Macroeconomics | Activity 5, Lecture 6

Inflation: A Monetary Cause with a Fiscal Root

Worked solutions

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Lesson of the day. In the long run inflation is monetary: too much money chasing goods. Persistent high inflation is fiscal at the root, because the money is printed to pay the government's bills. Ending it means changing the money-and-budget regime, not fighting the symptoms.

Phase 1 – Concept checks

ANSWERS

ConcepTest 1. **Answer.** (c), about 10 per cent. The quantity theory in growth rates gives $\pi \approx g_M - g_Y = 12 - 2 = 10$ per cent. Money growth in excess of output growth shows up as inflation.

ConcepTest 2. **Answer.** (a). Long-run money neutrality: nominal quantities scale with the money supply, while real output is unchanged. Double the money and, in the long run, the price level roughly doubles.

ConcepTest 3. **Answer.** (c), about -2 per cent. The real return is roughly $i - \pi = 6 - 8 = -2$ per cent. Unexpected inflation transfers value from lenders to borrowers.

ConcepTest 4. **Answer.** (a), a tax on people who hold money. This is the inflation tax, or seignorage: rising prices erode the real value of the money people hold, transferring resources to the government that issues it.

Phase 2 – The desk problem

FULL WORKING

(a) Long-run inflation (worked for you). $\pi \approx g_M - g_Y = 12 - 2 = 10$ per cent.

(b) The nominal interest rate. By the Fisher equation, $i = r + \pi^e = 3 + 10 = \mathbf{13}$ per cent. To deliver a 3 per cent real return when 10 per cent inflation is expected, the deposit must pay 13 per cent.

(c) An inflation surprise. The actual real return is $i - \pi = 13 - 15 = \mathbf{-2}$ per cent. Savers who locked in 13 per cent lose, earning less than the inflation rate; borrowers who owe a fixed 13 per cent gain, repaying in money worth less than expected. Surprise inflation redistributes from lenders to borrowers.

(d) The inflation tax. Revenue is about $\pi \times (M/P) = 0.10 \times 400 = \mathbf{40}$ a year. It is paid by everyone who holds money, because inflation quietly erodes the real value of their cash and deposits.

The same money growth that sets inflation at 10 per cent also sets the nominal interest rate at 13, decides who wins when inflation surprises, and raises a quiet 40 of revenue from money-holders. Inflation is a monetary story with a fiscal motive.

The country is Brazil, and the 1994 reform is the Real Plan.

1. A price freeze fixes the symptom, not the cause. If money keeps growing faster than output, the quantity theory says the price level must eventually rise. A freeze only bottles up the pressure, producing shortages and black-market prices until it bursts. Nothing lasting changes while the central bank is still printing money to cover the deficit.

2. Persistent high inflation is ultimately fiscal: the printing exists to pay the government's bills. Close the deficit and you remove the reason to print; only then can slower money growth, and lower inflation, last. The currency reform re-anchored expectations, but on its own it would have failed, as the earlier attempts did, without the fiscal fix behind it.

3. Inflation collapsed, and fast: from monthly rates above 40 per cent in the first half of 1994 to about 2 per cent by July, and into single or low double digits within months. It did not require a depression. Because the plan was credible, people believed prices would be stable and behaved accordingly. Brazilian inflation has stayed mostly in single digits ever since.

4. A lasting end to high inflation is a change of regime, not a single measure. Stop financing the government by printing money (the fiscal root), then re-anchor expectations with a credible new monetary rule. When people believe the regime has truly changed, inflation can fall quickly and at little cost in lost output.

Zeros had been cut from the currency before, and inflation always came back. What finally worked was closing the deficit that drove the printing, then giving people a credible new anchor. Inflation is monetary in the end and fiscal at the root.

End of solutions. Sources: Jones, *Macroeconomics* 6e, Ch. 8; Banco Central do Brasil and standard accounts of the Real Plan (1994). All figures verified.