Labour market institutions, fiscal policy, and the functioning of the Eurozone

Wendy Carlin,
Department of Economics, UCL & CEPR
Director of the CORE project www.core-econ.org

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Jean Monnet Lecture
University of Pisa
Main idea of the lecture

• According to practical policy makers, using fiscal policy for stabilization is fraught with difficulty

Why, then raise the issue of fiscal stabilization policy in the Eurozone?

References:


Main idea of the lecture

- According to practical policy makers, using fiscal policy for stabilization is fraught with difficulty

Why, then raise the issue of fiscal stabilization policy in the Eurozone?

- It may be necessary in a common currency area in which there are Greeks and Italians ... and Germans

- If it is necessary, it will be more difficult than is the use of monetary policy to stabilize the economy under flexible exchange rates – not only because of implementation problems but because it must achieve a price level target rather than an inflation target

- If it is necessary but ignored, CCA central bank can still achieve its inflation target alongside divergence of fortunes of members – this is what happened before the financial crisis
Main idea of the lecture

Why do labour market institutions matter in a monetary union?

• No monetary policy
• Contested fiscal policy
• The burden of adjustment to shocks or structural weakness is therefore on the real exchange rate (RER)

• What is the RER?

\[
Q \equiv \frac{P^*e}{P}
\]

\[
e \equiv \frac{\text{units of home currency}}{\text{one unit of foreign}}
\]

↑ e is nominal depreciation

↑ Q is real depreciation \equiv↑ competitiveness
Eurozone: intra-eurozone real exchange rate indices
1999=100, 1999-2017

Real effective exchange rate, wage costs, manufacturing, index, 1999 = 100

- Germany
- Spain
- France
- Italy
- Nominal (G, F, I, S)

Eurozone begins
Eurozone financial crisis
Global financial crisis
Real appreciation
What determines the medium run inflation rate?

What is the medium-run inflation rate?
In a closed economy, inflation is constant when WS curve intersects PS curve so that
\[ \pi^{MRE} = \pi^E = \pi^T = \text{central bank's target} \]

In an open economy, two cases:
In a flexible exchange rate economy
\[ \pi^{MRE} = \pi^T = \text{central bank's target} \]
In a fixed exchange rate economy
\[ \pi^{MRE} = \pi^* = \text{common currency area central bank's target} \]

Different choices made by Italy and the UK after high inflation & very costly disinflation of 1970s and 1980s ...
What determines the medium run inflation rate?

In a flexible exchange rate economy (just like a closed economy)

\[ \pi^{MRE} = \pi^T = \text{central bank's target} \]

In a fixed exchange rate economy

\[ \pi^{MRE} = \pi^* = \text{common currency area central bank's target} \]

Different choices made by Italy and the UK
Why did Italy (and France, Spain, Greece, etc.) join the Eurozone?

\[ \pi^{MRE} = \pi^* = \text{common currency area central bank's target} \]

Why did Germany join the Eurozone?

Other members cannot use nominal depreciation to gain competitiveness. Germany can use labour market institutions to gain competitiveness.
Outline

1. Empirical motivation – the Eurozone’s first decade
   – Heterogeneous performance
   – Evidence of real exchange rate & real interest rate channels
   – Absence of fiscal stabilization as a concern of policy-makers

2. Modelling the stabilization problem for member of a CCA
   – A model with realistic labour market institutions
   – 2 key mechanisms in the model
     • Real exchange rate channel of adjustment
     • Real interest rate channel of adjustment

3. Implications for the Eurozone
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3. Implications for the Eurozone
Real exchange rate & real interest rate channels for stabilization

- Remember there is no monetary policy at the country level
- 2 key mechanisms in a model with realistic labour market institutions
  - Real exchange rate channel of adjustment = how wage-setting behaviour responds to unemployment; is stabilizing but can be very weak
  - Real interest rate channel of adjustment = how inflation expectations in wage setting behaviour can be destabilizing

3. Implications for Eurozone
   - when countries vary in these 2 key mechanisms
   - this is a reflection of differences in labour market institutions
1. Empirical motivation – the Eurozone’s first decade
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   – Evidence of real exchange rate & real interest rate channels
   – Absence of fiscal stabilization as a concern of policy-makers
Did Eurozone economies achieve stabilization?

Compare performance 1999-2007 of Eurozone and members against the welfare function of policy maker under flexible exchange rates

\[
\text{Min } L_t = (y_t - y_e)^2 + \beta (\pi_t - \pi^*)^2
\]

National policy-maker's loss function
Looks successful but masks divergent performance 1999-2007

Min $L_t = (y_t - y_e)^2 + \beta(\pi_t - \pi^*)^2$

National policy-maker's loss function

Inflation deviation from ECB target of 2%

Output gap, %
Looks successful but masks divergent performance 1999-2007

Min $L_t = (y_t - y_e)^2 + \beta(\pi_t - \pi^*)^2$

National policy-maker's loss function
Symptoms of the Eurozone sovereign debt crisis: yields on government bonds

Spread over German 10-year bond yields, %
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<td>-1.1</td>
<td>-2.8</td>
<td>1.7</td>
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<td>3.6</td>
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<tr>
<td>France</td>
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<td>0.8</td>
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<td>Netherlands</td>
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<tr>
<td>Germany</td>
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<td>2.7</td>
<td>-2.1</td>
<td>4.8</td>
</tr>
</tbody>
</table>
Summary of stylized facts

Prior to the crisis, the ECB was close to its target
Among crisis countries, common were
• Current account deficit
• Inflation above target
• Positive output gap
• Trend appreciation of real exchange rates
• Low real interest rates
Different combinations of private & public deficits – no pattern

Fiscal policy in the crisis countries was not oriented toward stabilization as defined by an (output gap, inflation target) loss function

Germany: current account surplus, inflation below target, negative output gap, real depreciation, high real interest rate
Outline

2. Modelling the stabilization problem for member of a CCA
   – A model with realistic labour market institutions
   – 2 key mechanisms in the model
      • Real exchange rate channel of adjustment
      • Real interest rate channel of adjustment
A model with realistic labour market institutions

Big cross-country differences in wage-setting in the Eurozone, where

• In some, there is wage-setting based on ‘rational’ expectations consistent with the fixed exchange rate constraint (Germany and other northern) – consistent with the new rules of the game in the Eurozone
• In others, wage-setting is backward-looking (Spain, Italy, and other southern) – not consistent with the new rules of the game

Very simple model to illustrate – compare adjustment

• ‘rational’ wage-setters = anchored inflation expectations and
• ‘non-rational’ ones = backward-looking inflation expectations

What is the implication for intra-EZ performance?
Simple graphical model – benchmark of the flexible exchange rate case
- think of the UK and the Bank of England or the ECB with non-rational wage setters

\[
\begin{align*}
\text{Min } L_t &= (y_t - y_e)^2 + \beta (\pi_t - \pi^T)^2 \quad \text{s.t. } \pi_t &= \pi_{t-1} + \alpha (y_t - y_e) \\
\rightarrow (y_t - y_e) &= -\alpha \beta (\pi_t - \pi^T), \\
\text{Monetary Policy Rule, MR}
\end{align*}
\]

where \( y_e \) is equilibrium output, \( \pi^T \) is inflation target.

From PC and MR, we have

\[
\begin{align*}
(\pi_t - \pi^T) &= (\pi_{t-1} - \pi^T) - \alpha^2 \beta (\pi_t - \pi^T) \\
\rightarrow \frac{(\pi_t - \pi^T)}{(\pi_{t-1} - \pi^T)} &= \frac{1}{1 + \alpha^2 \beta} \equiv \lambda = \frac{y_t - y_e}{y_{t-1} - y_e}
\end{align*}
\]

Inflation & the output gap decline linearly on adjustment path; so does \( (r_t - r^*) \) set by CB
Benchmark of the flexible exchange rate case

Hence, the cumulative interest rate gain from holding home bonds during the adjustment period is:

$$\sum_{t=0}^{\infty} (r_t - r^*) = (r_0 - r^*)[1 + \lambda + \lambda^2 + ..] = (r_0 - r^*)/(1 - \lambda)$$

and by the real UIP condition,

$$\frac{r_0 - r^*}{1 - \lambda} = \bar{q} - q_0.$$

We substitute in the IS equation:

$$y_{t+1} = A - ar_t + bq_t$$

$$y_1 - y_e = -a(r_0 - r^*) + b(q_0 - \bar{q})$$

$$= -\left(a + \frac{b}{1 - \lambda}\right)(r_0 - r^*)$$

and in general,

$$y_t - y_e = -\left(a + \frac{b}{1 - \lambda}\right)(r_{t-1} - r^*).$$

This is the flexible exchange rate policy rule.
Inflation shock under flexible exchange rates

- think of the UK and the Bank of England or the ECB

Non-rational wage-setters

Requires active monetary policy response

RER returns to initial value (higher P level + depreciated nominal e)

RIR above equilibrium during adjustment (Taylor principle)
Simple graphical model – CCA case

Phillips curve:
\[ \pi_t = \pi_t^E + \alpha(y_t - y_e), \] where \( \pi_t^E \) is expected inflation and \( (y_t - y_e) \) is the output gap.

\[ \pi_t^E = \pi_{t-1}, \] where wage-setters are non-rational and Think of Spain, Italy

\[ \pi_t^E = \pi^*, \] where wage-setters are rational. Think of Germany

Aggregate demand (reduced form IS curve):
\[ y_{t+1} = A - ar_t + bq_t, \] where \( y \) is output, \( A \) is autonomous demand, and \( a \) and \( b \) are positive constants. \( q \) is log of real exchange rate

Fisher equation:
\[ r_t = i_t - \pi_t^E \]
Inflation shock for a CCA member

1st case: Non-rational wage-setters (Spain):
No active policy response
Real interest rate channel can be de-stabilizing

Inflation goes UP!

Nothing ensures RER channel (via IS shift) is strong enough to offset this → need fiscal policy rule to ensure stability
Stabilizing fiscal policy rule in CCA: 
non-rational wage-setters

Thought experiment – use same active policy rule via fiscal policy as central bank uses under flexible exchange rates:

\[
\text{Min } L_t = (y_t - y_e)^2 + \beta(\pi_t - \pi^*)^2 \quad \text{s.t. } \pi_t = \pi_{t-1} + \alpha(y_t - y_e)
\]

National policy-maker's loss function

\[
\rightarrow (y_t - y_e) = -\alpha\beta(\pi_t - \pi^*)
\]

Optimal output gap; Policy Rule

In CCA, implement the optimal output gap using fiscal rather than monetary policy

Why does this lead to fiscal imbalance?
Note that optimal output gaps are identical.
Monetary vs. *fiscal* stabilization

Non-rational wage-setters

*Active fiscal* policy in a CCA

In new equilibrium, RER is appreciated; RIR is *below* equilibrium during adjustment

*Fiscal deficit results*
Summary: temporary country-specific inflation shock

• With *non-rational* wage-setters, stabilizing fiscal policy is needed because of destabilizing real interest rate effect
• But if same *inflation* targeting rule is used as under *flexible* exchange rates, there is *primary fiscal deficit* at new equilibrium
• Why? RER is appreciated (net exports are lower); $r=r^*$ (consumption & investment unchanged); hence $(G-T)$ must be higher for $y=y_e$
• Optimal stabilization policy therefore requires active fiscal policy and *price-level* targeting (to restore RER). Inflation targeting is not enough.
• Unless, wage-setters deliver real exchange rate targeting ...
Inflation shock for a CCA member

2nd case: Rational wage-setters (e.g. Germany):
Real exchange rate channel is stabilizing so don’t need fiscal policy to stabilize – inflation falls below target of ECB

Anchored inflation expectations
No destabilizing RIR channel
Outline

3. Implications for the Eurozone
Implications for the Eurozone: can Germany & Southern countries live together in CCA?

• Mixture of rational & non-rational wage-setting systems in Eurozone
• Allowed ECB to meet inflation target with small output gap whilst imbalances among members built up
• Inflation persistence and destabilizing real interest rate channel reflects wage behaviour
Implications for Eurozone (cont.)

- Germany has coordinated wage-setting via *large* wage-setters *in the export sector* and can deliver the outcome associated with rational wage-setters in the model: stabilizing fiscal policy is not required
  - Consistent with rational wage-setting is a commitment not to use fiscal policy for stabilization
- Southern countries do not have rational wage-setting ... they would need a price-level targeting fiscal policy to deliver required negative output gap and inflation below 2% following country-specific inflation shock
  - This is an active fiscal policy regime \(\rightarrow\) requires good governance
  - Since the crisis, Spain has achieved RER depreciation but only with many years of very high unemployment to create a negative bargaining gap (Phillips curve)
Eurozone: intra-eurozone real exchange rate indices
1999=100, 1999-2017
Unemployment rate
January 2016 or latest, %

Source: Eurostat
Implications for Eurozone (cont.)

• If CCA has mixture of rational & non-rational wage-setters & lacks national stabilizing fiscal policy, then →
  – even in absence of fiscally irresponsible behaviour (remember the budget surpluses and low government debt in some of the crisis countries before the global financial crisis)
  – cumulative RER misalignment; current account imbalances
Conclusions

• Policy implications
  – If wage-setters are non-rational then need stabilizing fiscal policy
  – Fiscal policy rule must target the price level (not inflation)
  – Balanced budget rules make sense if rational wage-setters (don’t need stabilizing fiscal policy); otherwise need active fiscal policy addressed at stabilization

• Wishful thinking that ...
  – CCA membership & balanced budget rule produces rational wage-setting institutions
Labour market institutions, fiscal policy, and the functioning of the Eurozone

Wendy Carlin,
Department of Economics, UCL & CEPR
Director of the CORE project www.core-econ.org

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Jean Monnet Lecture
University of Pisa