

Macroeconomics | Lecture 6

Inflation: A Monetary Cause with a Fiscal Root

In Class Group Activity

· SJTU Summer School · Fatih Kansoy

How this block runs. You work in your home group of three or four, textbook open. Roles rotate: **Scribe**, **Reporter**, **Sceptic**, **Timekeeper**. Money is in local currency; rates are in per cent.

- **Phase 1, Concept checks (~10 min).** Each group votes together, argues for 90 seconds, then settles on one answer.
- **Phase 2, Desk problem (~20 min).** One economy, priced with the quantity theory and the Fisher equation, part by part.
- **Phase 3, Case (~25 min).** One real story, ending hidden. Your group commits a prediction, then we reveal what happened.

Word list. The **quantity theory** says $MV = PY$: money times how often it is spent equals the price level times real output. In growth rates, with velocity V stable, inflation $\pi \approx g_M - g_Y$, money growth minus output growth. The **Fisher equation** splits the nominal interest rate: $i = r + \pi^e$, the real rate plus expected inflation. **Money neutrality** means that in the long run a change in the money supply changes prices, not real output. The **inflation tax** (seignorage) is the revenue a government gets by printing money: inflation erodes the real value of the money people hold, worth about $\pi \times (M/P)$ a year.

Phase 1 – Concept checks

~10 MIN

ConceptTest 1. In the long run, if a central bank lets the money supply grow at 12 per cent a year while real output grows at 2 per cent, inflation will be about

- (a) 2 per cent.
- (b) 6 per cent.
- (c) 10 per cent.
- (d) 14 per cent.

ConceptTest 2. A one-off doubling of the money supply, with real output unchanged in the long run, roughly

- (a) doubles the price level.
- (b) doubles real output.
- (c) halves prices.
- (d) does nothing to prices.

ConceptTest 3. A bank lends at a fixed 6 per cent for a year. Inflation then turns out to be 8 per cent. The real return to the lender is about

- (a) +14 per cent.

- (b) +6 per cent.
- (c) -2 per cent.
- (d) +8 per cent.

ConceptTest 4. A government that cannot borrow or tax enough covers its deficit by having the central bank print money. The resulting inflation acts as

- (a) a tax on people who hold money.
- (b) a subsidy to savers.
- (c) a cut in the price level.
- (d) a rise in real wages.

Phase 2 – The desk problem

~20 MIN

One economy, priced from the money supply

Take velocity as stable, so the quantity theory in growth rates is $\pi \approx g_M - g_Y$. The Fisher equation is $i = r + \pi^e$. The inflation tax on real money balances M/P is about $\pi \times (M/P)$ a year.

(a) Long-run inflation (worked for you). With money growth $g_M = 12$ per cent and output growth $g_Y = 2$ per cent,

$$\pi \approx g_M - g_Y = 12 - 2 = 10 \text{ per cent.}$$

(b) The nominal interest rate. Savers expect this 10 per cent inflation and want a real return of 3 per cent. Using the Fisher equation, what nominal interest rate must a one-year deposit pay?

(c) An inflation surprise. Inflation instead comes in higher than expected, at 15 per cent, while the deposit still pays the rate you found in (b). What real return do savers actually earn? Who gains and who loses from the surprise?

(d) The inflation tax. The government prints money and holds inflation at 10 per cent while people hold real money balances of $M/P = 400$. How much real revenue does the inflation tax raise in a year? In one sentence, who pays it?

Phase 3 – The case

~25 MIN

The country that could not stop its prices

How to run this. Read the story with your group. The ending is hidden on purpose. Do the reasoning in questions 1 and 2, commit a written prediction to question 3 before the reveal, and do not search the internet.

The story. For most of the 1980s and early 1990s one large country lived with inflation almost no one could believe. Prices rose by hundreds of per cent a year, and by 1993 the annual rate was around 2,000 per cent, close to doubling every month. Shops repriced goods daily, and workers rushed to spend their wages before they lost value. The government had tried again and again to stop it: freezing prices, and even lopping zeros off the currency. Each attempt failed within a year or two, because the budget deficit, and the money-printing that paid for it, carried on. In 1994

a new team tried something different. First they attacked the deficit. Then, rather than freeze prices, they introduced a new unit of account in which prices could be quoted, letting everyone re-learn stable prices, before a brand new currency was finally issued in the middle of the year.

The story stops here.

Four questions (commit your answer to question 3 in writing before the reveal):

1. The country had tried price freezes before, and they failed. Using the quantity theory, explain why holding prices down by decree cannot stop inflation while the government keeps printing money to cover its deficit.
2. The 1994 plan began by cutting the budget deficit. Why is that step, rather than any currency trick, the one that really matters for ending a long inflation?
3. **Predict.** After the new currency was launched in mid-1994, what do you think happened to inflation, and did it take a deep recession to get there?
4. State the general lesson about how a country ends a long, high inflation.

End of activity handout. Solutions are distributed after the block.