Aggregate demand and long-run unemployment
L. Ball 1999, Brookings Papers

Standard theory:
equilibrium unemployment depends on labour market
frictions and institutional variables

- unions
- unemployment benefits
- employment protection legislation, taxes

Interception of wage curve and price curve

Monetary policy should focus on nominal stability,
and also attempt to stabilize the economy around the
equilibrium level

Ball:
Aggregate demand, and thus also monetary policy,
may have long run impact on output and
unemployment

Expansionary monetary policy during a recession
will ensure that the economy comes back on track,
while tight monetary policy might have permanent
negative effects due to **hysteresis**, i.e. that high
unemployment leads to increase in equilibrium
unemployment

Evidence for G-7 countries in the early 1980s

- Identify recession as when real GDP falls in two quarters in a row, or by more than 2 percent in one quarter
- measure monetary policy response as change in real and nominal interest rate from peak to one quarter after through
- real interest rate measured by subtracting past cpi inflation

- Tables 1 and 2 show that NA2 (US and Canada) reduce the real interest rate on average over four recessions by 3.4 percentage points
- E4 (UK, France, Italy, Germany) increase real interest rate by an average of 0.2 percentage points (average of 7 recessions)

- Consistent with difference in central bank rhetoric
  - Fed: reduce interest rate to avoid "exacerbate recessionary tendencies"
  - B of England: ".. monetary policies designed to bring about .. reduction in inflation"
  - France: high interest rate to defend the franc

What happened?

- NA2: Growth resumes: growth in first 5 years after peak is almost as large as long run (10 years) growth

- E4: growth does not resume, 5 year growth after peak is much lower than long run (10 year) growth

- see tables 3 and 4

- figures 1 and 2

- Persistent increase in unemployment in the European countries, but not so in the US and Canada

- Eventually reduction in trend inflation (measured as nine-quarter MA) in all countries.

Evidence from 17 OECD countries, early 1980s
- Annual data
- Recession if real GDP growth < 1 percent
- Policy: largest cumulative decrease in the real interest rate during the first year of recession
- Effect:
    - change in NAIRU (which is OECD's NAWRU non-accelerating wage rate of unemployment) from peak to five years later
    - degree of hysteresis: change in NAIRU/greatest increase in actual U

- Finds that duration of UI (unemployment benefits) and maximum easing in monetary policy have significant effect on change in NAIRU (table 5)

- Other labour market variables used by Layard, Nickell, Jackman are not significant

- Figure 4, change in real interest rate negatively correlated with degree of hysteresis in 17 OECD countries
- Figure 6, duration of unemployment insurance positively correlated with degree of hysteresis in 17 OECD countries

Reduction in unemployment 1985-97
- 10 OECD countries: NAIRU > 8 percent in 1985
- 4 success countries, reduced their NAIRU 2-3 %
  - Ireland, the Netherlands, Portugal, UK
- 6 failures (increase or constant NAIRU):
  - Belgium, Canada, Denmark, France, Italy, Spain (Denmark subsequently success)

- Questions earlier argument that success is the result of labour market reforms
  - All countries have made reforms
  - Reforms generally small
- In contrast, success countries had larger runups in inflation, consistent with an increase in aggregate demand (exception Ireland)

- Figure 8, change in NAIRU negatively correlated with change rise in trend inflation over 10 OECD countries, 1985-1991

- In success countries, overheating or long expansion took unemployment down with temporary increase inflation
- In failure countries, there were no overheating or long expansions

Mankiw

- Alternative interpretation of the evidence based on reverse causation

- Countries which experienced increase in the NAIRU were induced to pursue less expansionary monetary

- Ball's regression in table 5, is questionable: based on OLS, which requires that monetary policy is unrelated to shocks to the NAIRU, which seems implausible
    - i.e. monetary policy is endogenous and should be instrumented

- Central bank rhetoric is also endogenous

- Concludes that neither willing to accept nor reject Ball's findings, but evidence here does not convince him

- SH: relevant objection, but does not explain why inflation runup is associated with decrease in NAIRU

Nordhaus

- Agrees with Ball that existing literature explaining change in European unemployment in response to macroeconomic structure and policies have not been terribly successful

  - o SH: existing literature argues that change in unemployment is due to
  - o Change in institutions (Nickell, others), or
  - o Shocks and institutions (Blanchard, Wolfers), or
  - o Increased structural changes, to which European welfare systems do not work well (Ljungqvist and Sargent)
  - o But not clear that existing literature is really successful

- Exchange rate given insufficient attention
  - o Example, the Netherlands could not react
  - o SH: misplaced, as the absence of a reaction in the Netherlands is relevant even if caused by exchange rate peg – indeed, it's an argument against Mankiw's endogeneity argument

Formal model

- demand-determined employment E,
- labour force =1
- only short run employment (first period) affects wage setting
    - long run unemployed are less attractive workers
- constant breakup rate of existing jobs b
- number of existing jobs is min[E, E_{-1}]
- All job losers become unemployed, as new jobs are captured by the unemployed

Short run unemployment:

$$S = bE_{-1} \qquad \text{if } E \geq E_{-1}$$

(1)

$$S = E_{-1} - (1-b)E \qquad \text{if } E < E_{-1}$$

The Phillips curve

(2) $\pi = \pi_{-1} - a(S/E - b), \quad a > 0$

Shows that fall in employment, temporary or permanent, leads to permanently lower inflation; slightly smaller reduction for temporary fall

table 8

Shows that a rise in employment leads to much smaller increase in inflation

table 9

Concedes that theoretical results are overly strong.