Monetary Macroeconomics

Chapter 18:
The Temptation of Inflation

Dr. Pınar Yeşin

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University of Zurich

The Temptation of Inflation

- Why would a government want to default on its debt?
- What is time inconsistency problem of government policy?
- Is there a temptation of inflation?

Consequences of a Default on National Debt

Suppose the government unexpectedly enacted a one-time default on the debt owed in period t.

What are the consequences?

- The government can decrease its taxes, seigniorage revenue or increase its expenditures

- It redistributes resources from the generation that owned the initial debt to generations that follow ($\Rightarrow$ default = tax on bondholders)

The same effect would have happened with an income tax:

- An income tax on generation $t-1$ also would have raised revenue.

- But, it would have reduced incentives of that generation to work or invest.

This story works only if the default is really a *surprise* to people. Otherwise they would not be willing to hold bonds in the first place.

- The temptation to default exists even if the government benevolently acts in the best interests of the public.

- Because a surprise default works like a lump-sum tax, collecting revenue without distorting incentives, even the public will prefer it to an income tax that raises the same revenue from the same people.

- What if the government defaults once and promises never to do so again?

- Will you believe the government?

- Would you buy bonds again?

Time (In)Consistency?

If the government's policy is to default today, but not in the future, the government will always default, because it is always today!

If people know the government will always give in to an incentive to default, they will never buy government debt.

The incentive of the government to behave in one way today (e.g. to default) but to promise not to behave that way in the future is referred to as the **time inconsistency problem of government policy** (by F.Kydland and E.Prescott).

- The best policy in the short run is not the best long-run policy.

- The government needs mechanisms to bind itself for its future actions.

Commitment

- The most effective way of convincing people about one's future actions is to bind oneself in advance to these actions (e.g. by offering collateral to the creditor).

- However, commitment is not easy for the government because the government is *both* the debtor and the enforcer of the contracts.

- One way to commit itself to its promised future actions is to establish an independent judiciary that can oblige the government to keep its promises.

Reputation

- Reputation plays an important role for the government as well.

- If the government is aware that people are watching its current behavior as a signal of its future behavior, it may rationally decide not to default.

- This still requires the public's trust that the government will not change its mind in the future.

- So, it demonstrates that it won't give in to the short-run incentives by always following the best long-run policy.

Rate of Return on Risky Debt

- If you think that there is some probability of default on government bonds, then you will hold it only if it has a sufficiently high rate of return.

- Its expected return should be at least equal to the rate of return on a riskless asset.

- Random defaults on the national debt therefore cannot offer a government a long-run solution to the problem of financing government expenditures.

Benefits from Unexpected Inflation

Recall that the government's budget constraint in period t is

$$p_t N_t g_t + R_{t-1} D_{t-1} = p_t N_t \tau_t + [M_t - M_{t-1}] + D_t$$

where g_t denotes real government expenditures per young, D_t denotes national debt, and τ_t denotes lump-sum tax from each young.

In real terms,

$$N_t g_t + \frac{R_{t-1} D_{t-1}}{p_t} = N_t \tau_t + \frac{M_t - M_{t-1}}{p_t} + \frac{D_t}{p_t}$$

where the second term on the left hand side is the current real value of last period's debt.

If the government prints fiat money unexpectedly at time t, then p_t will go up.

Therefore, the real value of the last period's debt, $\frac{R_{t-1}D_{t-1}}{p_t}$, will decrease.

If inflation is unanticipated, it cannot have affected variables determined at $t-1$, i.e., the initial nominal debt D_{t-1} and the nominal interest rate R_{t-1}.

So unexpected inflation will act like a (partial) default!

- If unanticipated inflation occurs, nominally denominated bonds will purchase fewer goods than the bondholders expected when they bought the bonds.

- The real effect of unanticipated inflation is exactly that of a default:

  – The government reduces or eliminates its obligations at the expense of the bondholders.

$$N_t g_t + \frac{R_{t-1} D_{t-1}}{p_t} = N_t \tau_t + \frac{M_t - M_{t-1}}{p_t} + \frac{D_t}{p_t}$$

- A lower real value of the old national debt means the government can reduce the terms on the right hand side by an equal amount.

- Unexpected inflation is like an extra tool to manage the government's budget.

Unexpected Inflation and Output

- The resulting reduction of the real value of the national debt will reduce the crowding out of capital.

- This increase in capital will increase output in the following period.

- If capital displays a diminishing marginal product the increase in capital also results in a reduction of that marginal product and thus in the interest rate as well.

- But the government cannot inflate unexpectedly all the time. Rational consumers will learn and start anticipating the high inflation.

- They will demand a nominal interest rate R that will take into account the expected inflation.

- This strategy of government will not lower the real value of the debt anymore!

Revisiting the Phillips Curve

- Recall the Phillips curve: negative correlation between nominal wages and the unemployment rate.

- When the government systematically exploits this relationship and has inflation all the time, the relationship turns to a positive correlation!

- Suppose that for a century a monetary authority keeps the stock of fiat money and the price level rather fixed.

- The fluctuations in the money supply that occur are unpredictable accidents.

- As we have just seen, an unanticipated increase in the price level reduces the real value of the national debt, thereby reducing the crowding out of capital and increasing real output.

What Happens when Inflation is Anticipated?

- What would happen to the positive correlation of inflation with output if the monetary authority proceeds with printing more money?

- Recall that anticipated inflation has no effect on real output.

- So, the monetary authority will generate inflation but not an increase in output.

Commitment Mechanisms to Avoid Unexpected Inflation

A binding commitment to avoid inflation is the surest way to convince the public that it will not try to inflate away the national debt.

- Index the national debt to inflation (i.e. issue bonds whose value is tied to price changes)

- Keep the central bank independent of the government and away from political pressure

How to Estimate Unexpected Inflation

If we can measure the *ex ante* expected rate of inflation and compare it with the *ex post* rate, we can estimate the amount of unexpected inflation.

One way to do this is simply to conduct surveys of expectations.

- According to the Livingston Survey, for example, in 1974, the expected inflation rate in the US was 5.4%, but the actual rate was 11%.

- In 1986, on the other hand, the expected inflation was 4.1%, but the actual rate was 1.9%.

Quantifying the Gain from Unexpected Inflation

In years, when inflation is under-predicted the government raises real revenues by diluting its debt.

- In 1980, e.g., unexpected inflation cut real US government debt by USD 61.3 billion.

- This was significantly higher than the USD 17.5 billion raised in real seigniorage!

The "**Original Sin**" hypothesis: financial markets are incomplete such that the government cannot borrow in the domestic currency from abroad and/or cannot borrow long term even domestically.

Suggested reading:

"On the determinants of Original Sin: an empirical investigation" by Ricardo Hausmann and Ugo Panizza, Journal of International Money and Finance, 2003, Vol 22.