Lecture 7: Intermediate macroeconomics, spring 2016

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Literature: Krugman-Obstfeld-Melitz, chapter 21; EEAG; Sinn.



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?
- The euro crisis and macroeconomic imbalances in the euro area
- Sweden and the euro



The European Union (EU)

- System of international institutions
- The Treaty of Rome 1957
- Currently: 28 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 the 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 2011: Estonia entered (17 members)
- 1 January 2014: Latvia entered (18 members)
- 1 January 2015: Lithuania entered (19 members)



Fig. 20-1: Members of the Euro Zone as of January 1, 2014

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 more than 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 markups over marginal costs fall)
 - $P = \varepsilon / (\varepsilon 1) MC$
 - Incorrect claims in the public debate of much higher price increases after transition – only in a few areas but not generally (temporarily lower demand elasticities because of lack of acquaintance with new currency)
- But no reason to expect lower inflation inside the EMU than outside for a country like Sweden (more or less the same monetary policy)



Swedish Inflation Has Been Low



Note. The CPIF is the CPI with a fixed mortgage rate. Source: Statistics Sweden

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 of what actually happened after the start of the EMU
 - + 5–15% in most studies after controlling for

other factors



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 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/ /2 · GDP ⇒ GDP per capita ↑ 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 than in the eurozone (in 1998 – 2008)
 - other factors than a common currency are probably far more important for productivity growth than a common currency

Tabell 5.4 BNP, arbetade timmar och produktivitet

| | 1998-2008 | | | 2009-2013 | | |
|----------------|-----------|--------|---------------|-----------|--------|---------------|
| | BNP | Timmar | Produktivitet | BNP | Timmar | Produktivitet |
| Tyskland | 1,6 | 0,2 | 1,4 | 0,5 | -0,1 | 0,6 |
| Frankrike | 2,2 | 0,6 | 1,6 | 0,3 | -0,3 | 0,6 |
| Italien | 1,3 | 1,0 | 0,3 | -1,5 | -1,5 | 0,0 |
| Belgien | 2,2 | 1,2 | 1,0 | 0,4 | 0,4 | 0,0 |
| Nederländerna | 2,7 | 1,1 | 1,6 | -0,6 | -0,6 | 0,0 |
| Österrike | 2,5 | 0,6 | 1,9 | 0,5 | -0,4 | 0,9 |
| Finland | 3,5 | 1,2 | 2,3 | -1,1 | -1,0 | -0,1 |
| Irland | 5,5 | 2,9 | 2,7 | -0,8 | -2,7 | 1,9 |
| Spanien | 3,6 | 3,4 | 0,2 | -1,5 | -3,5 | 2,0 |
| Grekland | 3,6 | 1,5 | 2,1 | -5,7 | -4,8 | 0,1 |
| Portugal | 1,9 | 0,7 | 1,2 | -1,5 | -2,6 | 1,1 |
| Euroområdet | 2,2 | 1,0 | 1,2 | -0,4 | -1,0 | 0,6 |
| Danmark | 1,8 | 0,8 | 1,0 | -0,6 | -1,3 | 0,7 |
| Storbritannien | 2,8 | 0,7 | 2,1 | 0,3 | 0,5 | -0,2 |
| Polen | 4,2 | 0,3 | 3,9 | 2,9 | -0,7 | 3,6 |
| Tjeckien | 3,7 | -0,1 | 3,8 | -0,4 | -0,8 | 0,4 |
| Norge | 2,2 | 1,2 | 1,0 | 0,7 | 0,5 | 0,2 |
| Schweiz | 2,2 | 1,0 | 1,2 | 1,2 | 0,8 | 0,4 |
| USA | 2,7 | 0,6 | 2,1 | 1,2 | -0,3 | 1,5 |
| Japan | 0,8 | -0,8 | 1,6 | 0,3 | -0,7 | 1,0 |
| Sverige | 3,1 | 0,9 | 2,2 | 0,9 | 0,4 | 0,5 |

Procentuell förändring från föregående år, genomsnitt 1998-2008 samt 2009-2013

Källor: Eurostat, OECD

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)
 - "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

Gigantic asymmetric shock when the euro was introduced

- Large interest rate fall in PIGS countries
- Excessive borrowing in the public sector in Greece and Portugal
- Excessive borrowing in the private sector in Ireland and Spain



Figure 6 in Sinn, Hans-Werner, "The Greek Tragedy", CESifo Forum Special Issue 2015 June

Effective yield of 10-year government bonds



Source: Thomson Reuters Datastream, Germany: BDBRYLD, Greece GRBRYLD (as from 04/1999), GRESEFIGR (since 09/1992 until 03/1999).

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
- Deep downturns when the bubble burst
- Need for real depreciations
- But real depreciations are very difficult to achieve if there exists no exchange rate that can be changed within a currency area



Fig. 20-10: Divergent Real Interest Rates in the Euro Zone

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





Source: Land Registry, *House Price Index*; The Economic and Social Research Institute; Irish Economy, *Permanent TSB/ESRI House Price Index*; European Central Bank, *Statistical Data Warehouse - Residential property price indicator*; Federal Statistical Office, *GENESIS database* (Wiesbaden 2010); Banca d'Italia, *Statistical Appendix - Economic Bulletin no. 53*, July 2009; INSEE France, loaded with EcoWin, 20 January 2011.

Overheatings before the crisis

| | Increase in mortgage deb 1998-2007 (per cent of CDP) | Increase in employmen in the building sector | Real appreciation 1998-2007 (per cent) | Current account defic (per cent of GDP) |
|-----------|--|---|---|--|
| | GDF) | total employment) | | |
| Ireland | 46.8 | 5.6 | 11.3 | 5.4 |
| Spain | 37.7 | 3.0 | 9.6 | 10.1 |
| Euro area | 12.4 | 0 | 0 | 0.7 |

Fig. 21-9: Real Appreciation in Peripheral Euro Zone Countries

Harmonized competitiveness indicator (based on GDP deflators, increase = real appreciation, 1999 = 100)



Source: Eurostat. Harmonized multilateral competitiveness index based on GDP deflators. An increase in the index is a real appreciation (loss in competitiveness).

Table 21-4: Current Account Balances of EuroZone Countries, 2005–2009 (percent of GDP)

| | Greece | Ireland | Italy | Portugal | Spain | Germany |
|------|--------|---------|-------|----------|-------|---------|
| 2005 | -7.5 | -3.5 | -1.7 | -9.4 | -7.4 | 5.1 |
| 2006 | -11.2 | -4.1 | -2.6 | -9.9 | -9.0 | 6.5 |
| 2007 | -14.4 | -5.3 | -2.4 | -9.4 | -10.0 | 7.6 |
| 2008 | -14.6 | -5.3 | -3.4 | -12.0 | -9.8 | 6.7 |
| 2009 | -11.2 | -2.9 | -3.1 | -10.3 | -5.4 | 5.0 |

Source: International Monetary Fund.

Figure 6 in Sinn, Hans-Werner, "The Greek Tragedy", CESifo Forum Special Issue 2015 (June)



Public and private consumption relative to net national income

Government debt crisis in the Euro area

- Large government budget deficits and rapidly increasing government debt in many Eurozone countries
- Acute problems with access to capital markets emerged for Greece, Ireland, Portugal, Spain, Italy and Cyprus.
- Financial rescue programmes were initiated for Greece, Ireland, Portugal, Spain and Cyprus.
- Financial assistance given with strong *conditionality*: aidreceiving countries must implement harsh fiscal austerity programmes involving cuts in government expenditure and tax rises (as well as structural reforms to promote growth in the long run)
- Fiscal restraint does improve the budget balance, but improvements are small because fiscal restraint reduces aggregate demand, output and employment with negative repercussions on tax revenues



Fig. 21-11: Gross Public Debt to GDP Ratios in the Euro Area

General government gross debt (percent of GDP)



Source: International Monetary Fund, World Economic Outlook database.

Figures 3 and 4 in Sinn, Hans-Werner, "The Greek Tragedy", CESifo Forum Special Issue 2015 (June)

The Greek economic slump



Greece's Real GDP: Comparison of the real evolution®) with the IMF®) forecasts



Figure 1.13 EEAG report 2015



Figure 2 in Sinn, Hans-Werner, "The Greek Tragedy", CESifo Forum Special Issue 2015 (June)

The evolution of unemployment in Greece

Need for real depreciation in crisis countries

- Lowering of prices relative to competitors
- Not enough with external depreciation of the euro as most of foreign trade is with the rest of the Eurozone
- Prices must be reduced relative to the rest of the Eurozone
- Need for rise of net exports in order to stimulate growth and increase tax revenues
- But without a national currency that can depreciate real depreciations are a time-consuming process which can only be achieved in a situation of high unemployment

In practice real exchange rates are usually measured as relative unit labour costs (RULC).

ULC = Unit labour cost = Cost per unit produced

ULC = WL/Q = W/(Q/L)

W = Wage cost per employee

L = Number of employees

Q = **Output**

ULC = Total wage costs divided by output = Wage cost/Productivity

Use * to denote foreign variables. Unstarred variables refer to the domestic economy.

E = exchange rate (units of domestic currency per unit of foreign currency)

Then RULC = ULC/ULC*= (WL/Q)/(EW*L*/Q*)=E × (W/W*) × (Q*/L*)/(Q/L).

Change in RULC can be decomposed into three components:

- 1. Change in nominal exchange rate
- 2. Change in relative wage cost per employee
- 3. Change in relative productivity per employee

Within the eurozone E=1, so then:

 $RULC = ULC/ULC^* = (WL/Q)/(EW^*L^*/Q^*) = (W/W^*) \times (Q^*/L^*)/(Q/L).$

- Arbetslöshet ----- Relativ lönekostnad per anställd ---·Relativ enhetsarbetskostnad

- Arbetslöshet ----- Relativ lönekostnad per anställd ---- Relativ enhetsarbetskostnad

Sverige

Sacrifice ratios

| | Relative wage cost per | Relative unit labor cost |
|----------------------|------------------------|--------------------------|
| | employee | |
| | | |
| | | |
| Greece (2008-2012) | | |
| | 1,23 | 2,11 |
| Ireland (2008-2012) | | |
| | 0,72 | 0,46 |
| Italy (2008-2012) | | |
| | 4,29 | -2,05 |
| Portugal (2008-2012) | | |
| | 1,21 | 0,88 |
| Spain (2008-2012) | | |
| | 4,81 | 1,30 |
| Finland (1990-1994) | 0,55 | 0,44 |
| | | |
| Sweden (1990-1994) | 0,56 | 0,41 |
| | | |

The sacrifice ratio measures the increase in unemployment in percentage points associated with a one per cent fall in relative cost.

Sacrifice ratio = Increase in unemployment/fall in relative cost

Figure 9 in Sinn, Hans-Werner, "The Greek Tragedy", CESifo Forum Special Issue 2015 (June)

Price level of goods produced in Greece in relation to the rest of the Eurozone (index values)

Grexit with reintroduction of national currency

<u>Advantages</u>

- Easier to make real depreciation
 new national currency will fall in value
- Faster adjustment process

Disadvantages

- Technically difficult process: electronic conversion is simple but it takes time to print new bank notes (IOUs would have to be issued during transition period)
- Long period of closed banks, frozen bank accounts and capital controls to prevent bank runs
- Deeper crisis in the short run because of badly functioning banks, increased uncertainty about currency denomination of various contracts
- All internal claims and liabilities under Greek law can be converted into new Greek currency
- But foreign debt under foreign law will still be in euro - rise in value of debt relative to domestic incomes
- Private-sector bankruptcies
- Risk of run-awayinflation
- Contagion effects to other eurozone countries
 - Higher interest rates there (because of greater probability of similar developments there, perhaps not now but in future crises

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<u>Factors that determine the magnitude of stabilisation policy costs of a</u> <u>common currency</u>

- 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 Spain)

<u>Factors that determine the magnitude of stabilisation policy costs of</u> a <u>common currency (cont.)</u>

- To what extent can the real exchange rate, q = EP*/P, change through relative price changes (in 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
- 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 as is the current problem)

<u>Factors that determine the magnitude of stabilisation policy costs of</u> a <u>common currency (cont.)</u>

- 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 % of GDP) is too small to be an automatic stabiliser and its composition makes it unsuitable for that purpose (agricultural and regional support)
 - Need for discretionary rescue programmes like the loans from the current rescue funds (EFSF and ESM)
- Proposals on common European unemployment insurance
 - Automatic transfers from countries with low unemployment to countries with high unemployment
 - Insurance, not permanent redistribution
 - Fiscal transfers only when unemployment deviates from earlier average
 - Need for transfers mainly when catastrophic events
 - Not in the case of minor shocks

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. 21-3: The GG Schedule

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. 21-4: The LL Schedule

Degree of economic integration between the joining country and the exchange rate area

Fig. 21-5: Deciding When to Join a Monetary Union

joining country and the exchange rate area

Fig. 21-6: An Increase in Output Market Variability

Degree of economic integration between the joining country and the exchange rate area

Sweden and 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 public debt: unconditional fiscal consolidation was judged to be necessary
- Trade effects deemed to be small
- We were right in our analysis of the risks of asymmetric shocks
- But we could not imagine fiscal and financial crises of the magnitude that the euro area has been experiencing

Evaluation today

- Lower stabilisation policy costs than in the 1990s
 - lower unemployment
 - 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 in the euro area
- Great uncertainty regarding how future cooperation and integration in the Eurozone will develop (how far will joint decision-making regarding fiscal and other policies develop?)

