10 Lecture 10: Costs and benefits of monetary union (or currency area)

Krugman-Obstfeld: ch. 20. Article by Bean (1992).

- Last week we considered the macroeconomic costs of fixed exchange rate systems.

- A monetary union (or currency area) is a set of countries with a special type of fixed exchange rate system (single currency). Therefore, it involves some of the same macroeconomic costs (and benefits) of a fixed exchange rate system.

- Unlike a fixed (but adjustable) exchange rate regime a monetary union is not exposed to speculative attacks because a realignment is expected to be imminent.

- A set of countries constitute an "optimal currency area" if the *macroeconomic* and *microeconomic* benefits from having just one currency more than outweigh the costs. Seminal reference is Mundell (1961).

10.1   Costs of monetary union:

The costs are mainly macroeconomic. From Lecture 9.

$$\text{SIS: } \bar{Y} + \bar{Y}^* = C(\bar{Y} - \bar{T}) + C^*(\bar{Y}^* - \bar{T}) + 2I\left(r\right) + \bar{G} + \bar{G}^* \tag{162}$$

$$\text{DIS: } \bar{Y} - \bar{Y}^* = C(\bar{Y} - \bar{T}) - C^*(\bar{Y}^* - \bar{T}) + \bar{G} - \bar{G}^* + 2NX\left(\frac{EP^*}{P}, \bar{Y}, \bar{Y}^*\right) \tag{163}$$

$$\text{LM: } \frac{M}{P} = \frac{\bar{Y}}{V\left(r\right)} \tag{164}$$

$$\text{LM}^* : \frac{M^*}{P^*} = \frac{\bar{Y}^*}{V\left(r\right)} \tag{165}$$

$$\text{LM+LM}^* : \frac{M}{M^*} = \frac{P}{P^*}\frac{\bar{Y}}{\bar{Y}^*} \tag{166}$$

10.1.1 Loss of exchange rate as automatic stabilizer

- Real exchange rate has to adjust in response to asymmetric **real** shocks (i.e. goods or labour market shocks that affect different countries differently): e.g. shocks to NX (relative demand for home versus foreign goods), German reunification, etc.

- If the nominal exchange rate is fixed, $\frac{P^*}{P}$ has to adjust.

- If prices/wages are sticky in the short run, the real exchange rate is sticky and output is affected. Recession if P is required to fall, boom otherwise.

- Under flexible exchange rates, the nominal exchange rate would change to bring about necessary change in real exchange rate (automatic stabilization).

- Also relevant if symmetric shocks but different *speed of adjustment.*: e.g. $\Delta G = \Delta G^*$ results in higher r and same fall in real money demand in both countries. If prices change at different speeds, $\frac{P^*}{P}$ changes until prices fully adjust in both countries and NX and output are affected.

- In the medium run it makes no difference as prices would adjust anyway. It matters only in the short run in so far as prices/wages are sticky.

- Also the above has to be traded off against higher fluctuations in the face of financial markets shocks (see Section 10.2.1 under benefits).

- Bogus argument: If factors are mobile, the loss of exchange rate flexibility is not crucial.

  Labour mobility implies that if NX fell labour would migrate from the home to the foreign country, thus reducing $\bar{Y}$ and increasing $\bar{Y}^*$ thus reestablishing equilibrium on DIS without a change in the real exchange rate.

  Purely theoretical: **prices adjust more quickly that factors move.** This is true even in the US, which have no linguistic barriers and where there is lots of cross-state migration.

- Relevant argument: fiscal policy is a *temporary* substitute for price adjustment in the face of asymmetric shocks; e.g. T could fall and/or T^* in the face of an increase in NX, so as to keep the real exchange rate constant.

– Fiscal transfers across US states achieve this. Particularly, effective as they move T and T^* in opposite directions.

– More difficult to sell in Europe (different countries).

– Unilateral fiscal policy could still do the job, but requires bigger change in T.

Problem: EU members are bound by the Stability and Growth Pact (SGP) which sets penalties for countries whose: (1) Budget deficit/GDP ratio exceeds 3%; (2) Public debt/GDP ratio exceeds 60-%. This limits the use of fiscal policy as a stabilization tool in the face of deep enough recessions (not a good idea).

The crucial questions revolve around: 1) how likely asymmetric shocks or asymmetric effects of symmetric shocks are? 2) how flexible prices/wages are?

- Asymmetric shocks. More likely between countries which produce different products. EU core (Benelux, Germany and France): most trade (60-80%) intra-industry. EU core with periphery: largely inter-industry (60-70%). But structure of production may change with integration.

  EU vs US: Bayoumi and Eichengreen (1993) report that for a core of EU countries (EU5: Benelux, Denmark and Germany) correlation of supply shocks comparable to US. Less for EU13.

Lower correlation of demand shocks in EU but this likely to be due to uncoordinated macroeconomic policy before monetary union. Also adjustment in response to shocks somewhat slower in EU and slightly larger interregional differences. Historical (pre-union) data may be not very informative on post unification scenario.

- Speed of price adjustment. EU real wage rigidity (cumulative increase in unemployment rate to achieve a 1% real wage reduction) higher than US, but nominal wage rigidity (cumulative increase in unemployment rate to achieve a 1% nominal wage reduction) twice as high in the US than in EU. Note that *nominal* wage rigidity is what matters.

10.1.2   Loss of monetary independence

- With $\frac{P^*}{P}$ determined on the goods market, P has to adjust to the level of P^* which applies in the rest of the monetary union.

- Central bank no longer controls home price level (hence inflation).

- Home money supply needs to be set to any level compatible with $\frac{P^*}{P}$ as $\frac{M}{M^*} = \frac{P}{P^*}\frac{\bar{Y}}{\bar{Y}^*}$ and M^* is chosen by the monetary union (e.g. European Central Bank).

- The above has to be traded off against improved inflation performance if the Central Bank for the union (e.g. ECB) has got a better anti-inflationary reputation than the home one (e.g. Italy, Spain, Portugal, Greece). See benefits in Section 10.2.2.

10.1.3 Loss of seignorage

Seignorage: monetary financing of government deficits. From the government budget identity

$$\Delta M + \Delta B = G - T + rB. \tag{167}$$

- Source of revenue (alternative to debt financing or raising taxes).

- Lower ΔM implies either $G \downarrow$ or T or $\Delta B \uparrow$.

As a proportion of GDP

$$\frac{\Delta M}{PY} = \frac{\Delta M}{M}\frac{M}{PY} = \frac{\Delta M}{M}\frac{1}{V}. \tag{168}$$

seignorage is increasing in the rate of money growth but decreasing in velocity.

- Velocity high (10-20%) in most EU countries $\longrightarrow \Delta M/PY \sim 0.5\%$.

- As a share of GDP, seignorage is not a significant source of revenue for most countries.

- May have been relevant only for Greece (1.5%) and Portugal (1.9%).

10.1.4   Costs and openness

- A more integrated economy may have less to loose from giving up exchange rate flexibility as it is likely to have a higher degree of pass-through onto home prices (i.e. a depreciation has a larger effect on the home price level and smaller on the real exchange rate and net exports).

- In terms of Balassa-Samuelson, both the consumption and production baskets contain a larger proportion of foreign goods.

- The real exchange rate is closer to be determined by PPP rather than being determined on the goods market.

10.2   Benefits of monetary union

The first four benefits are macroeconomic, while the others are of microeconomic nature.

10.2.1   Stabilization in the face of financial market shocks

Fixed exchange rates fully insulate an economy from financial market (LM) shocks.

- Consider either a home shock to home velocity or a change in the foreign nominal interest rate (as in Problem set 9).

- With sticky prices and flexible exchange rates, the shock is associated with overshooting of the nominal and real exchange rates and fluctuations in the current account. If money market shocks are more likely than goods and labour market shocks then the macroeconomic benefits of joining a monetary union may exceed the macroeconomic costs.

- Note that the same outcome could be achieved by unilaterally pegging the exchange rate. Yet, the latter, being more reversible (hence less credible), might expose the peg to speculative attacks.

- Further, a country unilaterally pegging its currency (e.g. Argentina currency board) would have no say on the conduct of monetary policy (asymmetric solution) as opposed to all members of the EMU having a representative on the board of the ECB which sets the Euro monetary policy.

10.2.2 Anti-inflationary reputation

A country with a weak reputation for low inflation (e.g. Italy), may dramatically improve its reputation by forming a monetary union with a country with a very good reputation (e.g. Germany).

- The home price level is effectively set abroad (and affected only by P^* and shocks that affect the real exchange rate).

- Contrary to a peg such an arrangement is more credible as it is more irreversible. Something similar (currency board), though less irreversible, clearly worked in eradicating inflation in Argentina, but it also ended up with a major slump in the face of an asymmetric shock (Brazilian devaluation).

- A country could achieve the same outcome, while at the same time maintaining monetary independence, by making the central bank independent (e.g. UK).

10.2.3 Monetary policy coordination

In the short run a monetary expansion under flexible exchange rates leads to a depreciation increases output at home at the expense of foreign output ("beggar-thy-neighbour policy").

- Government usually ignore negative effects on other countries (externality).

- Result: inefficient equilibrium in which everybody tries to depreciate with no gain.

- A common currency eliminates such externalities.

10.2.4   Seignorage associated with Euro's role as a reserve currency

If the Euro's share in world reserves exceeds the total share of pre-Euro currencies, then European seignorage increases (one-off). An increase of the share in world reserves from 20 to 30% is worth 0.5% of GDP.

10.2.5   Reduced transaction costs

- Before monetary union a round-trip through all European currencies cost 47% of the initial sum.

- If this is a true deadweight loss from having multiple currencies, gains from having just one (some of it may just be a redistribution: banks' profits).

- European commission estimated such a cost to 0.25-0.5% of EU GDP per year.

10.2.6   Price transparency

- Price for identical goods (e.g. cars) differ substantially across European currencies. It is argued that one currency by easing price comparison should reduce price differentials.

- Unlikely. Given the magnitudes involved this would require people to be willing to pay very high prices to avoid doing some simple arithmetic!

- Price differences are more likely due to transport costs and tax differences.

10.2.7   Reduced uncertainty

By eliminating exchange rate fluctuation a major source of uncertainty is eliminated.

- If agents are risk averse they require a risk premium for non-diversifiable exchange rate uncertainty. The elimination of currency risk reduces the interest rate at which they are willing to lend. Hence, it tends to increase the expected present value of profits and utility. The latter is true though only if we consider a given project/quantity.

- Price variability increases utility/profits if agents can reoptimize their decisions (alter quantities) in response to changes in prices. This effect goes in the opposite direction of the previous one. The net effect (and so any growth boost from monetary union) is ambiguous.

- Real exchange rate should vary in the face of real shocks. What matters is if volatility is excessive rather than just reflecting efficient markets. What matters is uninsurable uncertainty (short run volatility can be hedged against). If volatility is excessive in the medium run then it may lead to resource misallocation. Furthermore, even if insurance is available but requires real resources to be administered, the elimination of uncertainty releases resources to alternative uses (as for transaction costs associated with currency conversion).

- Available empirical evidence has failed to establish a link between exchange rate volatility and economic performance.

Bottom line: unclear if reduced uncertainty is really a benefit.

10.3   Costs versus benefits

Benefits will tend to be greater the more integrated an economy is (e.g. unit transaction costs are multiplied by a larger volume) vis-à-vis the other members of the union.

The relationship between costs and the degree of integration is more ambiguous.

- Higher integration implies a higher degree of pass through and also a larger response of exports/imports to small changes in prices. This would suggest that costs fall with degree of integration..

- A larger response of exports/imports to small changes in prices also imply larger response to a nominal depreciation. This is a cost from relinquishing exchange rate flexibility and is increasing in the degree of integration.

- Small and integrated countries tend to have more specialized industrial structures —→more exposed to asymmetric shocks.

Bottom line.

- Key issues: 1) likelihood of asymmetric goods market and supply shocks versus financial markets shocks; 2) extent of nominal rigidity.

- Evidence suggests EU5 are likely to be biggest gainers but periphery likely to lose more.

- Up to now. No big asymmetric shocks and countries have been able to use fiscal policy to offset small asymmetric shocks (e.g. France, Germany).