Optimal Currency Areas and the European Experience

Tomás Rodríguez Martínez

Universitat Pompeu Fabra

Outline

What is the EU?

- The European Union is a system of international institutions, the first of which originated in 1957, which now represents 27 European countries through the following bodies:
  - European Parliament: elected by citizens of member countries. Council of the European Union: appointed by governments of the member countries.
  - European Commission: executive body.
  - Court of Justice: interprets EU law.
  - **European Central Bank (ECB):** conducts monetary policy through a system of member country banks called the European System of Central Banks.

What is the EMS?

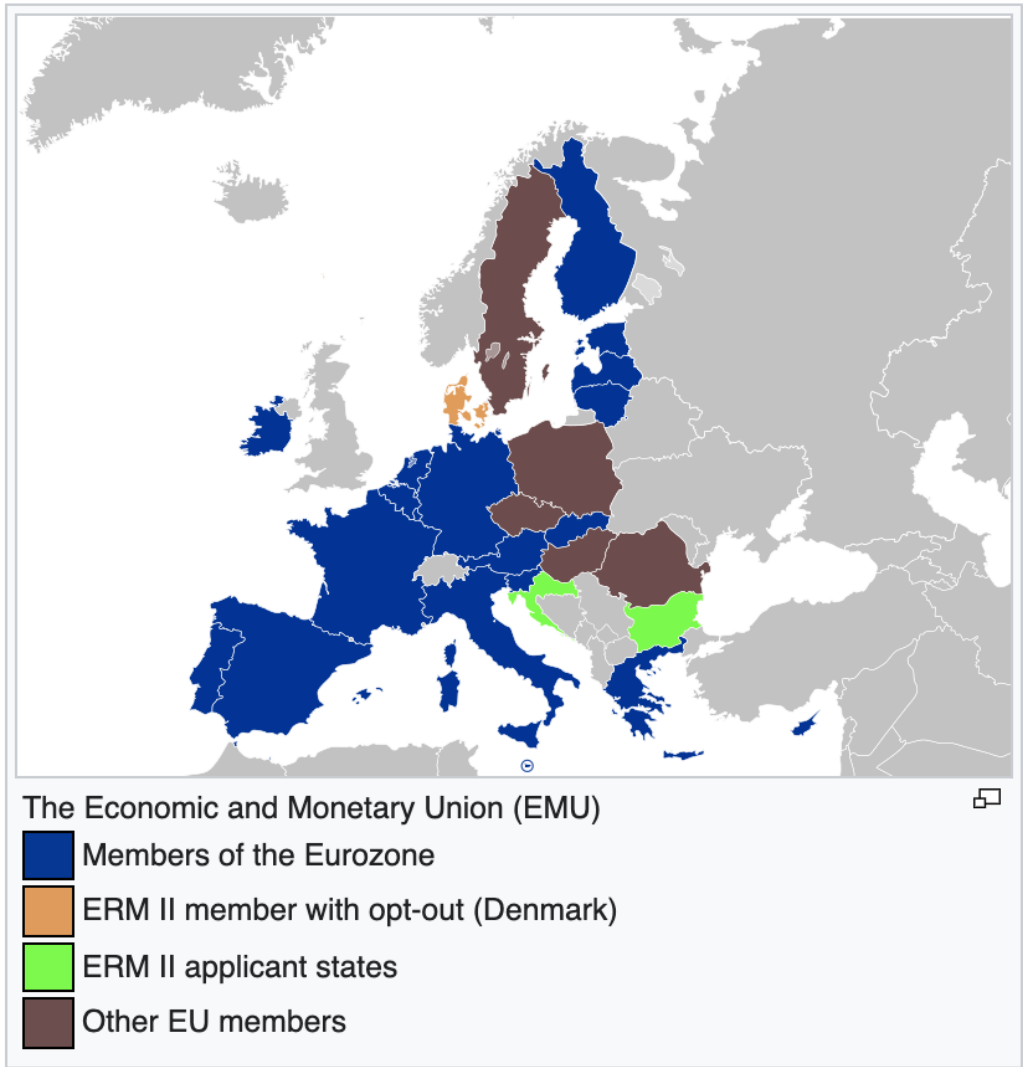
- The European Monetary System was originally a system of fixed exchange rates implemented in 1979 through an exchange rate mechanism (ERM).
- The EMS has since developed into an economic and monetary union (EMU), a more extensive system of coordinated economic and monetary policies.
- The EMS has replaced the exchange rate mechanism for most members with a common currency (the Euro) under the economic and monetary union.

Membership of the EU

To be a member of the EU, a country must, among other things:

- Have low barriers that limit trade and flows of financial assets.
- Adopt common rules for emigration and immigration to ease the movement of people.
- Establish common workplace safety and consumer protection rules.
- Establish certain political and legal institutions that are consistent with the EU's definition of liberal democracy.

Members of the EU and the Euro Zone



Newest members: Latvia (2014), Lithuania (2015).

Why the EU?

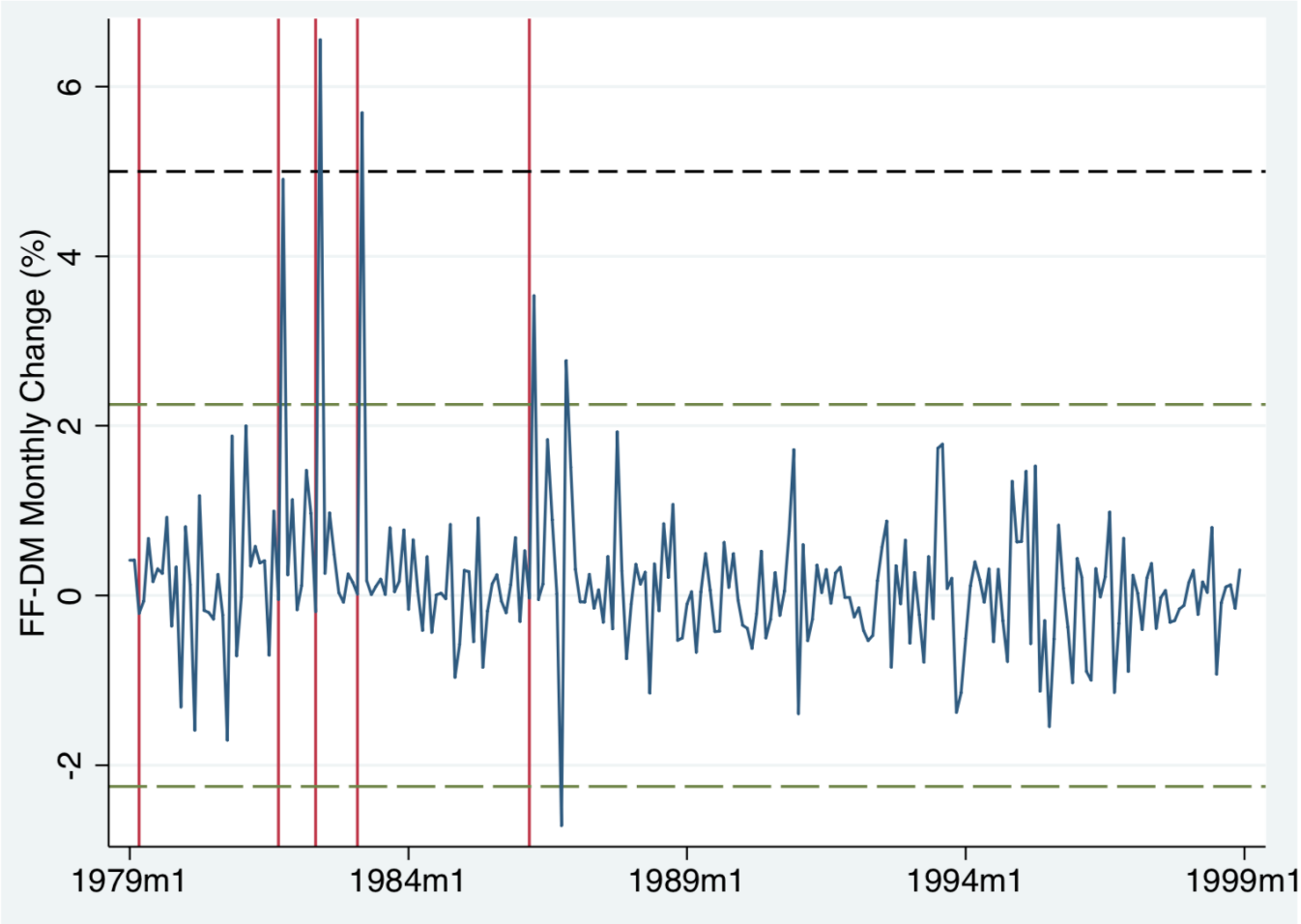
Countries that established the EU had several goals:

- To enhance Europe's power in international affairs: as a union of countries, the EU could represent more economic and political power in the world.
- To make Europe a unified market: a large market with free trade, free flows of financial assets, and free migration of people - in addition to fixed exchange rates or a common currency - was believed to foster economic growth and economic well-being.
- To make Europe politically stable and ...
- To compete with the U.S. as an economic and political super power?

The EMS 1979-1998

- The first significant institutional step on the road to European monetary unification was the European Monetary System (EMS).
- From 1979 to 1993, the EMS defined the exchange rate mechanism to allow most currencies to fluctuate +/-2.25% around target exchange rates.
- The exchange rate mechanism allowed larger fluctuations (+/-6%) for currencies of Portugal, Spain, Britain (until 1992) and Italy (until 1990).
  - These countries wanted greater flexibility with monetary policy.
  - The wider bands were also intended to prevent speculation caused by differing monetary and fiscal policies.
- "Snake in the tunnel" exchange rate system.

"Snake in the Tunnel": Franc-Deutschmark Monthly Percentage Change



The EMS 1979-1998

- To prevent speculation, early in the EMS some exchange controls were also enforced to limit trading of currencies (France and Italy).
- But from 1987 to 1990 these controls were lifted in order to make the EU a common market for financial assets.
- A credit system was also developed among EMS members to lend to countries that needed assets and currencies that were in high demand in the foreign exchange markets.

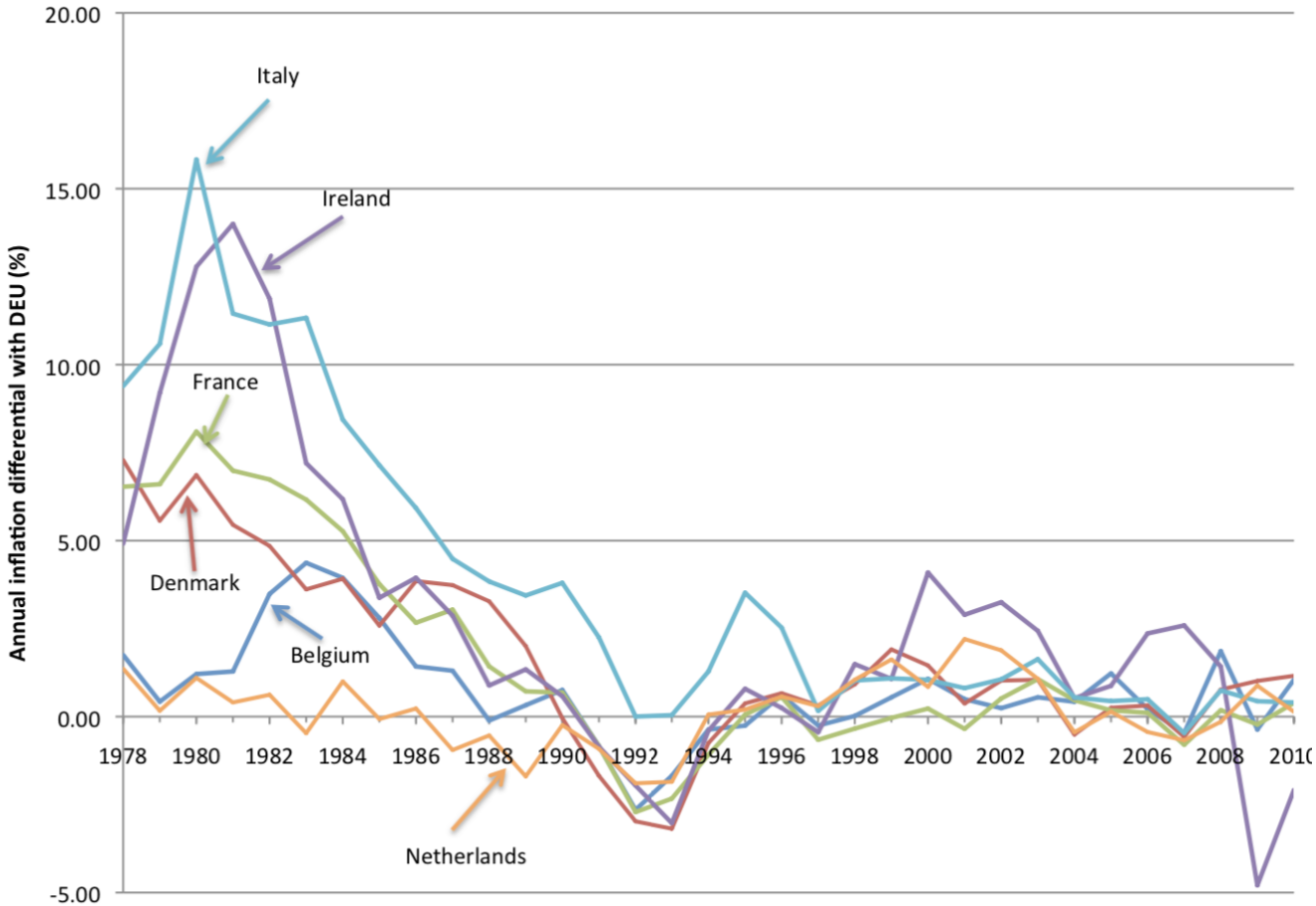
The EMS 1979-1998

- Reunification of west-east created a boom in Germany $\Rightarrow$ higher inflation.
- The Bundesbank (German central bank) raised interest rates to combat inflation.
- Market participants began buying German assets (because of high German interest rates) and selling other EMS assets.
- As a result
  - Britain left the EMS in 1992 and allowed the pound to float against other European currencies.
  - The exchange rate mechanism was redefined in 1993 to allow for bands of +/-15% of the target value in order devalue many currencies relative to the deutschemark.

The EMS 1979-1998

- But eventually, each EMS member adopted similarly restrained fiscal and monetary policies, and the inflation rates in the EMS eventually converged (and speculation slowed or stopped).
- In effect, EMS members were following the restrained monetary policies of Germany, which has traditionally had low inflation.
- Under the EMS exchange rate mechanism of fixed bands, Germany was "exporting" its monetary policy:
  - Germany de facto "leader": asymmetric system.

Inflation Differential with Germany: Six Original EMS Members 1978–2010



Policies of the EU

- During the late 80s and early 90s slowly the EU adopted more policies to foster integration and reach their goal of an Economic and Monetary Union.
- Among others, the Maastricht Treaty, proposed in 1991, required the a couple of provisions to transform the EMS into an economic and monetary union.
- Why they want move from the system of exchange rate to a more ambitious goal of a shared union?

1. Even greater market integration and decrease of trade costs.
2. The belief that German influence under the EMS would be moderated under a European System of Central Banks.
3. Elimination of the possibility of devaluations/revaluations: with free flows of financial assets, capital flight and speculation could occur in an EMS with separate currencies, but it would be more difficult for them to occur in an EMS with a single currency.
4. Political stability: the belief that a common currency would make political interests more uniform.

The Maastricht Treaty

The Maastricht Treaty requires that members that want to enter the economic and monetary union:

1. Attain exchange rate stability: defined by the ERM before adopting the euro.
2. Attain price stability: a maximum inflation rate of 1.5% above the average of the three lowest national inflation rates among EU members.
3. Fiscal policy: A maximum ratio of government deficit to GDP of 3%.
4. Fiscal policy: A maximum ratio of government debt to GDP of 60%.

Even after they join the EMU, financial penalties are imposed on countries with "excessive" deficits or debt. This was ratified by the Stability and Growth Pact in 1997.

The Euro

- The euro was adopted in 1999, and the previous exchange rate mechanism became obsolete.
- But a new exchange rate mechanism - ERM 2 - was established between the economic and monetary union and outside countries:
  - It allowed countries (either within or outside of the EU) that wanted to enter the economic and monetary union in the future to maintain stable exchange rates before doing so.
  - It allowed EU members outside of the economic and monetary union to maintain fixed exchange rates if desired

Outline

Theory of Optimum Currency Area

- When will countries want to join a monetary and economic union like the EMU?
- The theory of optimum currency areas (OCA) argues that the optimal area for a system of fixed exchange rates, or a common currency, is one that is highly economically integrated.
  - Economic integration means free flows of Goods and services (trade).
  - Financial capital (assets) and physical capital.
  - Workers/labor (migration).

Theory of Optimum Currency Area

- This integration will allow countries to buffer economic shocks through movements of factors across borders.
  - Bad economic condition in Portugal $\Rightarrow$ Portuguese would immigrate to France.
  - High returns to infrastructure in Portugal $\Rightarrow$ French investors would invest in Portugal.
- In some sense, several countries will be like one large country (economically).
- The United States and its various states. For example, monetary policy affects all states, but does it in the same way? California vs. New York?

Benefits of Monetary Union

- Benefits of fixed exchange rates are that they avoid the uncertainty and international transaction costs that floating exchange rates involve.
- Also, if the EMU has low inflation, countries may import price stability.
- Joining fixed exchange rate system would be beneficial for a country if
  - Trade is extensive between it and member countries, because transaction costs would be greatly reduced.
  - Financial assets flow freely between it and member countries, because the uncertainty about rates of return would be greatly reduced.
  - People migrate freely between it and member countries, because the uncertainty about the purchasing power of wages would be greatly reduced.
- The highest is the economic integration, the highest is the monetary gains of a EMU.

Costs of Monetary Union

- Costs of fixed exchange rates are:
  - Loss of monetary policy (partially) for stabilizing output and employment
  - In the presence of an asymmetric economic shock (a shock affecting only one of the countries), the exchange rate acts as an automatic stabilization mechanism.
- If one country is in a expansion and the other is in a recession, should the central bank expand or contract its monetary policy?
- Costs of EMU are lower if their business cycles are synchronized $\Rightarrow$ Countries are more integrated.

Costs of Monetary Union

- But even if their business cycles are not synchronized, high integration helps to mitigate the effects of the recession.
- Suppose one of the countries is in a deep recession while the others are not:
  - Relative prices will tend to fall, which will lead other members to increase demand greatly if economic integration is extensive.
  - Immigration attenuates the increase in unemployment.
- Note that the domestic prices (and wages) sometimes take time to adjust, hence, without the changes in exchange rate, integration in the factors market (labor and capital) is key.

Is the EU an Optimum Currency Area?

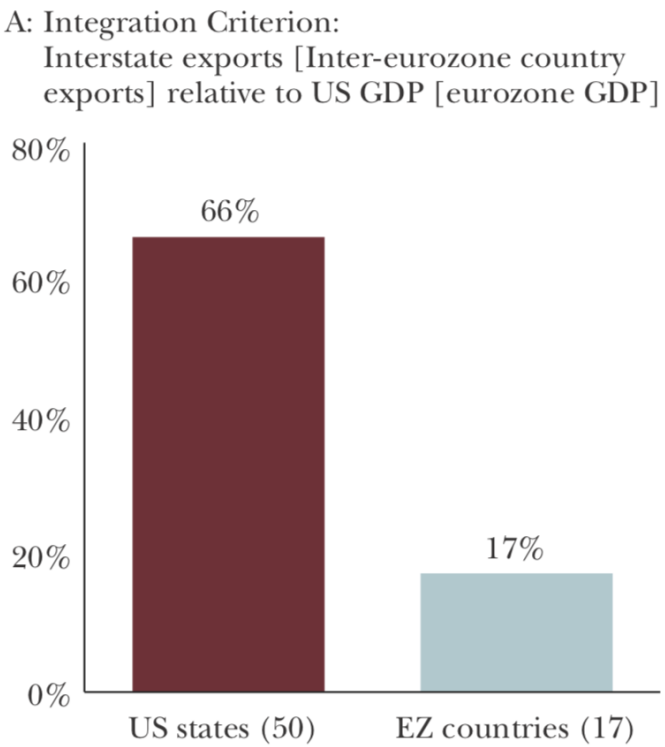
If the EU is an Optimum Currency Area, we expect that its members have a high degree of economic integration:

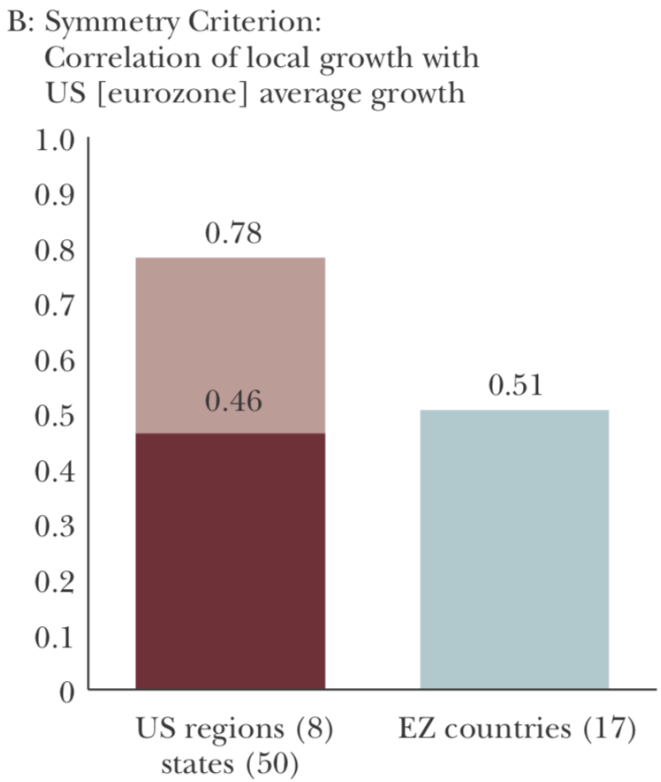
- Large trade volumes as a fraction of GDP.
- A large amount of foreign financial investment and foreign direct investment relative to total investment.
- A large amount of migration across borders as a fraction of total labor force.

Intra-EU Trade

- Most EU members export from 10% to 20% of GDP to other EU members.
- Quite high when compared with its exports to the US (less than 2%).
- But trade between regions in the U.S. is estimated to be larger than trade between European countries.
- If EU markets were greatly integrated, then the (currency adjusted) prices of goods and services should be nearly the same across markets.
- Deviations from the law of one price across European countries were very high in the early 90s.
- Now the level of traded goods price dispersion in the euro area is now quite close to that of the United States (John H. Rogers (2007)).

Trade as a Percentage of GDP



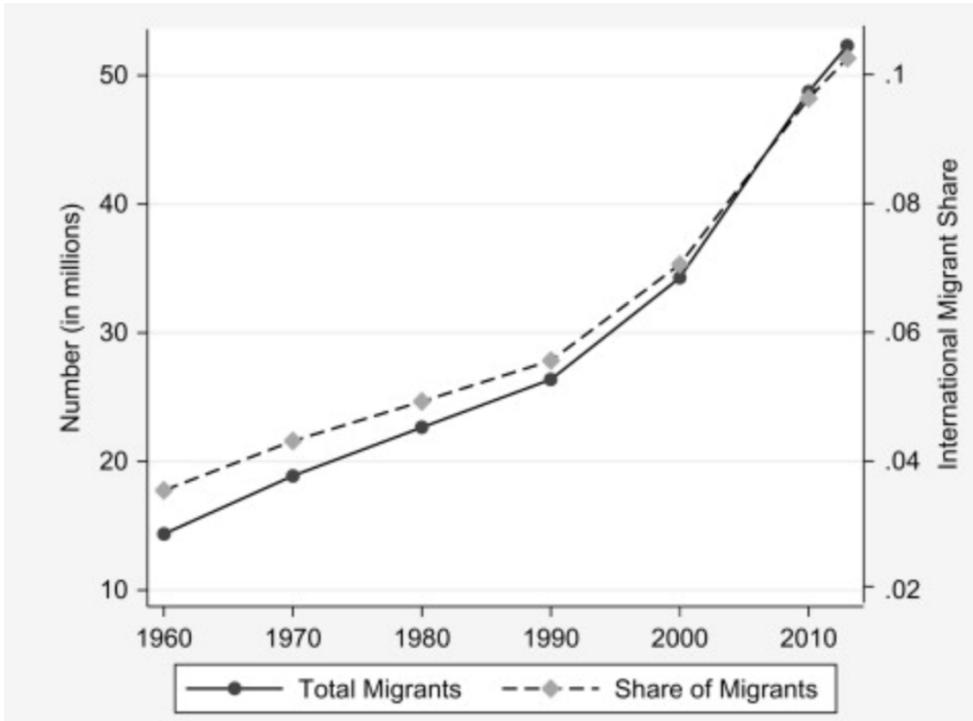


Source: O'Rourke and Taylor (2013).

The EU and Migration

- Traditionally, regional migration was not extensive in the EU. This changed to some degree after the crisis as migration from South to the North.
- Newest accession countries (also poorest) led to migration to the North.
- Europe has many languages and cultures, which hinder migration and labor mobility, and creates obvious strains such as nationalist movements.
- Unions and regulations also impede labor movements between industries and countries.
- Differences of U.S. unemployment rates across regions are smaller and less persistent than differences of national unemployment rates in the EU, indicating a lack of EU labor mobility.

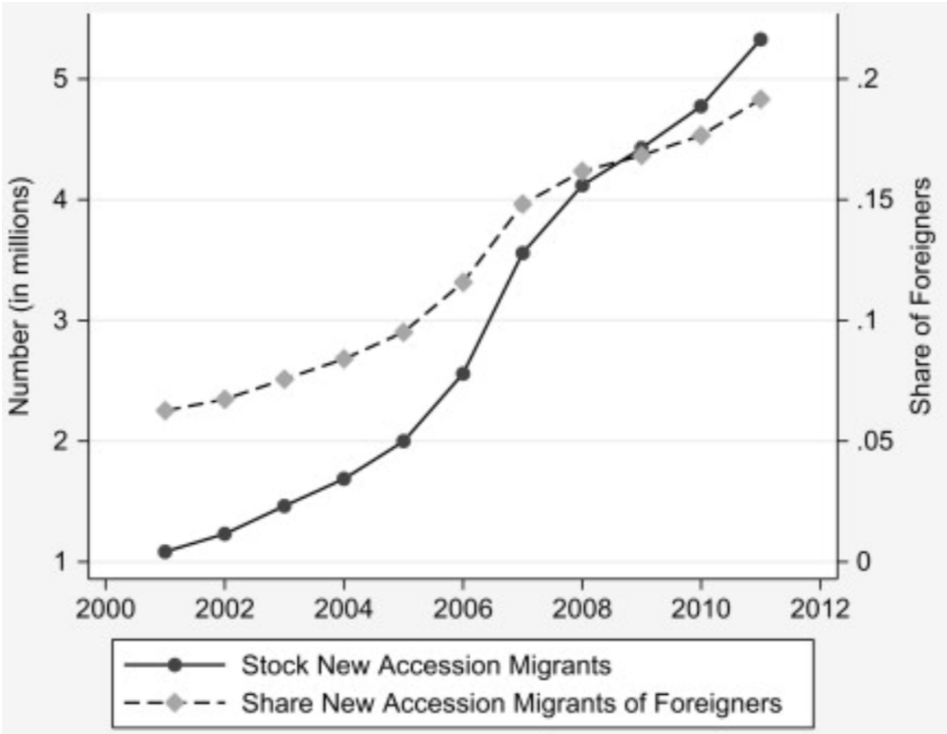
European Migration Over Time



International migrants living in either one of the 27 EU member states (excluding Slovenia, Estonia, Latvia, and Lithuania) or any non-EU member state belonging to the Schengen Area (Iceland, Liechtenstein, Norway, Switzerland). Source: de la Rica, Glitz, Ortega (2015).

European Migration Over Time

Post EU Enlargement



Number of foreign citizens from the 12 new EU accession countries (Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, and Slovenia) who live in countries of the original EU15 (excluding France and Ireland, for which data were not available). Source: de la Rica, Glitz, Ortega (2015)

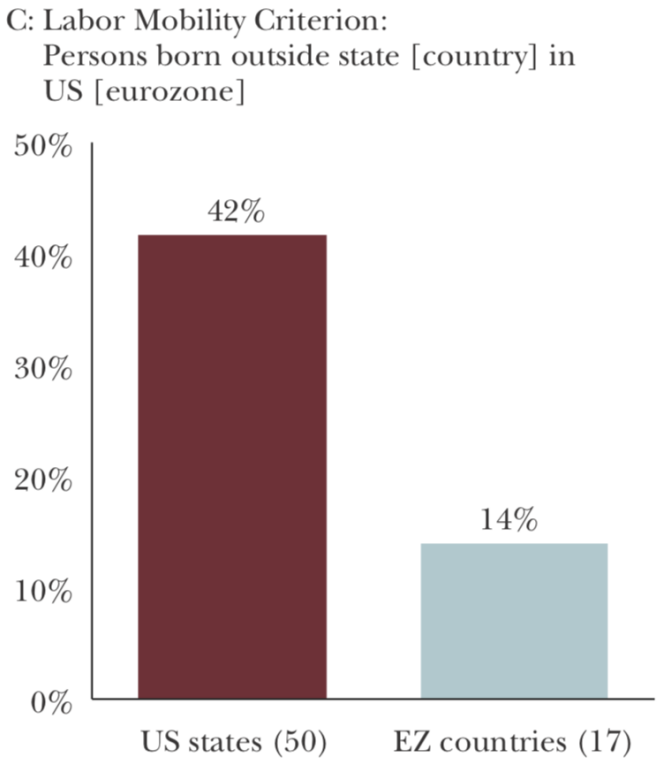
Capital Flows and the EU

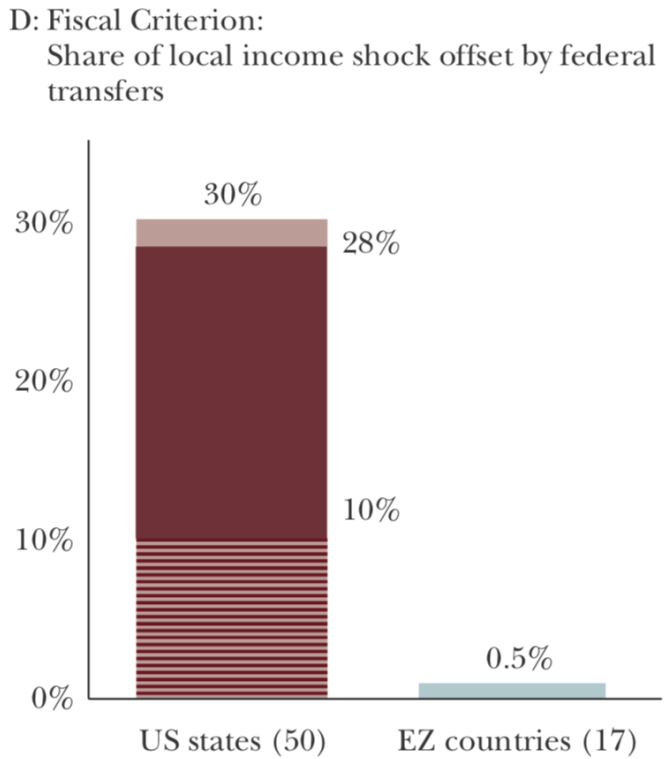
- There is evidence that financial assets were able to move more freely within the EU after 1992 and 1999.
  - But capital mobility without labor mobility can make the economic stability loss greater:
  - After a reduction of aggregate demand in a particular EU country, financial assets could be easily transferred elsewhere while labor is stuck.
- The loss of financial assets could further reduce production and employment.

Fiscal Federalism

- The amount of transfers among the EU members may also affect how EU economies respond to macroeconomic shocks.
- Fiscal payments between countries in the EUs federal system, or fiscal federalism, may help offset the economic stability loss from joining an economic and monetary union.
- But relative to interregional transfers in the U.S., little fiscal federalism occurs among EU members.

Labor Mobility and Fiscal Criteria





Source: O'Rourke and Taylor (2013).

Evidence of Impact of EMU

- It is clear that, relative to U.S, the Eurozone is not fully integrated.
- Still, the gains of the union may still be beneficial in the long term:
  - It has been estimated that a currency union raises trade of member countries by 300% (Rose (2000)).
  - Trade increased not only in volume but new products as well (Richard Baldwin).
  - Financial markets became more integrated: Government bond spreads narrowed among member countries (until crisis), corporate bond market grew out of nothing. Derivative (swaps) market largest in world (Rey, 2004).
  - Euro became widely used in international markets.

Outline

Crisis and Future of the Euro

- We have just seen some of the "good" of the EMU for member countries, but crises struck in different countries in the 2000s, and some countries were more affect than others. Why?
- In short:
  - Some member countries (e.g., Greece) cheated to reach Maastricht criteria.
  - Convergence of interest rates was great for these countries to borrow, but had to invest/use so can pay back, but low-productivity + housing bubbles & highly regulated countries (relative to the north).
  - Failure to get fiscal house in order and corruption: inability (unwillingness) to collect taxes + high government spending.

European CA Imbalances

- The introduction of Euro generated an investment and credit boom in the periphery and implied a catching-up process with international capital movements from the core to the periphery that materialized as current-account deficits.
- This happened because:
  - The introduction of the euro eliminated the exchange-rate risk and induced investors to disregard country-specific bankruptcy risks.
  - Eurozone system created optimistic expectations regarding the rapid convergence of the periphery countries (Greece, Ireland, Portugal and Spain).
- This catching-up process was accompanied by rapidly rising prices in the periphery, undermining the countries' competitiveness.
- All Eurozone countries appreciated in real terms relative to Germany to a lesser or larger extent.

Current Account Balances of Eurozone Countries, 2005-10

	GRC	IRL	ITA	PRT	ESP	DEU	EUR
2005	-7.4	-3.5	-1.7	-10.4	-7.4	5.1	0.4
2006	-11.2	-3.5	-2.6	-10.7	-9.0	6.3	0.3
2007	-14.4	-5.3	-2.4	-10.1	-10.0	7.5	0.2
2008	-14.7	-5.6	-2.9	-12.6	-9.6	6.3	-0.7
2009	-11.0	-2.9	-2.1	-10.9	-5.2	5.6	0.1
2010	-10.5	0.5	-3.3	-9.9	-4.6	5.7	0.3

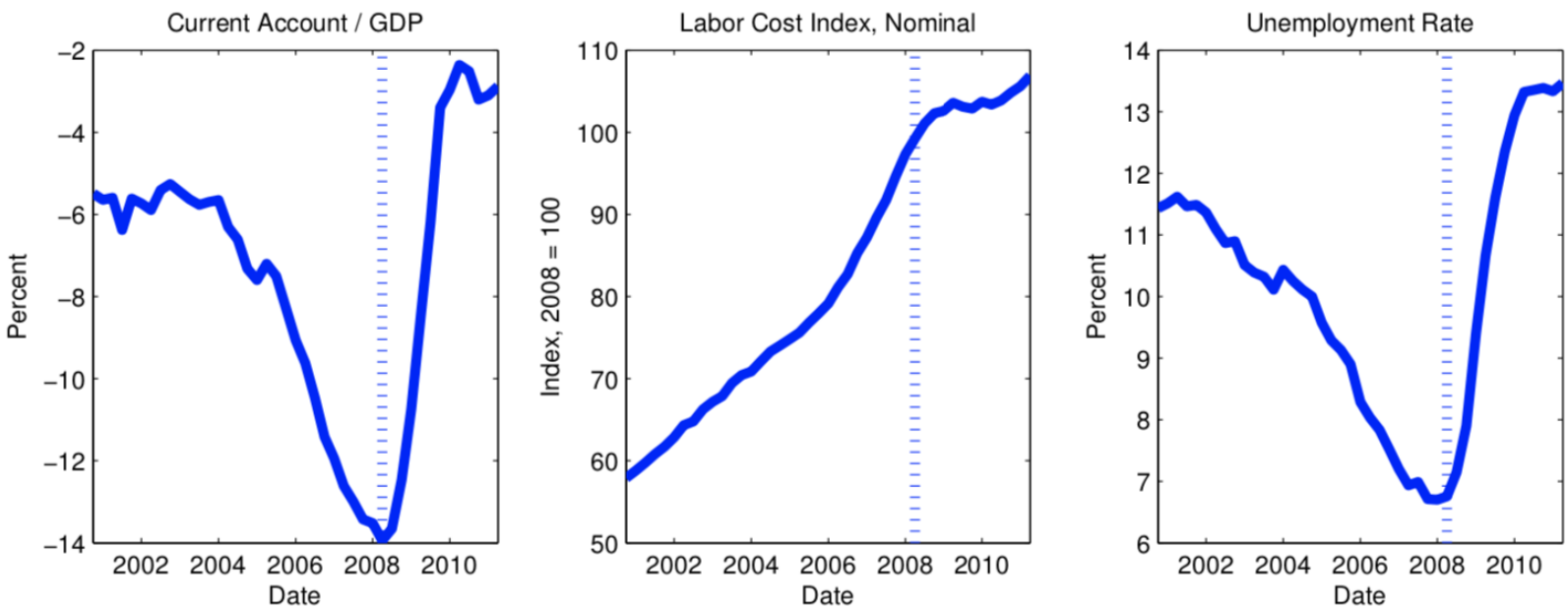
Source: World Economic Outlook, IMF.

Current Account Reversal

- During the Great Recession credit dried up and the investors ran for safe assets.
- The low-productivity investments did not materialize and the housing bubble burst.
- Banking system collapsed.
- The European periphery experienced a sudden stop: a large current-account reversal.

Sudden Stops in Peripheral Europe: 2000-11

Figure: Current Account Reversal and Unemployment



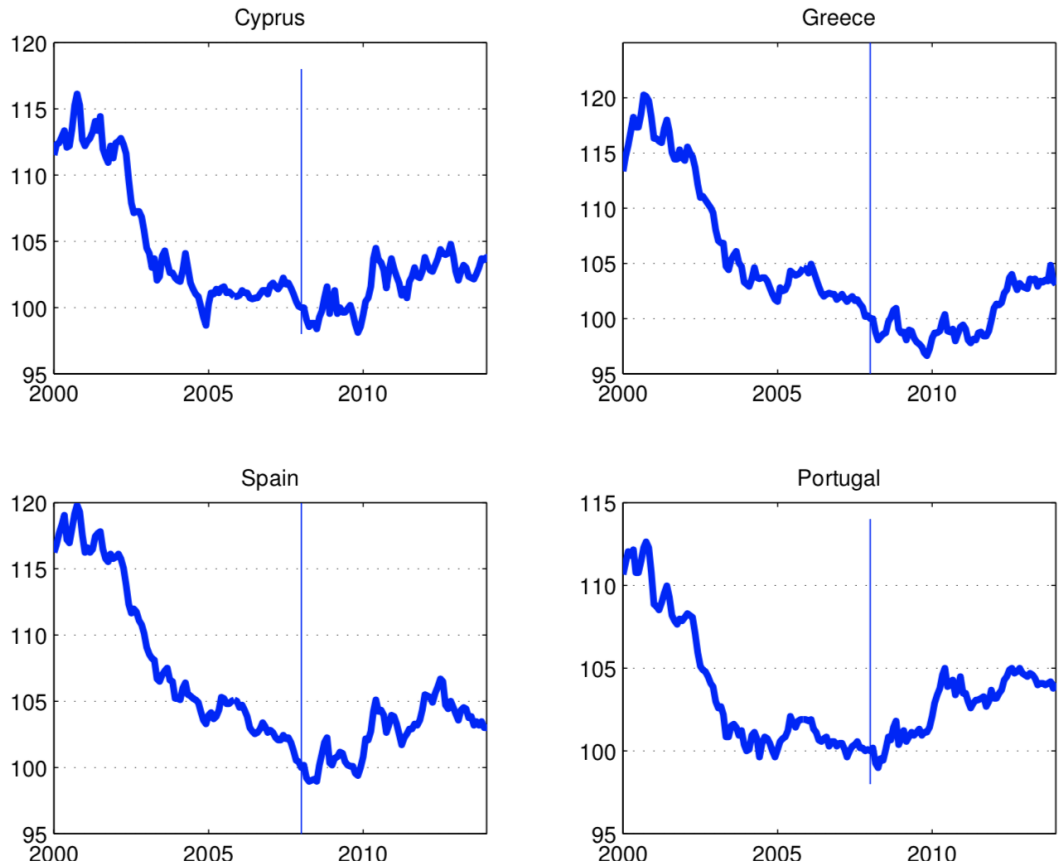
Data Source: Eurostat. Data represents arithmetic mean of Bulgaria, Cyprus, Estonia, Greece, Lithuania, Latvia, Portugal, Spain, Slovenia, and Slovakia.

Current Account Reversal

- Usually sudden stops are associated with large real depreciation in the real exchange rate.
- Mostly because the nominal exchange rate quickly depreciate. Recall: $e = EP^*/P$.
- This helps to mitigate the recession as countries quickly regain competitiveness.
- But in this case the real depreciation in the European periphery was very small.

The Real Exchange Rate

Figure: RER, e: Selected countries (2008 = 100)



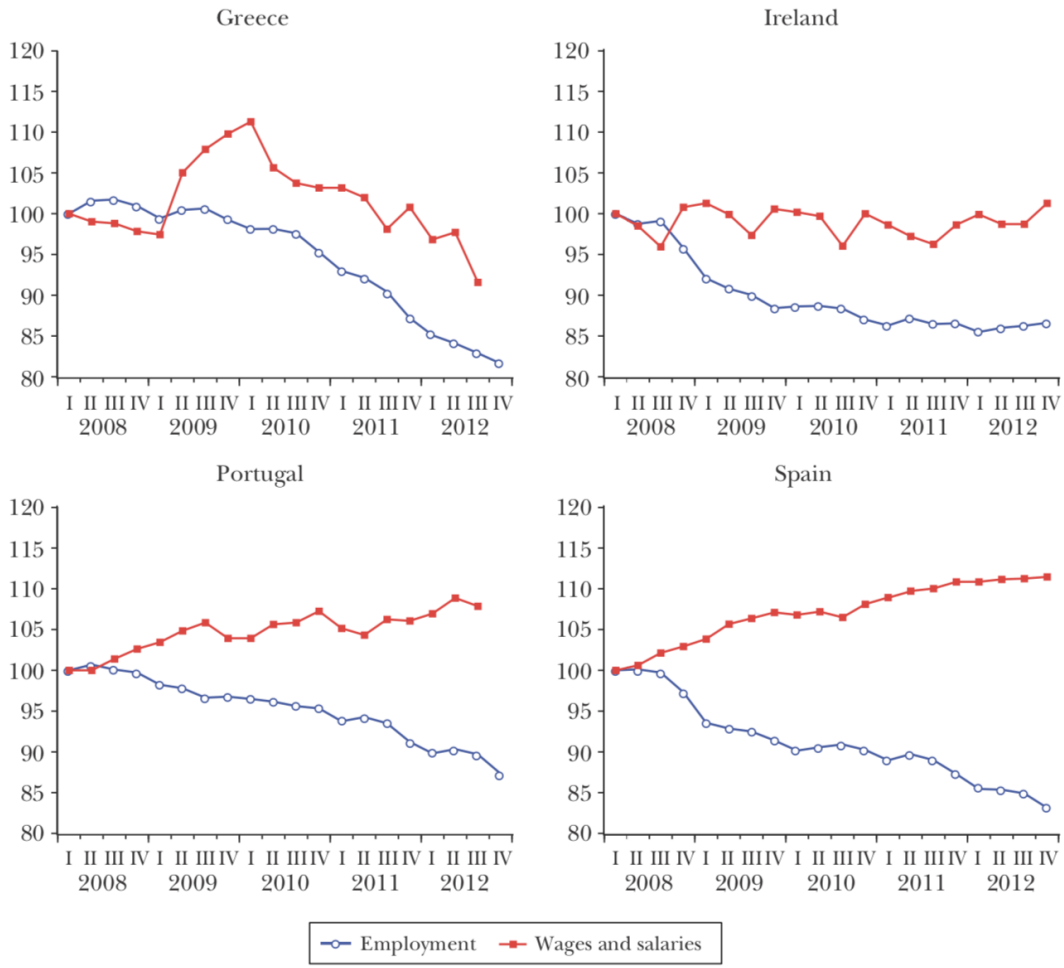
Real exchange rate was appreciating before the crisis but did not depreciate afterwise.

CA Imbalances and Unemployment

Why the real exchange rate depreciation in the European periphery was very small?

- In the Eurozone, the nominal exchange rate are fixed.
- The only way to regain competitiveness is if local prices/wages decrease.
- But price/wage adjustment is very slow.
- Without large labor mobility across the EU countries adjustment is very painful and slow $\Rightarrow$ large increase in unemployment.

Unemployment vs Wages



Source: O'Rourke and Taylor (2013).

Explosion in Debt

- Note that the CA was still negative, and government were running fiscal deficits to cope with high unemployment and banking system bailouts.
- Government debt exploded.
- The increase in debt created further problems in 2011-2013 $\Rightarrow$ countries were pushed to the brink of default (Greece actually default for some days).
  - Many countries received rescue packages from the IMF and EU.
  - ECB started buying government debt from the secondary market.
  - Strong austerity measures had to be taken to restore confidence.

Government Debt Positions of GIIPS

Figure: Public Debt/GDP in 2007 and 2015 (%)

Country	2007	2015
Greece	112.8	181.6
Ireland	27.4	91.5
Italy	110.7	157.3
Portugal	78.1	149.2
Spain	41.7	116.8

Data Source: OECD.

As can be seen some countries (IRL, PRT, ESP) did not have huge fiscal debt ratio before the crisis (private sector and housing bubbles), but crisis has been costly, raising the debt-to-GDP ratios. Meanwhile, Italy and especially Greece had large fiscal debt positions before the crisis, and they have been rising further.

Will the Eurozone Survive?

- O'Rourke and Taylor (2013) point to EMU still being far from an ideal OCA (like in the U.S.).
- Besides the need for greater labor mobility, two other crucial institutional arrangements are missing:
  - Banking union: movement towards one started in 2012 in reaction to crisis.
  - Fiscal union: no serious discussion yet $\Rightarrow$ strong tension between the north and the periphery!
- It is important to remember that changes took a long time in the U.S. (140 years), so the road to the EMU reaching an OCA can still be a very long one, and some countries might question the benefits and whether staying in the Eurozone under the current set of circumstances make sense going forward.