Problem Set 6 · Macroeconomic policy & European Central Bank

1. Consider Exercise 4 from Problem Set 5. (i) Identify in each case the kind of monetary policy (expansionary or contractionary) that may offset the change in the inflation rate caused by the event described in the case. (ii) Identify in each case the kind of fiscal policy (expansionary or contractionary) that may offset the change in real GDP caused by the event described in the case.

2. Let *E* be an economy and *E*' the economy consists of the rest of the world.
(i) Analyze graphically by means of the AS-AD model the effect on the macroeconomic equilibrium of the return home of all the unemployment immigrants (analyze both economies, *E* and *E*').
(ii) Considering *E*, explain if it is possible to offset, by means of the fiscal policy, the effect on real GDP found in (i). If so, list two fiscal policy measures that could achieve this goal.
(iii) If the fiscal policy in (ii) is expansionary, suppose it is financed by the issuance of government bonds. Explain if this issuance could have some effect on the equilibrium real GDP?

3. (i) Analyze graphically by means of the AS-AD model the effect on the macroeconomic equilibrium of the closure of all the factories owned by foreigners. (ii) Which type of economic policy could offset the effect on the equilibrium inflation rate of the closure? Analyze the effects of this policy on the AS-AD model.

4. (i) Find two differences between an expansionary monetary policy and an expansionary fiscal policy. (ii) Find two characteristics they have in common.

5. A teacher makes the following proposal to a student that, though being near a borderline pass, has not passed Macroeconomics: "You will pass the course if you devote a couple of days in holidays to looking over your lecture notes". Analyze this proposal in connection with the factors determining the effectiveness of economic policies. Specifically, does this situation illustrate the concept of lags, the concept of temporal inconsistency, or Goodhart's law?

6. Exams are indicators of knowledge: the more one knows on a subject, the higher the mark one is expected to obtain in an exam (not previously announced) on the subject. Goodhart's law predicts that, once it is publicly known that exams become the instrument to test one's knowledge, exams may turn out to be a less reliable indicator of knowledge. Explain why. [Hint: Ask yourself whether you study Macroeconomics to learn the subject or to pass the exam.]

7. Explain if Goodhart's law has a bearing on the following situation. The Catalonian law 18/2007, on the right to housing, "dota les administracions actuants d'instruments per a aconseguir que els habitatges desocupats injustificadament, en àmbits d'acreditada necessitat d'habitatges, s'incorporin al mercat immobiliari per mitjà de tècniques de foment, però també de tècniques d'intervenció administrativa". Article 41 refers to "Detecció d'utilitzacions i situacions anòmales dels habitatges" and declares permanent vacancy an anomalous situation. Point 5 in the article asserts that, to verify the existence of an anomalous situation, the competent civil service may request information concerning "abnormal water, town gas, or electricity consumption".

8. Explain why attendance is no longer a good measure of the students' performance when the teacher announces that attendance determines the final mark (part 7, slide 9).

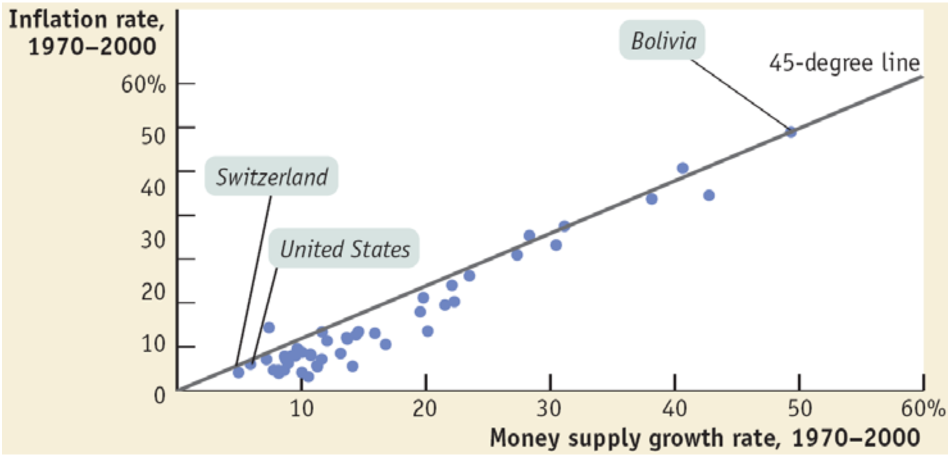
9. Suggest a justification for simultaneously implementing: (i) an expansionary fiscal policy and a contractionary monetary policy; (ii) a contractionary fiscal policy and an expansionary monetary policy. (iii) Is there any difference between applying only an expansionary fiscal policy and applying both an expansionary fiscal policy and an expansionary monetary policy?

10. What combination of monetary policy and fiscal policy leads, simultaneously, to a fall in the inflation rate and an increase in production?

11. (i) What kind of fiscal policy can put to an end deflation? (ii) And what kind of monetary policy?

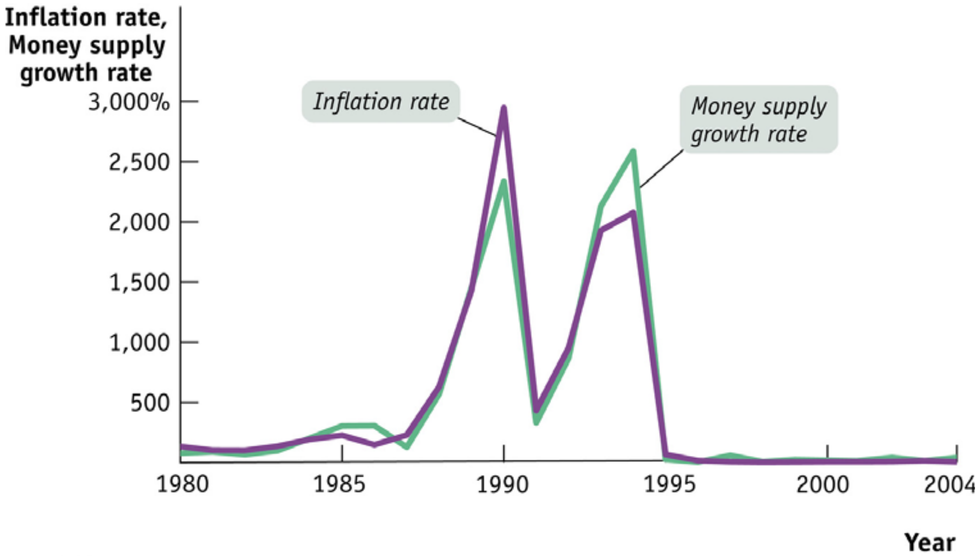
12. Find the effect on the macroeconomic equilibrium of implementing, at the same time: (i) an expansionary fiscal policy and a contractionary fiscal policy; (ii) an expansionary fiscal policy and a contractionary monetary policy; (iii) a contractionary fiscal policy and a contractionary monetary policy; (iv) an expansionary monetary policy and a supply-side policy; and (v) a supply-side policy and a contractionary fiscal policy.

13. Does the chart on the right suggest that, in the period 190-2000, monetary policy has been more expansionary at the US than at Bolivia? Explain your answer.



http://www.worthpublishers.com/krugmanwellsnew/main.htm

14. Is the chart on the right providing evidence for the monetarist view?



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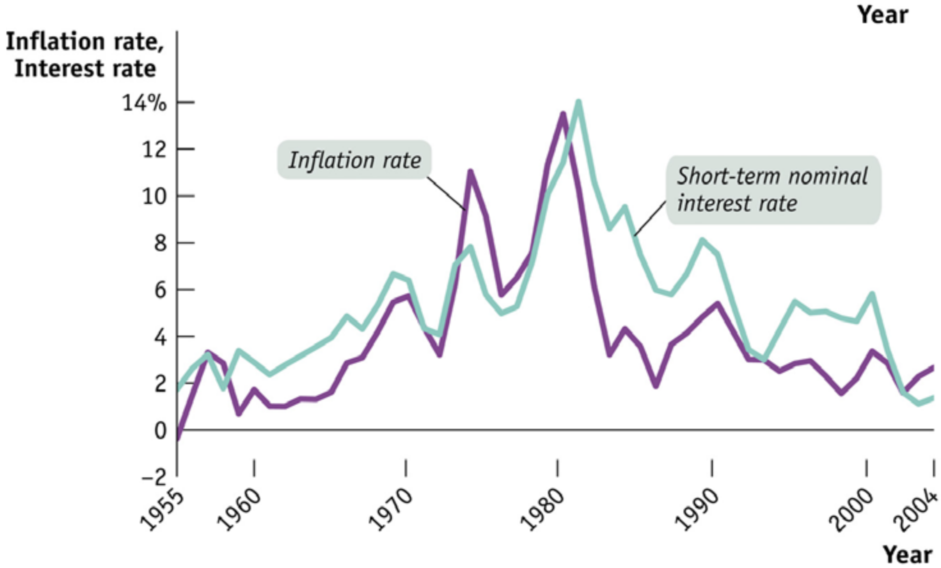
15. Consider the chart on the right. (i) During which periods the monetary policy can be considered expansionary? Why? (ii) During which periods the monetary policy can be considered contractionary? Why?



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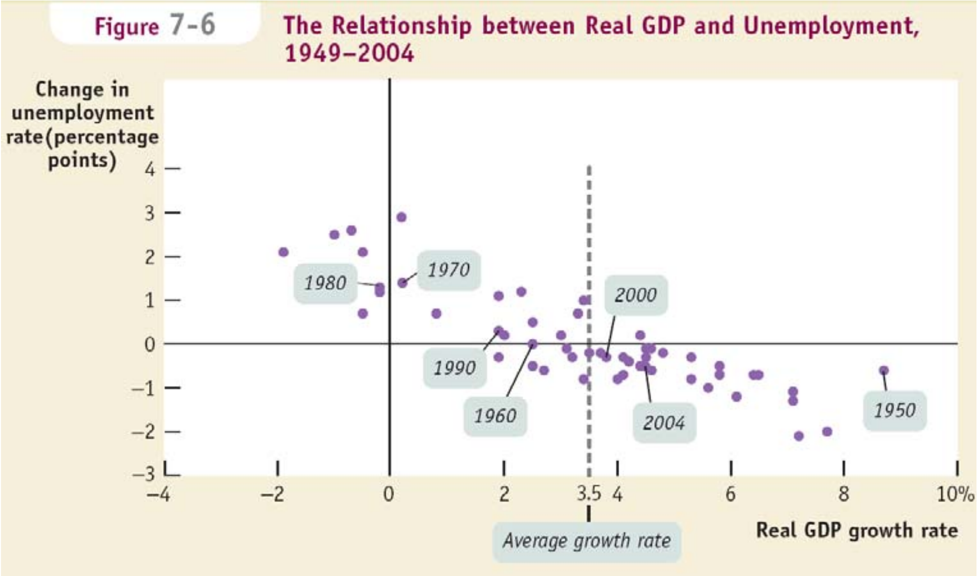
16. (i) What relationship is the chart on the right describing? (ii) According to the chart, what happened between 1960 and 1970? (iii) And between 1980 and 1990? (iv) What kind of fiscal policy could explain what happened in each case? (v) And what kind of monetary policy? (vi) Without any further information, in which case is more plausible to justify the claim that supply-side policies have been applied?



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17. Explain four ways by means of which a central bank can increase the liquidity of an economy.

18. The European Central Bank (ECB) decides to provide liquidity (500 million €) to the market by means of a main refinancing operation (MRO) organized with a variable rate tender procedure. (i) Compute in the following table the allotment to each bank. (ii) Determine the marginal interest rate of the tender. (iii) Answer the same question if the ECB decides to provide 300 million €.

i	*bids by the banks*				*allotment by the ECB*			
	B1	B2	B3	B4	B1	B2	B3	B4
5.5%	30	25	10	15				
5.4%	40	30	25	20				
5.3%	50	35	30	40				
5.2%	70	50	50	60				
5.1%	100	80	90	80				

19. The ECB decides to provide liquidity (500 million €) to the market by means of an MRO organized with a fixed rate tender procedure. Find, in each table, how the ECB allots the 500 million € to the banks.

bids by the banks				*allotment by the ECB*			
B1	B2	B3	B4	B1	B2	B3	B4
200	100	50	400				

bids by the banks				*allotment by the ECB*			
B1	B2	B3	B4	B1	B2	B3	B4
100	50	50	150				

bids by the banks				*allotment by the ECB*			
B1	B2	B3	B4	B1	B2	B3	B4
150	80	70	200				

20. (i) What side effects are associated with an expansionary fiscal policy consisting of a rise in the government expenditure that is financed by a rise in taxes? (ii) What if the additional government expenditure is financed by issuance of government bonds?

21. (ii) Analyze the effect on the interest rate of an increase in reserve requirements combined with an open market operations in which the central bank sells financial assets. (iii) Answer the same question if the central bank carried out a purchase of financial assets instead of a sale.

22. Consider the simple version of Taylor's rule in which a = ½, $\hat{\imath}_r$ = 4 (the long-run equilibrium real interest rate), and $\hat{\pi}$ = 3 (the central bank's target inflation rate). (i) Explain the meaning of a = ½ by means of an example. (ii) Find the nominal interest rate i set by the central in each of the case shown in the following table. (iii) Indicate the cases in which the real interest rate is above $\hat{\imath}_r$ and explain why it is above. (iv) At each period, which effect does the decision by the central bank of the interest rate cause on aggregate demand, real GDP, and the unemployment rate?

period	π	$\hat{\imath}_r$	$\pi - \hat{\pi}$	i	i_r
1	9%				
2	7%				
3	1%				
4	–1%				
5	3%				
6	5%				
7	0%				

23. (a) Explain the following relationships: (i) Okun's law; (ii) Phillips curve; (iii) Laffer curve; (iv) Taylor's rule. (b) Explain the following concepts: (i) Ricardian equivalence; (ii) crowding-out effect; (iii) monetary policy transmission channels; (iv) quantity equation; (v) neutrality of money. (c) Is there any difference between government debt monetization and issuance of government bonds?

Multiple-choice questions

1. According to the classical dichotomy, a reduction if the money stock causes
(a) a reduction in the real interest rate.
(b) a reduction in real exchange rate.
(c) a reduction in real GDP.
(d) None of the above

2. That money is neutral is the long run means that
(a) Okun's law is invalid in the long run.
(b) monetary policy can always neutralize a negative supply shock.
(c) the Ricardian equivalence proposition only creates inflation in the long run.
(d) None of the above

3. Using the version of the quantity equation in which variables are expressed as rates of change, if the money stock remains constant and the general price level rises, then
(a) real GDP necessarily rises.
(b) if real GDP remains constant, the velocity of money has diminished.
(c) if real GDP remains constant, the rate of change of the velocity of money is positive.
(d) None of the above

4. According to the quantity equation, if V = 2 and M = 400, then
(a) nominal GPD is not 800.
(b) P = 8 if real GDP is 100.
(c) real GDP is higher than 100.
(d) None of the above

5. The central bank can provide liquidity by
(a) carrying out an open market operation in which the central bank sells financial assets.
(b) raising the reserve requirements.
(c) raising the people's liquidity ratio.
(d) carrying out an open market operation in which the central bank purchases financial assets.

6. Policymakers have decided to offset the effect on real GDP of a contraction of the AS function. If they resort to the fiscal policy to achieve this goal, the appropriate fiscal policy
(a) shifts the AD function to the right.
(b) shifts the AD function to the left.
(c) shifts the AS function to the left.
(d) None of the above

7. The rest of the world is just entering a recession, so foreign output is reduced. It is likely that, in the domestic economy, this will cause
(a) a rise in both the inflation rate and real GDP.
(b) a rise in the inflation rate and a fall in real GDP.
(c) a fall in both the inflation rate and real GDP.
(d) a fall in the inflation rate and a rise in real GDP.

8. When the central bank sells financial assets,
(a) the nominal interest rate tends to decrease.
(b) liquidity tends to rise.
(c) the money multiplier goes up because the sale causes a rise in both the reserve ratio and the liquidity ratio.
(d) the nominal interest rate tends to increase.

9. What sentence is not true?
(a) The central bank affects directly M0.
(b) The money multiplier links M0 with M1.
(c) A n increase in the reserve ratio lowers the money multiplier.
(d) The ECB sets the value of the Euribor by means of a tender procedure.

10. What policy can neutralize the effect on the inflation rate of a reduction in population that does not affect employment?
(a) Supply-side policy.
(b) Contractionary monetary policy.
(c) Expansionary fiscal policy.
(d) None of the above

11. Decisions on indirect taxes (like the VAT) fall within
(a) supply-side policy.
(b) monetary policy.
(c) fiscal policy.
(d) None of the above

12. A contractionary monetary policy aims at
(a) reducing the real interest rate.
(b) increasing the real exchange rate.
(c) reducing the inflation rate.
(d) None of the above

13. Which sentence is not false?
(a) The ultimate goal of monetary policy is to lose control of the nominal interest rate.
(b) The inflation rate is the only intermediate target of monetary policy.
(c) Establishing reserve requirements is a monetary policy instrument.
(d) Open market operations do not constitute an instrument of monetary policy.

14. The interest rate channel of monetary policy differs from the exchange rate channel in that the former affects
(a) the government expenditure, whereas the latter affects net exports.
(b) private investment, whereas the latter affects government expenditure.
(c) private consumption, whereas the latter affects the credit conditions.
(d) None of the above

15. Which of the following is not an example of demand policy?
(a) An expansionary open market operation
(b) Professional training programmes for unemployed workers
(c) Cutting unemployment benefits
(d) A rise in the tax rates

16. Using the version of the quantity equation in which variables are expressed as rates of change, if the money velocity remains constant, then
(a) if nominal GDP does not change, then the inflation rate is approximately equal to the rate of change of the money stock.
(b) the rate of change of nominal GDP is always positive.
(c) if the money stock does not vary, then the inflation rate is approximately equal to the rate of change of nominal GDP.
(d) if the inflation rate is zero, then nominal GDP remains constant.

17. Combining an expansionary fiscal policy with a contractionary monetary policy
(a) always makes the inflation rate go up.
(b) may leave the inflation rate unaltered.
(c) always causes a drop in the inflation rate.
(d) None of the above

18. Which variable is in the quantity equation?
(a) The velocity of money
(b) The unemployment rate
(c) The target inflation rate
(d) The real interest rate

19. Monetizing the government debt means
(a) increasing taxes now with the aim of decreasing them in the future.
(b) that the central bank is implementing an expansionary fiscal policy.
(c) that the central bank is carrying out a contractionary monetary policy.
(d) None of the above

20. An increase in real GDP and a decrease in the inflation rate have been observed. A possible explanation is that
(a) an expansionary fiscal policy has been implemented.
(b) a contractionary monetary policy has been implemented.
(c) supply-side policies have been applied.
(d) None of the above

21. Fighting stagflation means aiming at
(a) increasing real GDP and lowering the inflation rate by adopting a contractionary monetary policy and an expansionary fiscal policy.
(b) lowering real GDP and increasing the inflation rate by means of supply-side policies.
(c) increasing real GDP and lowering the inflation rate by adopting an expansionary monetary policy and a contractionary fiscal policy
(d) None of the above

22. The goal of an expansionary fiscal policy is to increase
(a) the money stock
(b) the unemployment rate
(c) the foreign real GDP
(d) None of the above

23. Taylor's rule is an instance of
(a) a fiscal policy rule.
(b) a monetary policy rule.
(c) a supply-side policy rule.
(d) None of the above

24. Which sentence is not false?
(a) The General Council is the main decision-making body of the European Central Bank.
(b) The Eurosystem is exactly the same institution as the European Central Bank.
(c) The European System of Central Banks is the monetary authority of the eurozone.
(d) The Executive Board of the European Central Bank implements the monetary policy decided by the Governing Council.

25. According to the crowding-out effect, an increase in the government expenditure tends to
(a) reduce private expenditure (consumption plus investment).
(b) lower the nominal interest rate.
(c) increase the inflation rate and cause a fall in real GDP.
(d) None of the above

26. The empirical evidence suggests that a budget deficit that is persistently monetized tends to
(a) raise the inflation rate.
(b) accelerate a disinflation process.
(c) cause deflation.
(d) Neither (a) nor (b)

27. The empirical evidence suggests that the degree of independence of a central bank with respect to the government is negatively correlated with
(a) the unemployment rate.
(b) the real GDP rate of growth.
(c) the inflation rate.
(d) None of the above

28. The sequence $\downarrow$M0 $\Rightarrow$ $\downarrow$M1 $\Rightarrow$ $\uparrow i \Rightarrow \uparrow i_r \Rightarrow \downarrow C$ $\downarrow I \Rightarrow \downarrow AD \Rightarrow \downarrow Y$ represents the interest rate channel of monetary policy.
(a) The step $\downarrow$M1 $\Rightarrow \uparrow i$ is not correct because, in the loan market, a fall in liquidity never implies a raise in the interest rate.
(b) The step $\downarrow$M0 $\Rightarrow$ $\downarrow$M1 is due to the money multiplier.
(c) The above sketch represents the effect of an expansionary monetary policy.
(d) None of the above

29. The main refinancing operations (MROs)
(a) are the interest rates set by the European Central Bank.
(b) are also known as the marginal lending facility.
(c) are a particular case of the Taylor's rule.
(d) constitute a tool of monetary policy.

30. Goodhart's law states that the design of economic policies
(a) requires at least as many instruments as goals.
(b) is always temporally inconsistent.
(c) faces the problems generated by the existence of lags.
(d) None of the above