Lecture 7: Intermediate macroeconomics, autumn 2011
Lars Calmfors

Literature:  *Krugman-Obstfeld-Melitz, Chapter 20*

*EEAG, Sections 1.2.5, 1.3, 1.4.6, 1.5, 2.2 and 3.*
Topics

- The origins of the Economic and Monetary Union (EMU)
- Costs and benefits of EMU membership
- The theory of Optimal Currency Areas (OCA)
- Efficiency gains
- The euro and trade
- Costs of restricting the scope for stabilisation policy
- Symmetric and asymmetric shocks
- Which countries benefit the most from monetary unification?
- Competitiveness problems for crisis countries
- Should Sweden join the EMU now?
The European Union (EU)

- System of international institutions
- The Treaty of Rome, 1957
- Currently: 27 European countries
- Single market
- Free movement of people, goods, services and capital
EMU – Economic and Monetary Union

- An old idea in the European Union
- 1989: Delors report
- 1991: Maastricht treaty
- 1997: Stability pact
- Eleven of then 15 EU countries joined from the start
  (Denmark and the UK have the formal right to stay out according to the Maastricht treaty, Sweden has no such formal right but chose to stay outside all the same, Greece did not meet the entry requirements)
- 1 January 1999: the euro was introduced in ”electronic” form (shares, bonds, bank transactions etc. and ECB (European Central Bank) in Frankfurt became responsible for the common monetary policy in the euro area
- 1 January 2001: Greece entered (twelve members)
- 1 January 2002: the euro was introduced as a physical means of payments (bills and coins)
- Lithuania’s application rejected 2006
- 1 January 2007: Slovenia entered (13 members)
- 1 January 2008: Cyprus and Malta entered (15 members)
- 1 January 2009: Slovak Republic entered (16 members)
- 1 January ÅR???: Estonia entered
Fig. 20-1: Members of the Euro Zone as of January 1, 2011

Legend:
- EU countries not in euro zone
- EU countries in euro zone
Swedish decision process

- Government Commission on the EMU 1995-96
  (Calmfors Commission)

- Parliamentary decision not to join 1997

- Government Commission on Stabilisation Policy in the Event of Swedish Membership 2000-02

- No vote in euro referendum 2003
  - High voter turnout: 82.6 percent of eligible voters
  - No: 55.9 percent
  - Yes: 42.0 percent

- The issue of a new referendum was raised again 2010

- At present the issue is dead
Evaluation of benefits and costs of EMU membership

- Theory of Optimal Currency Areas (OCA)

- Robert Mundell (1961)

- Mundell was awarded the 1999 Riksbanken Prize in Economic Sciences in Memory of Alfred Nobel (“Nobel Prize” in Economics)

- An optimal currency area should consist of economically highly integrated economies
  - goods and services
  - financial and physical capital
  - labour

- Trade-off between social efficiency aspects and stabilisation policy aspects

Analysis of the Swedish Government Commission on the EMU

- Social efficiency aspects

- Stabilisation policy aspects

- Political (political science) aspects
Social efficiency

- Lower transaction costs in the case of international payments
  - resource savings of 0.1 – 0.2 per cent of GDP in banking sector. Additional savings (but probably smaller) in the rest of the economy.
- No exchange rate risk when payments are made within the euro area
  - Positive effect on foreign trade and cross-border (financial and direct) investment
  - Intensive debate on how large these effects are
- More intensive competition
  - price comparisons become easier to make
  - higher price elasticities of demand (firms’ price mark-ups over marginal costs fall)
  - \[ P = \varepsilon / (\varepsilon - 1) MC \]
- But no reason to expect lower inflation inside the EMU than outside for a country like Sweden (more or less the same monetary policy)
- Possibly lower real rate of interest because of lower risk premium
Trade effects of a common currency

- Earlier large difficulties to find empirical support for more foreign trade with smaller exchange rate fluctuations

- But a common currency may represent a more fundamental change of the monetary regime than a reduction of exchange rate fluctuations between different currencies

- Studies by Andy Rose and others: *huge* trade effects of a common currency (+100-200 %) in the long run
  - panel data from 1970: variation both across countries and over time
  - limited number of countries with observations of common currencies
  - non-representative observations (poor countries, earlier colonies, small countries or regions like Monaco, the Vatican and Pitcairn)
  - other factors?

- Studies of what actually happened after the start of the EMU
  - +5–15 % in most studies
Trade and growth

- Increased trade because of lower trade barriers imply a more efficient use of resources
  - traditional trade theory: better use of comparative advantages
  - new trade theory: more specialisation allows economies of scale to be exploited to a larger extent

- Neoclassical growth theory (Solow model): GDP per capita increases from one level to another – temporarily higher growth during an adjustment period (20-30 years))

- Endogenous growth theory: permanently higher growth
  - more intense competition \( \Rightarrow \) higher rate of innovation
  - faster diffusion of innovations through trade

- Empirical research seems to confirm that more trade implies higher growth
  - Frankel and Rose (2000): each percentage point rise of trade intensity (exports + imports/ GDP \( \Rightarrow \) GDP per capita \( \uparrow \) 1/3 per cent
  - UK report on euro membership: long-run rise of GDP per capita by med 0.5 – 9 %
  - but much faster productivity growth in Sweden and the UK than in France, Germany and Italy since 1995
  - other factors than a common currency are probably far more important for productivity growth than a common currency
Price developments in the European Union

% change over previous year's month

HICP a)

Core inflation rate b)

a) Harmonised Index of Consumer Prices. - b) HICP excluding energy and unprocessed food.

Source: Eurostat, last accessed on 19 January 2011.
Potential stabilisation policy costs of a common currency

- Asymmetric (country specific) cyclical shocks versus symmetric (common) shocks
- A large frequency of asymmetric shocks imply large stabilisation policy costs because exchange rate movements can then no longer function as automatic shock absorbers (cf the AA-DD analysis in Krugman-Obstfeld-Melitz) and monetary policy can no longer be adjusted to the country-specific conditions
- Asymmetric recessionary shocks are an obvious problem
- But asymmetric booms are also a problem
  - Inflation adjusts only gradually and causes ultimately an ”overshooting” of the real exchange rate (the real exchange rate appreciates too much in the end because of higher inflation at home than abroad): Ireland and Spain
  - ”Walter’s critique”: expected future inflation reduces the real interest rate (the nominal interest rate less inflation) in a boom and therefore exacerbates the boom in the short run
  - interaction with house prices
Fig. 20-8: Divergent Real Interest Rates in the Euro Zone

National real interest rate
less German rate
(percentage per year)

Source: Datastream.
Deviations of country-specific optimal policy rates from the ECB rate

Source: European Central Bank; Consensus Economics Inc.; EEAG calculations and estimates.
Asymmetric developments in the eurozone

- Serious overheatings developed in especially Ireland and Spain
- Low real interest rates
- Credit expansion
- Large rises in house prices
- Boom in the construction sector
- Real appreciation and current account deficits
- Some such elements in Greece
### Overheatings before the crisis

<table>
<thead>
<tr>
<th></th>
<th>Increase in mortgage debt 1998-2007 (per cent of GDP)</th>
<th>Increase in employment in the building sector 1998-2007 (per cent of total employment)</th>
<th>Real appreciation 1998-2007 (per cent)</th>
<th>Current account deficit (per cent of GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland</td>
<td>46.8</td>
<td>5.6</td>
<td>11.3</td>
<td>5.4</td>
</tr>
<tr>
<td>Spain</td>
<td>37.7</td>
<td>3.0</td>
<td>9.6</td>
<td>10.1</td>
</tr>
<tr>
<td>Euro area</td>
<td>12.4</td>
<td>0</td>
<td>0</td>
<td>0.7</td>
</tr>
</tbody>
</table>
House prices

Index Q1 2006=100

Maximum price decline after the peak
Ireland -38%
United Kingdom -17%
Spain -13%
France -10%

a) England and Wales.

Price developments\textsuperscript{a)} 1995-2009

\begin{itemize}
\item Slovenia: 115
\item Slovakia: 80
\item Greece: 67
\item Spain: 57
\item Cyprus: 51
\item Portugal: 48
\item Ireland: 47
\item Italy: 44
\item Luxembourg: 43
\item Netherlands: 37
\item Euro area: 28
\item Belgium: 26
\item France: 25
\item Finland: 21
\item Austria: 19
\item Germany: 12
\end{itemize}

\textsuperscript{a)} GDP deflator.

Source: Eurostat, Database, \textit{Economy and Finance, National accounts,GDP and main components - Price indices}, 30 November 2010; Ifo Institute calculations.
Net capital exports = current account balance

Note: No data published for Ireland and Spain until 1998.

Net capital imports (-) and exports (+) (left) and net investment shares (right), 1995-2008

Wages by sector and nominal GDP in Greece

Factors that determine the magnitude of stabilisation policy costs of a common currency

- **Extent of trade**
  - Rose & Frenkel: more trade means that cyclical shocks are transmitted among countries to a larger extent and increases the synchronisation of business cycles among countries: common shocks thus become more frequent
  - Krugman: more trade causes more specialisation and therefore imply less synchronisation of business cycles across countries if shocks are sector specific
  - much stronger empirical support for the first hypothesis

- **How diversified is the economy?**
  - a well diversified economy reduces the impact on the economy of sectoral shocks

- **Mobility of labour between countries**
  - unemployed in one country can move to a country with excess demand for labour
  - prime example: Ireland (but also the UK and Spain)
Factors that determine the magnitude of stabilisation policy costs of a common currency (cont.)

- To what extent can the real exchange rate, \( q = \frac{E P^*}{P} \), change through relative price changes (in \( \frac{P}{P^*} \)) instead of through nominal exchange rate changes (in \( E \))?
  - the scope for relative price changes is determined by the flexibility of nominal wages
  - in the case of an asymmetric recession nominal wages must fall relative to other eurozone countries if the real exchange rate is to depreciate
  - strong resistance to reductions of the *nominal wage level*
  - adjustments through nominal wage restraint worked in Germany but not in Italy

- Fiscal transfers from other EMU members
  - fiscal federalism
  - other "currency areas" (large countries like the US and Canada) have a large federal budget which works like an automatic stabiliser (20 – 40 % dampening of cyclical swings in output)
  - the EU budget (around 1.1 % of GDP) is too small to be an automatic stabiliser and its composition makes it unsuitable for that purpose (agricultural and regional support)

- National fiscal policy instead of national monetary policy
  - but fiscal policy is a less appropriate stabilisation policy tool (longer decision lags, distributional concerns in addition to stabilisation motives, risks of too large budget deficits)
Migration Ireland

Options for Greece

1. Internal devaluation
   - takes time
   - high unemployment over a long period
   - political turmoil?
   - firms’ real assets fall in value, but liabilities unchanged

2. Leave the euro, reintroduce the drachma and let it depreciate
   - faster route
   - bank runs
   - euro value of assets fall, domestic value of liabilities also fall
   - smaller default risks of firms

Both cases
- value of external debt rises relative to GDP
- inelastic export supply?
- effect through contraction of imports (which requires contraction of GDP)
## GDP change

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greece</td>
<td>4.3</td>
<td>1.0</td>
<td>-2.0</td>
<td>-4.5</td>
<td>-3.5</td>
</tr>
<tr>
<td>Ireland</td>
<td>5.6</td>
<td>-3.5</td>
<td>-7.6</td>
<td>-1.0</td>
<td>0.6</td>
</tr>
<tr>
<td>Italy</td>
<td>1.5</td>
<td>-1.3</td>
<td>-5.2</td>
<td>1.3</td>
<td>1.0</td>
</tr>
<tr>
<td>Portugal</td>
<td>2.4</td>
<td>0.0</td>
<td>-2.5</td>
<td>1.3</td>
<td>-2.2</td>
</tr>
<tr>
<td>Spain</td>
<td>3.6</td>
<td>0.9</td>
<td>-3.7</td>
<td>-0.1</td>
<td>0.8</td>
</tr>
</tbody>
</table>
## Changes in nominal wage costs

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greece</td>
<td>6.1</td>
<td>7.0</td>
<td>3.6</td>
<td>-3.5</td>
<td>-1.0</td>
</tr>
<tr>
<td>Ireland</td>
<td>5.4</td>
<td>3.4</td>
<td>0.0</td>
<td>-1.9</td>
<td>-0.3</td>
</tr>
<tr>
<td>Italy</td>
<td>2.4</td>
<td>3.8</td>
<td>1.5</td>
<td>2.0</td>
<td>2.8</td>
</tr>
<tr>
<td>Portugal</td>
<td>3.6</td>
<td>3.0</td>
<td>3.3</td>
<td>1.5</td>
<td>-0.3</td>
</tr>
<tr>
<td>Spain</td>
<td>4.8</td>
<td>6.4</td>
<td>4.1</td>
<td>0.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Estonia</td>
<td>24.6</td>
<td>10.1</td>
<td>-3.3</td>
<td>-0.2</td>
<td>4.4</td>
</tr>
<tr>
<td>Latvia</td>
<td>35.1</td>
<td>15.7</td>
<td>-12.2</td>
<td>-6.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Lithuania</td>
<td>13.9</td>
<td>14.3</td>
<td>-11.1</td>
<td>-1.3</td>
<td>3.4</td>
</tr>
</tbody>
</table>
The theory of Optimal Currency Areas (cont.)

- Costs and benefits for countries deciding whether to join a monetary union

- Monetary efficiency gain: eliminate exchange rate uncertainty and international transaction costs involved in floating exchange rates (the GG-schedule)

- Economic stability loss: loss of independent monetary policy, ability to stabilise the economy limited with a common currency (the LL-schedule)
Fig. 20-3: The GG Schedule

Monetary efficiency gain for the joining country

Degree of economic integration between the joining country and the exchange rate area
Stabilisation policy cost and the degree of integration

More integration tends to reduce the stabilisation policy cost

- Larger labour mobility

- With a larger volume of trade, a given effect on domestic GDP can be achieved via a smaller change in the real exchange rate

- Larger trade means that a nominal exchange rate depreciation is a less efficient means of depreciating the real exchange rate:
  - if imports have a large weight in the CPI, the import price rises following from a nominal depreciation cause large rises in the CPI and are likely to trigger large compensating wage increases that increase domestic producer prices: if so a nominal depreciation has only a small effect on the real exchange rate
  - \( q = EP^*/P \). Both \( E \uparrow \) and \( P \uparrow \).
Fig. 20-7: Intra-EU Trade as a Percent of EU GDP
Table 20-2: People Changing Region of Residence in the 1990s (percent of total population)

<table>
<thead>
<tr>
<th></th>
<th>Britain</th>
<th>Germany</th>
<th>Italy</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>1.7</td>
<td>1.1</td>
<td>0.5</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Fig. 20-4: The *LL* Schedule

- **Y-axis:** Economic stability loss for the joining country
- **X-axis:** Degree of economic integration between the joining country and the exchange rate area
Fig. 20-5: Deciding When to Peg the Exchange Rate

Gains and losses for the joining country

Losses exceed gains

Gains exceed losses

Degree of economic integration between the joining country and the exchange rate area
Fig. 20-6: An Increase in Output Market Variability

Gains and losses for the joining country

Degree of economic integration between the joining country and the exchange rate area
Greater benefits from adopting the euro for the new EU countries than for Sweden and the UK

- Growth considerations are more important than stabilisation considerations
- Larger labour market flexibility reduces the need for an own monetary policy
  - higher nominal wage growth means larger possibilities to reduce relative unit labour costs and achieve a real depreciation this way (smaller probability that downward nominal wage rigidity will bite)
  - weaker trade unions and less coverage of collective agreements
  - larger migration flows that can be affected by cyclical conditions
- Greater need to establish credibility for low inflation
Box 3.1

Criteria for EMU entry

- The deficit of the general government must be below three percent of GDP. Gross debt of the general government must be below 60 percent of GDP or declining toward 60 percent of GDP at a satisfactory rate.
- Inflation must not exceed the average rate of inflation in the three EU countries with the lowest inflation rate by more than 1.5 percentage points.
- The long-term interest rate must not exceed the average rate in the three EU countries with the lowest interest rate by more than two percentage points.
- Two years of participation in the Exchange Rate Mechanism II (ERM II)\(^a\) without major tensions in the foreign exchange market are required.

\(^a\) ERM II replaced the earlier ERM when the euro was introduced. It is a multilateral exchange rate arrangement with a fixed, but adjustable, central parity for the exchange rate of the currency of a member country to the euro and a fluctuation band around the parity.
Should Sweden join the EMU? – the Calmfors Commission in 1996

- No in the short term, yes in the long term
- Stabilisation policy costs were deemed to be large
  - high unemployment in the wake of the 1990s crisis: awkward if new asymmetric shocks would raise unemployment further, thus need for own monetary policy
  - fiscal policy could not be used to raise aggregate demand in recession because of large debt
- Trade effects deemed to be small
Should Sweden join the EMU? – Evaluation today

- Lower stabilisation policy costs than in the 1990s
  - employment rose again (but is now falling)
  - fiscal consolidation has reduced government debt:
    larger scope to use fiscal policy to raise aggregate demand in recession

- New research has found larger trade effects than believed earlier

- We have been helped by exchange rate depreciations in international downturns (symmetric shocks)
  - Asian crisis (late 1990s)
  - bursting of IT bubble (early 2000s)
  - global crisis 2008-10

- Uncertainty regarding size of fiscal transfers

- Not clear that the euro will survive
Diagram 79 Kronans nominella effektiva växelkurs, KIX

Index 1992-11-18=100, månadsvärden

Källor: Riksbanken och Konjunkturinstitutet.