SHORT TERM EFFECTS OF MONEY

INFLATION AND UNEMPLOYMENT – THE NEOCLASSICAL SYNTHESIS

Prices increase with excess nominal aggregate demand

$\pi(t) = p(t) - p(t-1) = k[yd(t) - ys(t)] = h\, u(t)$ $\quad k > 0, h < 0$

The Phillips curve

An inverse relationship between growth in nominal wages and the rate of unemployment (or between inflation and various measures of economic activity, such as the output gap)

It suggests that a government face an exploitable trade off between inflation and unemployment. That is, that it can achieve lower unemployment if she is willing to accept higher inflation

The **empirical** evidence: The *unstable* Phillips curve. Estimation over successive time periods showed an upward shift (or a vertical curve).

Theoretical weaknesses of the neoclassical synthesis:

Confusion between nominal and relative price adjustment (Friedman, Phelps)

Is there a permanent trade off between inflation and unemployment?

Is there any trade off between inflation and unemployment?

RATIONAL EXPECTATIONS, IMPERFECT INFORMATION MODELS

{p, y}: AD = AS

1. The effect of an expected change in AD

Inflation does not affect employment when it is perfectly expected

2.The effect of a change in AD holding inflation expectations fixed

The expectations augmented AS (Phillips) curve

Labor demand depends on actual real wage

Labor supply depends on perceived (or expected) real wage

3. The effect of a change in expectations holding AD fixed.

Can expectations of inflation lead to higher inflation?

Main point. Actual inflation affects the real wage –and employment- when

Either the actual inflation rate is not known when employment decisions are made (the inflation figures are published with a delay) OR

Nominal salaries are determined in advance (wage contracts)

Expectations

The key role of **expectation**s (Friedman, Phelps)

Subjective expectations

Adaptive expectations: Changes in expectations occur slowly over time as a result of past inflation rate changes. People gradually correct their past mistakes

⇒ for the slope of the Phillips curve: There is a trade off between inflation and unemployment as long as the rate of inflation is changing. There is no trade off between the average rate of inflation and the average rate of unemployment

The natural rate of inflation: The rate that is invariant to monetary policy

Rational expectations (Lucas, Sargent)

a) Key insight: Unlike adaptive expectations which are backward looking (people learn from their past mistakes) expectations are forward looking.

b) An expectation is said to be rational when the subjective expectation coincides with the conditional mathematical expectation based on all available information

c) A rational expectation coincides with the prediction of the relevant model

p: $D(p) = S(p)$ $\Rightarrow$ Ep: $ED(p) = ES(p)$

An example: My wife's trips to the shops Average: 100

If we have quarreled the night before: 150

If we have quarreled and my sister has recently bought some nice clothes: 200

Conditional on the information available: different predictions about spending

Important point: Rational expectation does not mean perfectly accurate but simply correct on average

Calculating a rational expectation

The signal extraction problem

Implications of rational expectations

for the slope of the AS curve and the Phillips curve in the short and the long run.

$u(t) = u^* + k [Ep(t)- p(t)] + e(t)$

Main point: Errors in forecasting inflation lead to changes in real wages and to output fluctuations.

Rational expectations imply the absence of systematic expectational errors. Hence in the long run (on average) there is no trade off between inflation and unemployment. The average unemployment rate is equal to the natural rate of unemployment

I. The flexible price, imperfect information model

Perceived vs unperceived changes in the supply of money.

Shortcomings: a) Requires long informational lags on monetary aggregates

b) Cannot easily generate persistence in economic fluctuations

Main result:

Anticipated changes in AD do not affect output and lead to acyclical inflation

Unanticipated changes in AD affect output and lead to procyclical inflation

Changes in AS or in expectations (that are not validated by actual behavior) affect output and lead to countercyclical inflation

II. The Keynesian model

Labor contracts fix nominal wages

Anticipated vs unanticipated changes in inflation

To generate *persistent* effects we need staggered contracts (see below)

Shortcoming: a) Accounting for the existence of labor contracts

b) Accounting for output fluctuations in countries with no union participation

Econometric implications of rational expectations

Rational expectations impose cross equation restrictions. Joint tests

Policy ineffectiveness

Systematic monetary policy does not matter

BUSINESS CYCLES (PERSISTENCE)

The **Taylor** model (staggered labor contracts)

Agents care about their relative income position. Errors made in the past are perpetuated.

Key implications:

a) The price level exhibits inertia.

b) The inflation rate does not exhibit any inertia. This implies that credible disinflation is costless

(+) It generates persistence as a result of a single shock

(-) It does not satisfy all definitions of the natural rate hypothesis. That is, while the average rate of unemployment is independent of the average rate of inflation, unemployment can be kept permanently below its natural rate when the inflation rate decreases over time.

The **Fischer** model

The wage contract is set so that the resulting expected real wage is equal to the expected market clearing real wage

(+) Generates persistence

(-) Generates countercyclical real wage

A model of inflation persistence

Implications for disinflation