The costs of disinflation

- The sacrifice ratio
- Disinflation: an example.
- The role of credibility.
- Staggered contracts
Three key relationships:

- Phillips Curve:
  \[ \pi_t - \pi_{t-1} = -\alpha(u_t - u_n) \]

- Okun’s Law:
  \[ u_t - u_{t-1} = -\beta(g_{yt} - \bar{g}_y) \]

- AD:
  \[ g_{yt} = g_{mt} - \pi_t \]
Disinflation

• To reduce inflation in medium run, monetary authority must reduce money growth rate.

• Short run:
  – Reduction in money growth causes reduction in output growth and rise in unemployment.
  – As unemployment rises, inflation falls.
  – Over time expected inflation is reduced. Unemployment falls and output growth increases.

• Medium run: return to natural rate of unemployment, normal rate of output growth and lower inflation.

• Key message: Engineering a disinflation causes a recession – i.e. a temporary reduction in output growth and temporary rise in unemployment.
Sacrifice Ratio:

- Point-year of excess unemployment: difference between $U$ and $U_n$ over a year.
- Sacrifice ratio: point-years of excess unemployment required to achieve a 1% reduction in inflation.
- If expected inflation depends on last year’s inflation, sacrifice ratio determined by Phillips curve
  \[ \pi_t - \pi_{t-1} = -\alpha(u_t - u_n) \]
- If alpha=1, a 5% reduction in inflation requires 5 point years of excess unemployment. Sacrifice ratio is one.
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<td>Inflation (%)</td>
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<td>Unemployment rate (%)</td>
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<td>Output growth (%)</td>
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<td>Nominal money growth (%)</td>
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Implications:

• Our model suggests policy can change timing but not costs of disinflation:
  – Rapid disinflation with short but deep recession vs slow disinflation with less severe but more prolonged recession.
  – Sacrifice ratio is unchanged by how rapidly we disinflated.

• Key assumption here: expectations of future inflation depend on past inflation.
Expectations and Credibility

• Lucas critique: Wage setters should take into account changes in policy when setting inflation expectations.
• If monetary policy makers announce they will reduce inflation in the future and wage setters believe the announcement, inflation expectations should fall more rapidly than lagged inflation. Sacrifice ratio is smaller.
• Key ingredient: policy announcements must be credible.
A costless disinflation:

- Suppose initial inflation equals expected inflation at 8%.
- Fed announces immediate permanent reduction in inflation from 8% to 4%.
- Suppose wage setters believe announcement:
  - Expected inflation equals actual inflation of 4%.
  - Unemployment stays at natural rate.
- In this example, a perfectly credible disinflation is costless.
Staggered nominal contracts

- If nominal contracts are set over multi-year periods then credible disinflation will still cause a recession.
- Intuition: nominal wage growth determined by expectations prior to policy change.
- Disinflation produces reduction in prices greater than reduction in nominal wages.
- Real wages rise and firms layoff workers.
Are rapid disinflations better than slow disinflations?

- Credibility: a rapid disinflation (and resulting sharp rise in unemployment) may be more effective way to gain credibility and reduce inflation expectations. If so, rapid disinflation results in lower sacrifice ratio.
- Staggered contracts: a gradual disinflation allows more time for contracts to be reset before disinflation occurs. In this case, gradual disinflation results in lower sacrifice ratio.
- Evidence suggests that rapid disinflations do have lower sacrifice ratios.