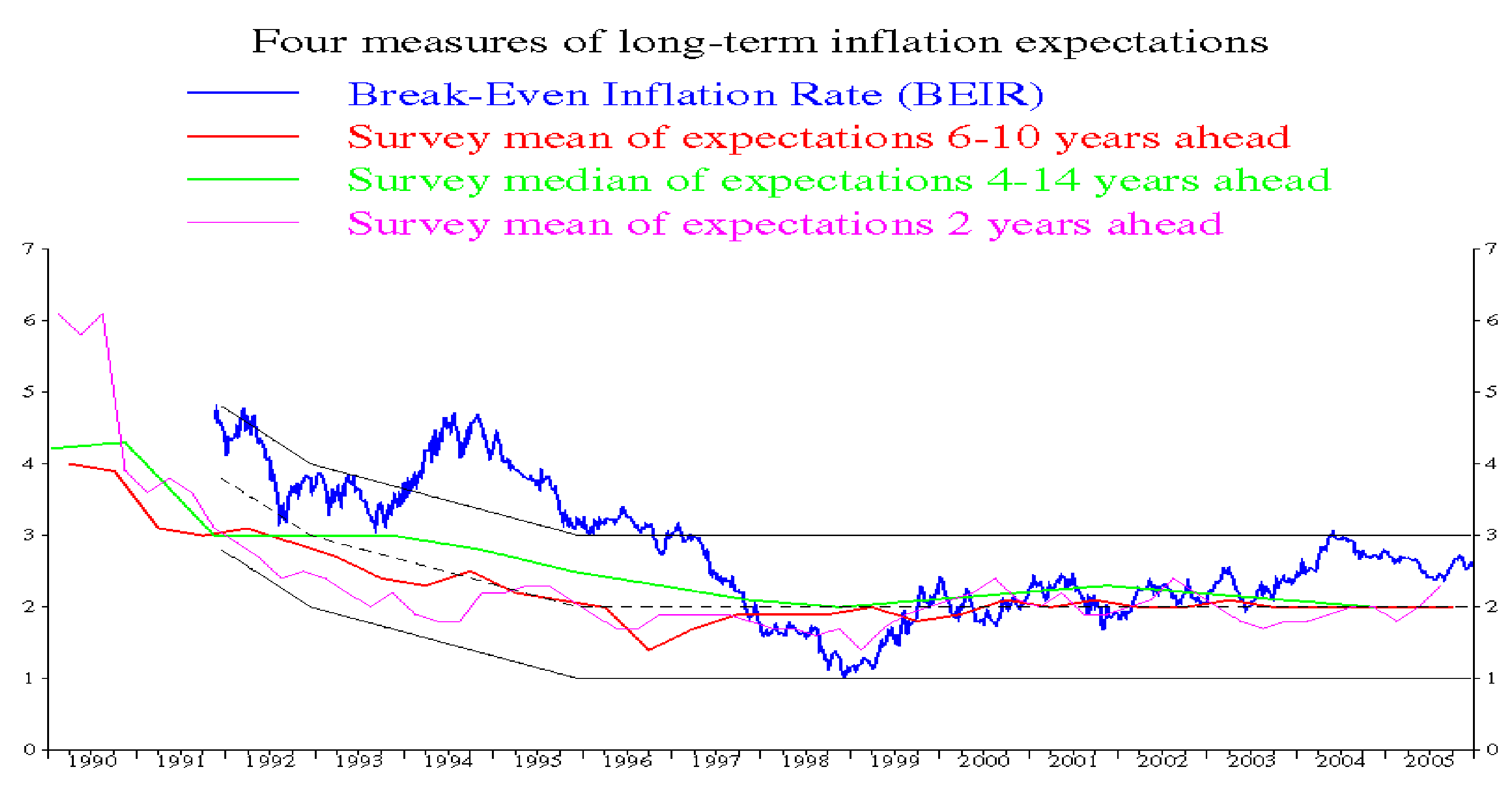


1.3 Inflation Targeting in Canada

Annualized Inflation (Dec. 1995 – Dec. 2005)
Percentage of time within a range around the target midpoint

	± 0.7 percentage points	**± 0.8 percentage points**	**± 1.0 percentage points**
CPI			
1 year horizon	62 %	67 %	80 %
2 year horizon	79 %	85 %	93 %
3 year horizon	93 %	97 %	100 %
Core CPI			
1 year horizon	81 %	89 %	96 %
2 year horizon	92 %	98 %	100 %
3 year horizon	95 %	100 %	100 %

1.3 Inflation Targeting in Canada



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1.3 Inflation Targeting in Canada

Estimated Response of Change in Inflation Expectations to Change in Realized Inflation (1994-2003)
from Levin, Natalucci and Pigen (2003)
(standard errors in parentheses)

Horizon (years ahead)	IT Economies	Non-IT Economies
1	0.01 (0.09)	-0.10 (0.21)
3	0.20 (0.05)	0.27 (0.08)
5	0.09 (0.04)	0.31 (0.12)
6-10	0.00 (0.04)	0.24 (0.09)

⇨ Inflation targeting countries tend to be better anchored than non-inflation targeting countries

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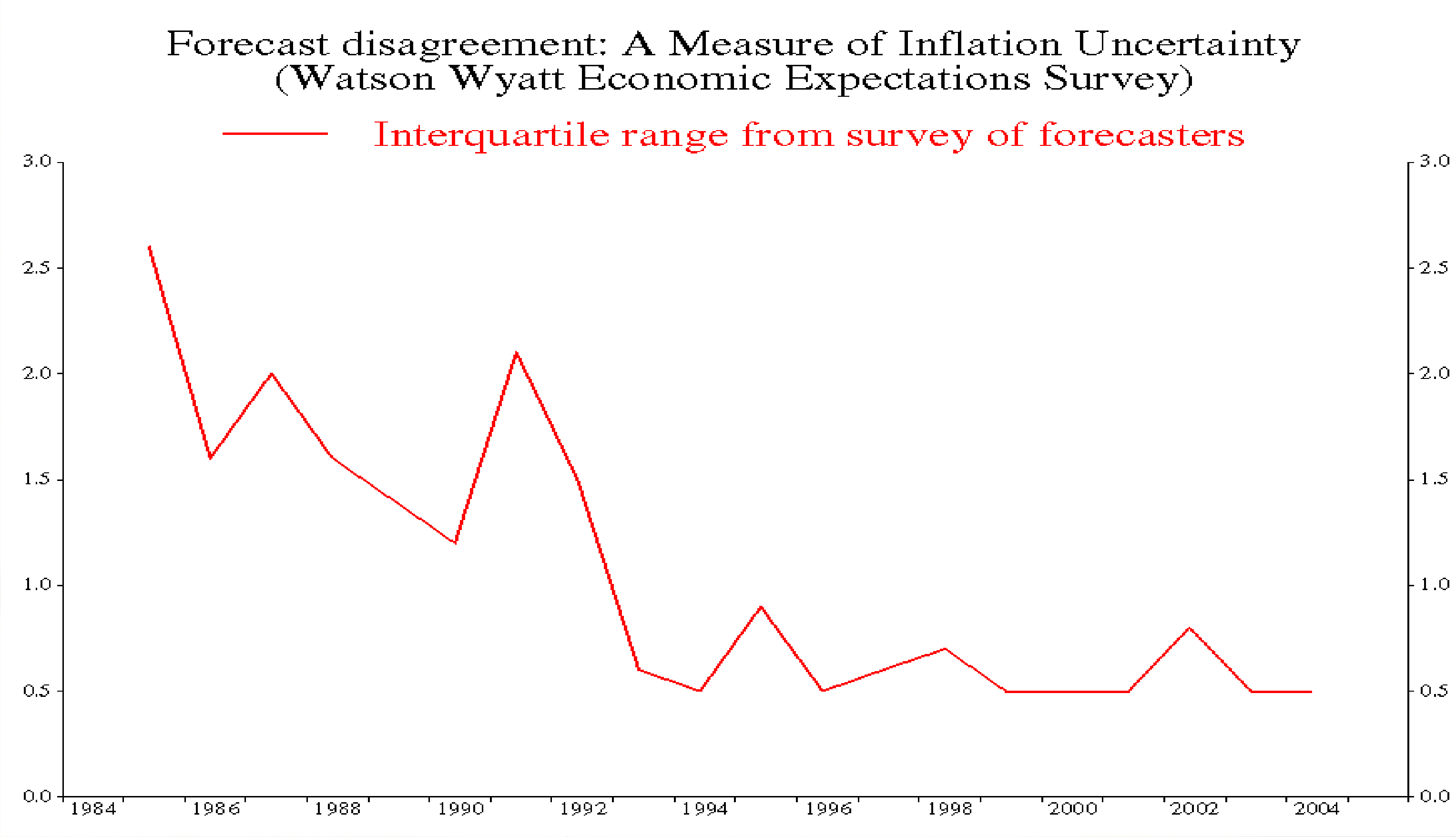
1.3 Inflation Targeting in Canada

Inflation Variability: Standard deviation, 12-month measure, monthly data

	1981-90	**1991-2005**	**1995-2005**
Variable:			
CPI	2.96	1.31	0.85
Core CPI	2.28	0.49	0.47

1.3 Inflation Targeting in Canada



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1.3 Inflation Targeting in Canada

Output Growth, the Unemployment Rate, and the Output Gap: 1981 to 2005

Variable	1981-1990	1991-2005	1995-2005
Average quarterly growth rate (annualized) of GDP	2.85	2.81 (91Q1-05Q3)	3.31 (95Q1-05Q3)
Standard deviation of GDP quarterly growth	2.77	2.03 (91Q1-05Q3)	1.49 (95Q1-05Q3)
Average monthly unemployment rate	9.47	8.71	7.94
Standard deviation of unemployment rate (monthly data)	1.75	1.58	1.02
Standard deviation of the output gap	2.09	1.52	1.00

1.3 Inflation Targeting in Canada

- Inflation targeting works
  - based on solid theory
  - works in practice in Canada and abroad
    - inflation outcomes have been close to target
    - medium to long term expectations are well anchored at 2%
    - inflation uncertainty is low
    - inflation and output variability has fallen
- every reason to expect that monetary policy will continue to be successful in the future

2. Is it possible that inflation will reach [and be sustained at] high levels?

- Not likely
  - shocks do happen and they can be large but they will likely have a limited impact on inflation (relative to historical standards)
    - symmetry of policy response
    - inflation volatility has fallen
    - inflation persistence is low

2.1 Symmetry of policy response

- Worry just as much about inflation being above target as below target
- Pre-emptive forward-looking action
- Constantly assessing information and re-examining the stance of monetary policy
  - guard against making large one-sided errors
  - make adjustments to our plans when required

2.2 Inflation Persistence

- Inflation persistence determined by structural features of the economy and monetary policy
  - structural features:
    - Contracts, information gathering and processing, menu costs
  - monetary policy
    - credibility (transparency and accountability)
    - timeliness of policy response

2.2 Inflation Persistence

Correlation coefficient of inflation [t] with inflation [t-12], monthly data

	1981-90	**1991-2005**	**1995-2005**
Variable:			
CPI	0.80	0.21	-0.21
Core CPI	0.84	0.34	0.06

2.3 Conclusion

- Is persistently high inflation possible?
- Not likely!

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3. The Future of inflation targets

- Is 2% the right target?
  - joint decision between the Government of Canada and the Bank of Canada
    - impossible to pre-judge future discussions
    - focus on conclusions of research done by Bank staff and other researchers
  - benefits of low inflation
  - potential costs of aiming too low
  - price-level versus inflation targeting

3.1 Benefits of low inflation

- Rising price level causes distortions because our institutions and habits are predicated on the assumption of a stable unit of account
  - the computational inconvenience of using real rather than nominal values
  - the costs of changing prices
  - nominal accounting practices to report financials
  - less than full indexation of tax system

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3.1 Benefits of low inflation

- Uncertainty about the level of future inflation adversely affects the economy because it distorts savings and investment decisions

- High inflation variability leads to confusion about relative price movements

3.1 Benefits of low inflation

- Modern theoretical work points to an optimal inflation rate closer to 0%

- Progress is being made but it remains difficult to demonstrate empirically that the benefits of going to zero from 2% are economically important

3.2 Potential cost of going too low

- Zero lower bound on nominal interest rates
- Transition costs of lowering the inflation target

3.2 Zero bound on interest rates

- No one will lend money at negative nominal interest if cash is costless to carry over time
- The power to lower short-term interest rates to fight deflation and recession is limited when nominal rates are low on average
- Potentially persuasive argument against targeting very low inflation rates
- Area of active research

3.2 Transition costs

- Casual inspection of disinflations across various countries and episodes almost always shows recessions

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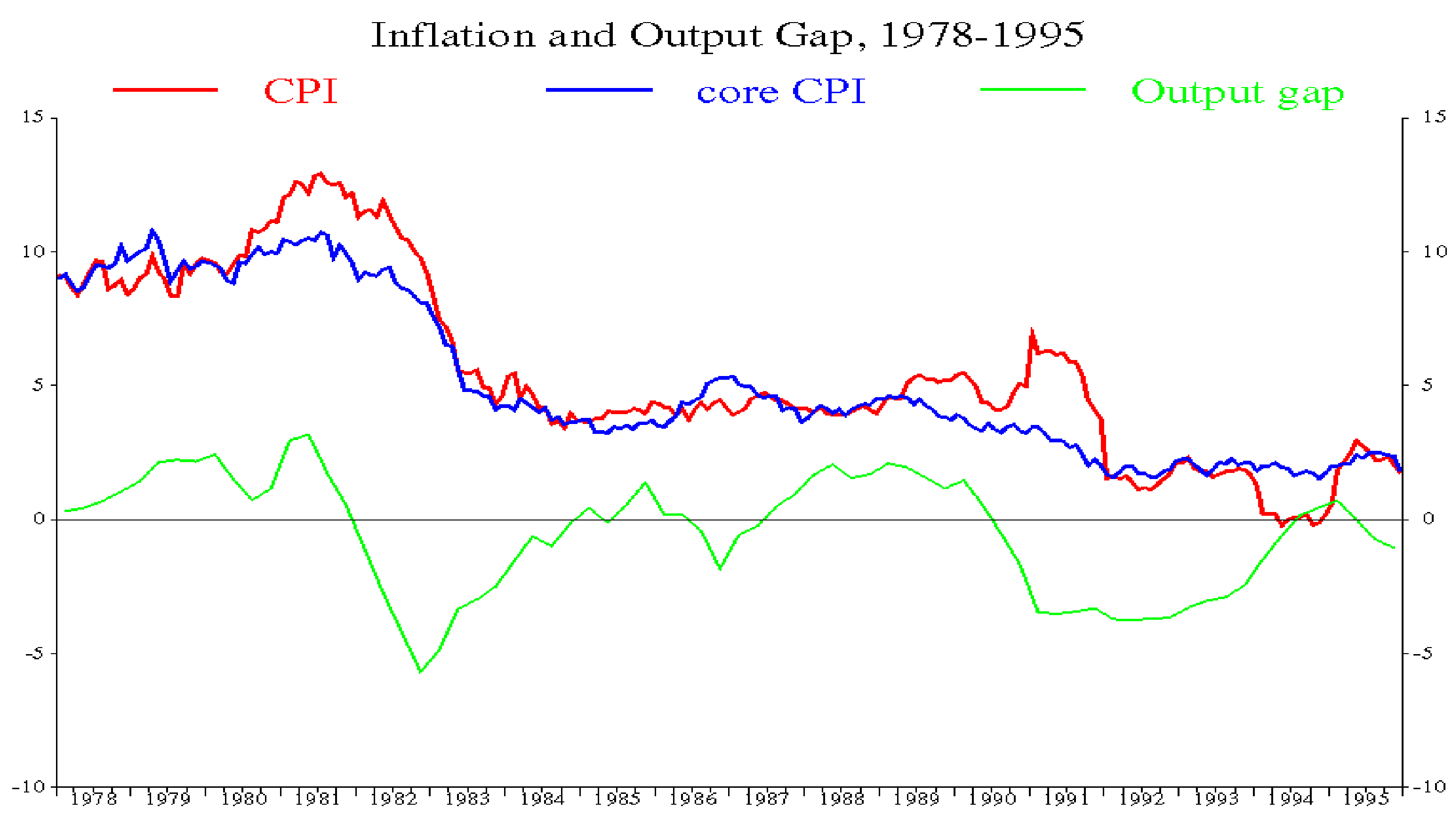
3.2 Transition costs



3.2 Transition costs

- Why has it been costly in the short-run to disinflate?
  - output losses have occurred in the past because monetary policy was less than perfectly credible
  - if inflation expectations are slow to adjust to the new policy, higher real interest rates imply lower GDP
  - high level of policy credibility implies cost of deflating from 2% to 1% would be low by historical standards

3.3 Price Level targets

- Should we target the level of prices rather than the inflation rate?
- Inflation target: commitment to return inflation to an announced target over a specified period of time
- Price-level target: commitment to return the price level to an announced target over a specified period of time

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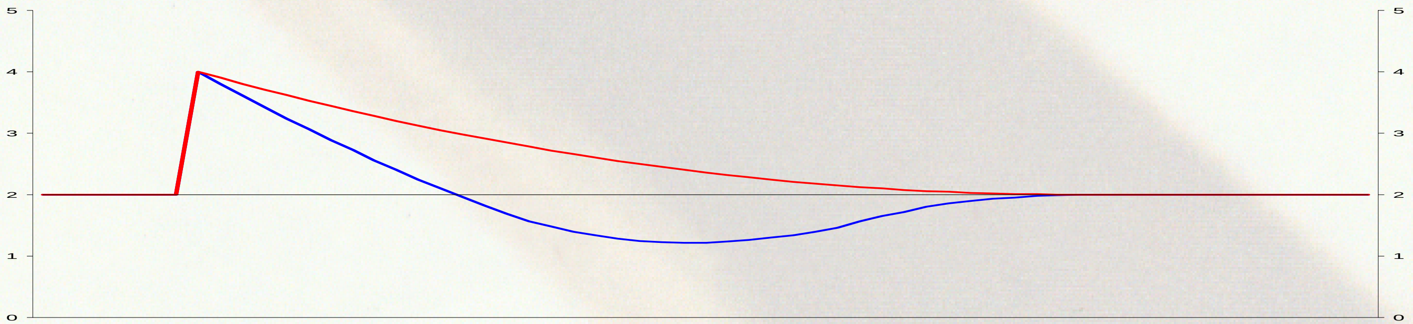
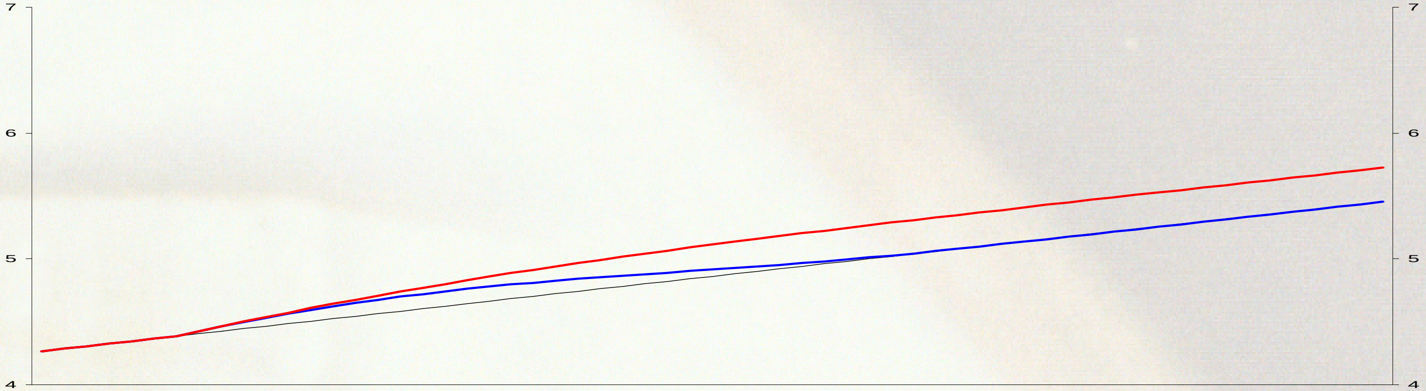
Inflation Targeting vs. Price Level Path Targeting

Rate of inflation



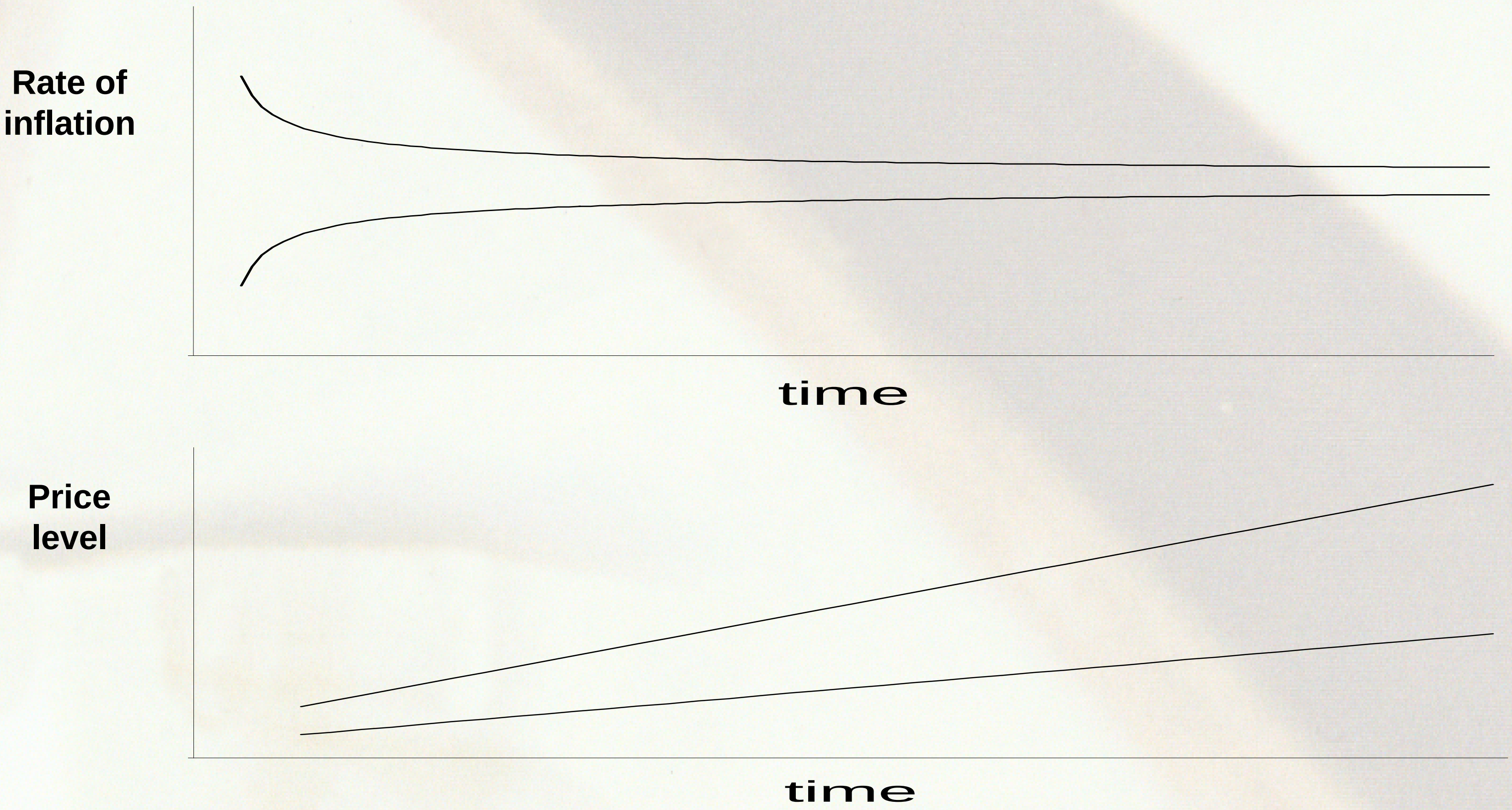
time

Price level



time

Stylized Confidence Intervals under Inflation Targeting



3.3 Price Level targets

- Inflation target: price-level drift possible
- Price-level target: no price level drift
- Potential Benefits
  - lower price level uncertainty - long-term assets or liabilities fixed in nominal terms (e.g. mortgages);
  - lower volatility of inflation and output
  - anchor inflation expectations in deflationary times
- Potential Costs
  - increase in the volatility of inflation and output

3.4 Conclusion

- Decisions regarding the inflation target are made jointly by the Government of Canada and the Bank of Canada
- Bank Staff and external research suggests
  - no good reasons to raise the inflation target
  - continue to study lowering the inflation target and price-level targeting

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4. Conclusion

- Inflation targets have proved successful for controlling inflation in Canada and elsewhere

- Suggest the use 2% for planning purposes