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Solutions to written exam for the B.Sc. or the M.Sc. in Economics
The Economics of the European Union

December 15, 2015

Number of questions: This exam consists of 3 questions.

1. **Which of the following statements are correct? Remember to provide a brief explanation.**

   This question relates to a number of learning objectives including: explain and describe the main political and institutional characteristics of EU and the European Monetary Union; understand and explain theoretical and applied issues of the process of Economic and Monetary Union in the EU; and explain the role and institutional characteristics of the common monetary policy and of the national fiscal policies in the European Monetary Union.

   (a) The objective of ECB is to target inflation.

   False, the objective of ECB is to obtain stable prices. ECB has operationalized this objective in terms of 2% inflation.

   (b) If UIP holds and countries allow free capital mobility, a government can target the exchange rate or the interest rate but not both independently.

   True. If UIP holds then if the government wants to maintain an exchange rate target, that is, the change in the exchange rate is zero, then it must adjust the interest rate such that it is equal to the foreign exchange rate. The two goals are interrelated and cannot be independent according to UIP.

   (c) PPP states that the exchange rate appreciates when foreign inflation exceeds domestic inflation.

   True, but it rests on the assumption that the exchange rate is defined as foreign currency units for one unit domestic currency unit. If the exchange rate is defined as the inverse, the statement is false.

   (d) The General Council of ECB is comprised of central banks of monetary union members.

   False, also national central banks of non-monetary union members and ECB are in the General Council.

(e) Automatic stabilizers make fiscal policy counter-cyclical.

True, automatic stabilizers are spontaneous responses of government expenditures and taxes as the economy evolves over time. In a downturn, income falls leading to a decline in tax revenue, unemployment goes up increasing government outlays (spending on unemployment benefits increases for example) such that the budget worsens and fiscal policy is automatically expansionary.

2. **Fiscal Policy and the Stability and Growth Pact**

This question relates to the following learning objectives: explain the role and institutional characteristics of the common monetary policy and of the national fiscal policies in the European Monetary Union; and explain and describe the main political and institutional characteristics of EU and the European Monetary Union.

(a) Describe the Stability and Growth Pact.

The Stability and Growth Pact (or the Amsterdam Treaty signed in 1997) formalized the Maastricht Treaty where it was stated that member states should avoid excessive budget deficits. The Stability and Growth Pact consists of the following three elements: A political commitment, a preventive arm and a corrective arm. One could argue that there are five elements as is done in the book. The textbook argues that the five elements are (1) a definition of excessive deficits; (2) a preventive arm; (3) a corrective arm; (4) procedures to embed each country's budget process within a European framework (surveillance); and (5) sanction. Either answer suffices.

SGP considers deficits to be excessive if the exceed 3% of GDP and if the government debt as a share of GDP exceeds 60%. In addition to these two requirements, SGP also stipulates that the structural budget should be in balance or surplus and not exceed 0.5% of GDP. However, these limits can be breached under certain exceptional circumstances, i.e., if real GDP falls by 2% or more in a year or if real GDP declines by less than 2% but more than 0.75% per year.

- A political commitment by all parties involved (Commission, member states, Council).
- Preventive arm: Preventive elements through regular surveillance aiming at preventing budget deficits exceeding the 3% reference value. All member states must submit stability (EMU member states) or convergence programs (EU member states not participating in EMU) which are examined by the Council. There is an early warning procedure in the event a significance changes in the budgetary position of a member state.
- Corrective arm: Dissuasive elements which in the event of the 3% reference value being breached, require member states to take immediate corrective action and, if necessary, allow for the imposition of sanctions.

The corrective arm of the SGP includes an early warning system and corrective action:

- If a member country exceeds the budget deficit limit, the EU Commission issues a report submitted to the Council of Economic and Finance Ministers (ECOFIN).
- ECOFIN decides whether the deficit is excessive. If so, ECOFIN issues recommendations with an associated deadline.
- The country must then take corrective action. Failure to do so triggers a recommendation by the Commission which could be made public.
- If the country refuses to correct the deficit, there may be sanctions.

Sanctions: If a country fails or refuses to reduce the deficit by the deadline set by ECOFIN, it is sanctioned. The fine, 0.2% of the country's GDP is retained from payments from the EU to the country (CAP, Structural and Cohesion Funds) and the annual amount of deposits may not exceed the upper limit of 0.5% of GDP. The fine is imposed every year when the deficit exceeds 3%. The fine is initially considered as a deposit: If the deficit is corrected within 2 years, the deposit is returned. If it is not corrected within two years, the deposit is considered a fine. Interest on the deposits and the yield from fines are distributed among member states without an excessive deficit, in proportion to their share in the total GDP of eligible member states.

The Stability and Growth Pact applies to all EU countries except that sanctions only can be imposed on EMU members.

(b) According to the article by Larch, van den Noord and Jonung, there are a number of shortcomings of the Stability and Growth Pact. State their main arguments and motivations.

This paper outlines 7 potential problems with the SGP, they propose seven solutions and discuss a number of reforms implemented in EU in order to strengthen the framework. The following seven problems are identified:

1. Weak statistical surveillance. National accounts unreliable in some countries (creative accounting in Greece for example). Therefore problem when evaluating whether a country complied to the rules.
2. The (non)preventive arm of the Pact did not work in good times. There are no incentives for a countercyclical fiscal policy. In good times, governments should run budget surpluses creating room for maneuver in bad times. The structural budget deficit is not observed but computed using a number of different methods making it unreliable and peer pressure by the preventive arm did not work.
3. Other macroeconomic imbalances ignored. main idea was that low and stable inflation combined with sound fiscal policy would be sufficient to guarantee

overall macroeconomic stability. Uncertainty and bubble like phenomena on financial markets where ignored as was sharp increases in housing prices.

4. Weak EU enforcement. SGP didn't work as was intended. Germany and France were allowed to breach the 3% limit, the excessive deficit procedure was not initiated. The Council did not always follow up on the recommendations from the EU Commission and closed the procedure based only on the commitments made by the governments concerned. These commitments were not always honored.
5. Lacking provisions for mitigation of severe economic stress or crises. The rule based fiscal policy in EU disregarded the importance of discretionary fiscal policy, only automatic stabilizers were allowed to work. Fiscal consolidations should be implemented after a crisis but discretionary policies should not be used. In a crisis, it could be necessary to use discretionary policies but a too expansionary policy may result in excessive deficits that are not allowed for in the SGP. A clear conflict.
6. Lacking provisions for sovereign debt default. There are no rules to rely on if there is a sovereign debt crisis, there is no crisis resolution mechanism. The no-bail-out clause was thought to prevent moral hazard problems and if countries followed the rules of the SGP, there would be no crisis. Therefore, there was no need for a crisis resolution mechanism. As the crisis evolved in Europe, policymakers were forced to improvise.
7. Fiscal consolidation and structural reform seen as substitutes rather than complements. It could be argued that the fiscal rules imposed restrictions on short-term policies implying that policymakers did not support economic reforms. A conflict between the need for structural reforms and the fiscal rules. This was to some extent changed in the reform of the SGP in 2005.

In order to correct for these shortcomings of the SGP, the paper suggest a number of measures and reforms, some of them have been implemented already. Concerning the quality of national accounts, there has been a reform implmented in 2010. The same holds for making the preventive arm more effective. The 2010 reform both attempted to strengthen macroeconomic surveillance by means of medium-term-objectives, less focus on structural budget deficits, more focus on government expenditures and debt, and reforms of the procedures leading to sanctions. Broader economic surveillance, also part of the reform of SGP in 2010, where an Excessive Imbalance Procedure EIP was introduced. This procedure is designed as SGP with warnings, opening of EIP and sanctions. Many countries have also established national fiscal frameworks and Fiscal Councils. Escape clauses in times of severe crisis has not been implemented but the rules were made more flexible in the reform of 2010. There is no formal crisis resolution mechanism but many steps have been taken, for example the rescue programs for Greece,

the establishment of European Financial Stability Mechanism EFSM, European Financial Stability Facility ESFS a temporary crisis resolution mechanism and European Stability Mechanism ESM a permanent rescue mechanism established 2012. There have been attempts to link structural reforms and fiscal sustainability in the new Europe 2020 strategy that include labor market reforms for example.

(c) What are the main arguments for restricting fiscal policy in a monetary union?

The basic argument is that there should be some limits or restrictions on fiscal policy in a monetary union if national fiscal policy is a source of externalities. These could take the form of cyclical income spillovers via trade (typically strengthened in a monetary union through increased trade), borrowing cost spillovers, excessive deficits and the no-bail out clause, and deficit bias.

The more countries trade, the stronger spillovers and therefore argument for restrictions on fiscal policies. Borrowing cost spillovers could be substantial since one country's deficit would induce higher interest rate for all other member states. This holds if there are large deficits in the largest member countries. If a small country run large deficits there will be no effect on euro interest rates, only on national interest rates but there is a risk of contagion. Excessive deficits together with the non-bail-out clause could force countries to default leading to capital outflows and a weak euro, a pressure on other governments and Eurosystem to help out but this is prohibited by the no-bail-out clause.

There are several reasons explaining deficit bias including governments' "short-sightedness" (governments running excessive deficits in anticipation of being replaced by another political party in future), spending measures tend to be targeted at specific interest groups but financed by general taxation (creating free-riding problems emphasized by the common pool explanation), and time inconsistency may create a problem for governments to commit to fiscal discipline, leading to excessive deficits, as these commitments may not be credible in the face of the incentive to simulate short-run aggregate demand.

(d) Summarize the empirical evidence on supranational as well as national fiscal rules.

Very limited evidence supporting the view that supranational fiscal rules prevent large budget deficits. The SGP didn't work.

For national fiscal rules the picture is completely different. Fiscal rules have a positive and significant impact on cyclically adjusted primary balance. These results robust to a number of alterations of estimation method and specification of model. Smaller effects on the change in government debt. Fiscal rules and government efficiency are policy/institutional substitutes. Expenditure rules and balanced budget rules are substitutes whereas debt rules are complements to government efficiency. Implementing more than one fiscal rule gives an additional improvement of cyclically adjusted primary balance.

3. **Costs of a currency area**

This question relates to the learning objective: explain the theory of optimum currency area and apply this theory to the analysis of the European Monetary Union;

(a) Explain the difference between symmetric and asymmetric shocks and explain why this distinction is important for countries forming a monetary union.

Symmetric shocks: A shock affecting all countries (or regions within a country) at the same time.

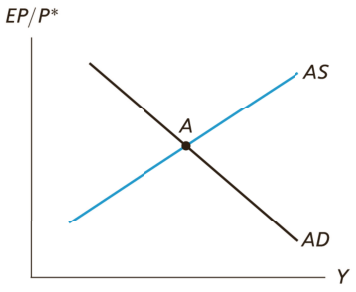
Asymmetric shocks: A shock affecting only one country (or one region within a country) leaving other countries (or regions) unaffected.

This distinction is very important, it underlies many of the standard criteria of optimum currency areas. Basic insight is that countries affected by symmetric shocks are good candidates for forming a common currency area as opposed to countries affected by asymmetric shocks.

(b) Outline the IS-LM-IRP framework illustrating the aggregate demand and aggregate supply in the output gap—real exchange rate plane. Explain the basic underlying assumptions of this model. Use this framework to describe the effects of asymmetric shocks in a two-country model. Compare two cases: First under the assumption that the countries do not belong to a currency union and second under the assumption that the two countries form a currency union.

Main underlying assumption: Small open economy, prices are sticky and fixed in the short-term, free capital mobility. Model based on the standard IS-LM model for a closed economy. IRP is the interest rate parity condition stating that the expected change in the nominal exchange rate is equal to the interest rate differential. Since we assume a small open economy we assume that the domestic interest rate cannot deviate from the world interest rate under fixed exchange rates (abstracting from risk premia).

First we illustrate the model in the output gap–real exchange rate plane as below. The aggregate demand curve is derived directly from the IS-LM-IRP model (this is not necessary to show). We also include the aggregate supply curve in the graph. Full equilibrium at point A.

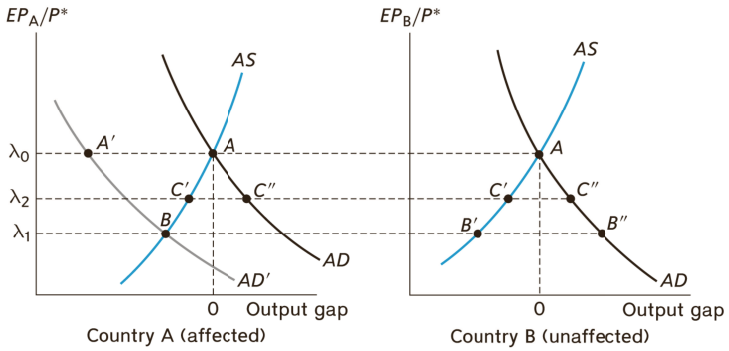


Next, we assume that there are two countries and obtain the graph below, country A which will be affected by an asymmetric shock and country B. The price level in country A is P_A and P_B in country B, and P^* is the price level in the rest of the world. The exchange rate is dented E. In equilibrium the real exchange rate is assumed to be equal in the two countries, $\lambda_0 = E_0 P_A/P^* = E_0 P_B/P^*$ depicted in the graph below.

Assume first that these countries have not formed a monetary union, the nominal exchange rate in the two countries may be different. The adverse shock affecting country A leads to a shift down in the aggregate demand curve to AD'. The new equilibrium is at point B where the nominal exchange rate has depreciated, prices are assumed to be sticky. Country B is unaffected as there is no need for an exchange rate change. These conclusions change dramatically if the two countries have a common currency.

In case countries A and B form a monetary union, their exchange rate must be equal. Assume initially that the exchange rate is fixed. In case country A is affected by an adverse asymmetric shock to aggregate demand as in the graph below. If prices are sticky and the central bank allows the nominal exchange rate to depreciate to E_1, the real exchange rate becomes $\lambda_1 = E_1 P_A/P^*$ and country A is in equilibrium but in country B there is excess demand creating upward pressure on prices (the distance B'B"). If the central bank decides to favor country B by keeping the nominal exchange rate at the initial level, country B will be in equilibrium at point A, but there will be excess supply in country A (the distance A'A") and prices will fall in the long-term. This illustrates that if there are asymmetric shocks in a monetary union, what suits one country hurts the other country.

In case the common currency is floating, it will depreciate after the adverse shock but not all the way down to $\lambda_1 = E_1 P_A/P^* = E_1 P_B/P^*$ but to an intermediate level E_2 such that the real exchange rate is $\lambda_2 = E_2 P_A/P^* = E_2 P_B/P^*$. At this real exchange rate both countries will be in disequilibrium, there will be excess demand in country A but excess supply in country B. The exchange rate is correct on average but it is too strong for country A which is in a recession and too weak for country B which is overheating.



(c) Is it possible that symmetric shocks can have asymmetric effects? Motivate your answer.

The analysis above concerns the effects of asymmetric shocks but it also applies if there is a symmetric shock but asymmetric effects. It may not be that all countries respond in exactly the same way to common symmetric shocks, the structure of the economies might differ, labor markets are not identical across countries, there could be large differences in financial sectors and banking systems and so on. All such differences affect the way shocks affect the economy. It is therefore likely that common shocks could have asymmetric effects even in countries forming a monetary union. Furthermore, in a monetary union with a common central bank the effects of monetary policy across member states depend on the structure of financial markets and the banking system. It may therefore be the case that a common monetary policy will have quite different effects in different countries.

(d) It is often argued that the European Monetary Union is not an optimum currency area. Is it possible that the union will become an optimum currency area in the future?

A standard approach when evaluating whether EMU is an optimum currency area is to analyze the current situation but a more proper approach may be to look at changes over time as it is possible that membership affects economic behavior. We know that a common currency tend to increase trade. As trade increases, the linkages between countries also increase further increasing economic integration. Diversification of the industrial sector has increased somewhat suggesting that asymmetric shocks tend to become symmetric. Effects on labor markets are more modest, there is no clear evidence suggesting strong effects on labor markets. Even though these developments are not conclusive, it seems reasonable to argue that changes in institutions (EMU membership and a common currency for example) affect economic behavior and that it therefore is possible that even though EMU is not clearly an optimum currency area, it may develop into one in the future.