Introduction to Macroeconomics · 2017-18

Problem Set 5 · Multiple choice questions

1. In which case does an economy not have, for sure, lending capacity?
(a) Net private saving is positive and the government budget is in deficit.
(b) Net private saving is negative and the government budget is in surplus.
(c) Net private saving is positive and the government budget is in surplus.
(d) None of the above

2. In which case has the economy lending capacity for sure?
(a) $\mathbf{S} - \mathbf{I} > \mathbf{0}$ and $\mathbf{T} - \mathbf{G} - \mathbf{TR} > \mathbf{0}$
(b) $\mathbf{S} - \mathbf{I} > \mathbf{0}$ and $\mathbf{T} - \mathbf{G} - \mathbf{TR} < \mathbf{0}$
(c) $\mathbf{S} - \mathbf{I} < \mathbf{0}$ and $\mathbf{T} - \mathbf{G} - \mathbf{TR} > \mathbf{0}$
(d) $\mathbf{S} - \mathbf{I} < \mathbf{0}$ and $\mathbf{T} - \mathbf{G} - \mathbf{TR} < \mathbf{0}$

3. According to the savings identity, the trade balance **NX** equals
(a) $\mathbf{S} + \mathbf{I} - (\mathbf{G} + \mathbf{TR} - \mathbf{T})$.
(b) $\mathbf{T} - \mathbf{G} - \mathbf{TR} - \mathbf{S} + \mathbf{I}$.
(c) $\mathbf{T} - \mathbf{I} - \mathbf{G} - \mathbf{TR} + \mathbf{S}$.
(d) None of the above

4. Which variable cannot be negative?
(a) The trade balance
(b) The change in the government budget
(c) The percent change in the unemployment rate
(d) None of the above

5. On the basis of the savings identity, that an economy has lending capacity means that
(a) the government has a budget surplus.
(b) a trade surplus exists.
(c) net private saving $\mathbf{S} - \mathbf{I}$ is negative.
(d) the economy runs twin deficits.

6. According to the savings identity, the value of savings **S** is necessarily equal to
(a) the lending capacity of the economy.
(b) the government budget.
(c) investment minus export plus imports.
(d) None of the above

7. Given the savings identity, it is imposible that
(a) net exports are zero.
(b) the government budget deficit is zero.
(c) net private savings (the difference between private savings and investment) are zero.
(d) None of the above

8. Suppose private saving **S** and net exports **NX** are both zero. Then
(a) investment **I** equals government saving $\mathbf{T} - \mathbf{G} - \mathbf{TR}$.
(b) investment I equals the budget deficit $\mathbf{G} + \mathbf{TR} - \mathbf{T}$.
(c) the economy has financial need.
(d) there is a trade surplus.

9. Define the government deficit as $\mathbf{G} + \mathbf{TR} - \mathbf{T}$ and let **NX** denote net exports. Then
(a) the government deficit cannot be positive and net exports negative.
(b) the government deficit and net exports cannot both be zero.
(c) if investment **I** is zero, then the government deficit is equal to net exports.
(d) if private saving **S** equals investment **I**, then the government deficit is equal to minus net exports.

10. Define the government saving as $\mathbf{T} - \mathbf{TR} - \mathbf{G}$ and the foreign saving as $\mathbf{IM} - \mathbf{EX}$. If investment **I** equals private saving **TS**, then
(a) the government saving necessarily equals the foreign saving.
(b) the government saving is necessarily greater than the foreign saving.
(c) the government saving is necessarily smaller than the foreign saving.
(d) the government saving may be equal to the foreign saving.

11. Let **NPS** designate net private saving $\mathbf{S} - \mathbf{I}$; **GB**, the government budget $\mathbf{G} + \mathbf{TR} - \mathbf{T}$; and **NX** the trade balance. According to the macroeco-nomic identities, which situation cannot arise?
(a) **NPS** rises, **GB** decreases, **NX** remains constant.
(b) **NPS** increases, **GB** decreases, **NX** increases.
(c) **NPS** decreases, **GB** increases, **NX** decreases.
(d) **NPS** remains constant, **GB** rises, **NX** decreases.

12. If net private savings $\mathbf{S} - \mathbf{I}$ equal zero and imports equal exports, then
(a) there is a budget surplus (public savings are positive).
(b) there is a budget deficit (public savings are negative).
(c) the economy suffers from a financial need.
(d) None of the above

13. A period of falling unemployment and rising GDP is called
(a) Okun's law.
(b) business cycle.
(c) depression.
(d) None of the above

14. If the government runs neither a budget surplus nor a budget deficit, then
(a) there must be a trade surplus.
(b) there must be a trade deficit.
(c) if investment **I** differs from private saving **S**, then the trade balance is necessarily neither in surplus nor in deficit.
(d) None of the above

15. Define the goverment budget as government expenditure minus taxes plus transfers. Then the savings identity holds that
(a) savings equal investment minus the government budget minus net exports.
(b) investment equals savings plus the government budget plus net exports.
(c) savings equal investment plus the government budget plus net exports.
(d) None of the above

16. If the government budget is balanced (runs neither a surplus nor a deficit), then
(a) net exports **NX** are equal to savings **S**.
(b) net exports **NX** are equal to investment **I**.
(c) investment **I** equals savings **S** if net exports **NX** are zero.
(d) None of the above

17. Defining the government budget as spending minus receipts, it follows from the savings identity that
(a) if savings equal investment, then the government budget is equal to the trade balance.
(b) if there is a trade balance deficit, then there is a government budget deficit.
(c) if there is a government budget surplus, then there is a trade balance surplus.
(d) None of the above

18. An economy has, for sure, lending capacity if
(a) $S - I > 0$ and $T - G - TR > 0$.
(b) $S - I > 0$ and $T - G - TR < 0$.
(c) $S - I < 0$ and $T - G - TR > 0$.
(d) $S - I < 0$ and $T - G - TR < 0$.

19. What is typical of a recession?
(a) Workers are laid off, the inflation rate rises
(b) GDP falls, the inflation rate rises
(c) unemployment falls, the inflation rate falls
(d) None of the above

20. By itself alone, the AS-AD model can be used the predict the changes in the
(a) unemployment rate.
(b) real interest rate.
(c) inflation rate.
(d) real exchange rate.

21. The expression 'business cycle' refers to
(a) the ups and downs of the trade deficit.
(b) the ups and downs of the inflation rate.
(c) the changes in the firms' profits.
(d) None of the above

22. What cannot shift the AD function to the right?
(a) Consumption rises, investment falls.
(b) Net exports fall, government spending rises.
(c) Consumption falls, net exports fall.
(d) None of the above.

23. The peaks and troughs of a lagging variable tend to occur
(a) at about the same time as the peaks and troughs of the business cycle.
(b) later than the peaks and troughs of the business cycle.
(c) before the peaks and troughs of the business cycle.
(d) None of the above

24. Loosely speaking, Okun's law relates
(a) the unemployment rate to GDP.
(b) the inflation rate to the unemployment rate.
(c) the inflation rate to the interest rate.
(d) GDP to the exchange rate.

25. The Phillips curve does not refer to
(a) the inflation rate.
(b) the real exchange rate.
(c) the unemployment rate.
(d) None of the above

26. The macroeconomic equilibrium is given by
(a) the inflation rate and the unemployment rate.
(b) the real GDP and the unemployment rate.
(c) the real GDP and the inflation rate.
(d) the real interest rate and the real exchange rate.

27. 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 policies have been adopted.
(d) None of the above

28. Characteristically, in a booming economy
(a) GDP does not decline.
(b) the inflation rate is falling.
(c) the economy is reaching the through of the business cycle.
(d) countercyclical variables become cyclical, and coincident indicators become lagging indicators.

29. Okun's law establishes a negative relationship between
(a) real GDP growth and the interest rate.
(b) the unemployment rate and the inflation rate.
(c) real GDP growth and the unemployment rate.
(d) the inflation rate and the unemployment rate.

30. The business cycle refers to the fact that
(a) the open economy trilemma is sometimes false.
(b) Okun's law relates changes in the inflation rate to changes in the unemployment rate.
(c) a recession is a self-sustained contractionary phenomenon while an expansion is not a self-sustained booming phenomenon.
(d) None of the above

31. It is characteristic of the expansionary phase of the business cycle that
(a) GDP (real or nominal) grows.
(b) the unemployment rate grows.
(c) the quantity equation and the Laffer curve become false.
(d) the crowding-out effect becomes nul and the trade balance is zero.

32. Which variable cannot be negative?
(a) the inflation rate.
(b) the change in the unemployment rate.
(c) the participation rate.
(d) None of the above

33. Consider the equation $\Delta u = 1 - y/2$, where Δu is the change in the unemployment rate and y is the rate of growth of real GDP. This equation
(a) is an example of a Phillips curve.
(b) does not mean that if the growth rate of real GDP increases by four per cent points, the unemployment rate increases by two per cent points.
(c) is an example of an aggregate demand function.
(d) implies that, when there is no change in real GDP, the unemployment rate goes up by two per cent.

34. If a fraction of the unemployed people leaves the labour force, then the unemployment rate
(a) goes up.
(b) goes down.
(c) does not change.
(d) None of the above

35. If a fraction of the employed people leaves the labour force, then the unemployment rate
(a) goes up.
(b) goes down.
(c) does not change.
(d) None of the above

36. A period during which real GDP grows and unemployment falls is called
(a) a Phillips curve.
(b) the business cycle.
(c) an expansion.
(d) a recession.

37. If the labour force expands, then
(a) the unemployment rate increases if unemployment remains constant.
(b) the unemployment rate decreases if unemployment remains constant.
(c) the unemployment rate cannot change.
(d) None of the above

38. In which expression the unemployment rate and the inflation rate are both absent?
(a) In the expression that defines the GDP deflator
(b) In the Fisher equation
(c) In an expression that defines a Phillips curve
(d) In the equation that expresses the relative purchasing power parity

39. Which pair of variables cannot both simultaneously grow?
(a) The CPI and the GDP deflator
(b) Employment and the unemployment rate
(c) Nominal GDP and real GDP
(d) None of the above

40. Demand-pull deflation is deflation caused by
(a) the balance sheet recession theory.
(b) an increase in the demand for liquidity.
(c) a reduction in aggregate demand.
(d) None of the above

41. Which variable cannot be positive?
(a) The unemployment rate
(b) The change in unemployment rate
(c) The change in the percent change in the unemployment rate
(d) None of the above

42. A period in which GDP grows and unemployment falls is
(a) the Phillips curve.
(b) an expansion.
(c) the business cycle.
(d) a recession.

43. Characteristically, in a booming economy
(a) GDP and inflation rate both tend to rise.
(b) the inflation rate is falling.
(c) the economy approaches the trough of the business cycle.
(d) countercyclical variables become cyclical variables and coincident indicators turn into lagging indicators.

44. If net private savings $S - I$ equal zero and imports equal exports,
(a) there is a budget surplus (public savings are positive).
(b) there is a budget deficit (public savings are negative).
(c) the economy has financial need.
(d) None of the above

45. Define the government budget as spending plus transfers minus taxes. Then it is a macroeconomic identity that
(a) savings = investment – the government budget – net exports.
(b) investment = savings + the government budget + net exports.
(c) savings = investment + the government budget + net exports.
(d) None of the above

46. The concept of business cycle refers to
(a) the feedback process that increases **M1** in the so-called money creation process.
(b) the speculation cycle that causes currency crises when governments violate the macroeconomic identities.
(c) the fact that there is no macroeconomic variable that grows when GDP grows.
(d) None of the above

47. The unemployment rate does not tend to go down when
(a) the economy is in the expansionary phase of the business cycle.
(b) the economy is between the trough and the peak of the current business cycle.
(c) the economy is hit by a depression.
(d) None of the above

48. Using the discount factor, if the one year interest rate is 10%, the price at the issue date of T-bill with face value €1,000 is
(a) $1{,}000 \cdot (1 + 0.1)$
(b) $\frac{1+10}{1{,}000}$
(c) $\frac{1{,}000}{1+10}$
(d) $\frac{1{,}000}{1+0.1}$

49. The discount factor associated with interest rate $i = 50\%$
(a) cannot be calculated.
(b) is also 50%.
(c) is smaller than 1.
(d) is greater than 1.

50. The concept of discount factor is directly related to
(a) real GDP per capita.
(b) the reserve ratio or the liquidity ratio.
(c) the monetary aggregate M3.
(d) None of the above

51. Which of the following sentences is not true?
(a) Nominal interest rate and price of financial assets tend to be inversely correlated.
(b) When the central bank executes an open market operation, the nominal interest rate tends to be inversely correlated with M1.
(c) The discount rate is inversely correlated with the nominal interest rate.
(d) None of the above

52. The discount factor is directly related to
(a) the CPI inflation rate.
(b) the money multiplier.
(c) the nominal interest rate.
(d) None of the above

53. If the nominal interest rate falls, then, necessarily,
(a) the associated discount factor also falls.
(b) the price of financial assets also falls.
(c) the real interest rate rises.
(d) None of the above

54. The nominal interest rate on a one-year loan is 5%. Assuming arbitrage, find the likely initial price of a T-bill with the same time to maturity as the loan and with face value equal to 100.
(a) There is not enough information to determine the answer.
(b) The price is the discounted value of 5%.
(c) The price is $100 \cdot (1 + 0.05) = 105$.
(d) None of the above

55. At the issue date, the price of a T-bill to mature in one year and with face value €1,000 is €400. By arbitrage, which must be interest rate for loans maturing in one year?
(a) There is no relationship between the price of the T-bill and the interest rate
(b) Exactly 40%
(c) Smaller than 40%
(d) Greater than 40%

56. If the real interest rate remains constant, then, assuming the Fisher effect, a 3-point increase in the inflation rate
(a) will be accompanied by a 3-point reduction in the nominal interest rate.
(b) will cause no effect on the nominal interest rate.
(c) is simply impossible.
(d) None of the above

57. A negative real interest rate
(a) is impossible.
(b) is not impossible.
(c) is the consequence of having a nominal interest rate equal to the inflation rate.
(d) None of the above.

58. A negative real interest rate
(a) necessarily implies a negative inflation rate.
(b) arises when the nominal interest rate is greater than the inflation rate.
(c) occurs when the inflation rate is greater than the nominal interest rate.
(d) is a plain impossibility.

59. According to the Fisher equation, if real interest rate is 4% and nominal interest rate is 6%, then the inflation rate is, roughly,
(a) 10%.
(b) 2%.
(c) −2%.
(d) None of the above

60. Which concept is unrelated to the nominal interest rate?
(a) The Fisher effect
(b) The price of T-bills
(c) The savings identity
(d) None of the above

61. According to the Fisher effect, a surge in the inflation rate causes
(a) a reduction in the unemployment rate.
(b) an increase in real GDP.
(c) a reduction in the nominal interest rate.
(d) an increase in the nominal interest rate.

62. Suppose that the rate of return of loans and T-bills is the same and that both assets have the same maturity. If the face value of T-bills is 1,090 and the interest rate of the loans is 9%, then the price of T-bills when they are issued must be
(a) negative.
(b) higher than 1,000.
(c) lower than 1,000 but positive.
(d) 1,000.

63. The Fisher effect relates the
(a) GDP growth rate and the nominal interest rate.
(b) economy growth rate and the inflation rate.
(c) trade balance or the government budget deficit and the nominal interest rate .
(d) inflation rate and the nominal interest rate.

64. The real interest rate
(a) links **M1** with **M2**.
(b) is, in general, equal to the real GDP.
(c) coincides with the discount factor.
(d) depends on the nominal interest rate and the inflation rate.

65. According to the Fisher effect,
(a) the nominal interest rate is always constant.
(b) the nominal interest rate reacts to changes in the inflation rate.
(c) the nominal GDP reacts to changes in the GDP deflator.
(d) the real interest rate can never be negative.

66. The real interest rate is, initially, positive and is given by the Fisher equation. If both the nominal interest rate and the inflation rate are cut by half, then the real interest rate
(a) is also cut by half.
(b) does not change.
(c) falls.
(d) becomes zero.

67. The discount factor is directly related to
(a) the reserve ratio.
(b) the money creation process.
(c) the unit of account property of money.
(d) the interest rate of the economy.

68. If the interest rate between t and $t+1$ is $i = 10\%$, then
(a) the price in t of a T-bill issued in t that promises to pay €1,000 in $t+1$ is also 10%.
(b) the discount factor is equal to 10%.
(c) by arbitrage the nominal (or face) value of a T-bill is 10%.
(d) None of the above

69. The denial of which sentence is not true?
(a) The real interest rate may be smaller than the real exchange rate.
(b) The real interest rate is always higher than the real exchange rate.
(c) The real interest rate is always equal to the real exchange rate.
(d) The real interest rate is always smaller than the real exchange rate.

70. Which sentence is not true?
(a) If the Fisher equation holds, having always a constant real interest rate justifies the Fisher effect.
(b) An expansionary open market operation does not shift the demand for liquidity function to the left.
(c) The purchase of (interest-bearing) financial assets can be considered an indirect demand for liquidity.
(d) The Fisher equation does not relate the nominal interest rate with the nominal GDP, with the unemployment rate, or with the net private savings of the economy.

71. Which sentence is not false?
(a) If the real interest rate equals the inflation rate, then the nominal interest rate is zero.
(b) If the government budget runs a surplus and there is a trade deficit, then investment **I** equals savings **S**.
(c) With a positive nominal interest rate, the present discounted value of $x > 0$ euros is smaller than x.
(d) If the money multiplier increases, then the bank reserves also increase.

72. Which sentence is not false?
(a) The Fisher effect links the inflation rate with the real GDP growth rate.
(b) The savings identity links the money multiplier with deposits.
(c) The money multiplier links the money stock with the monetary base.
(d) The real interest rate links the GDP deflator with nominal GDP.

73. Which two concepts are not inversely related? (They are inversely related if, in general, one increases when the other decreases and vice versa.)
(a) Discount factor and nominal interest rate
(b) Prices of financial assets and the interest rate
(c) **M1** and **M0**
(d) Real GDP and GDP deflator when nominal GDP is held fixed.

74. The price of T-bills when issued is 800. The nominal value of T-bills is 1,000. Assume that the inverse relationship between the price of T-bills and the nominal interest rate holds. If the inflation rate (between the issuance of T-bills and their maturity time) is 30%, then
(a) the real interest rate is positive but not higher than the nominal interest rate.
(b) the real interest rate is equal to the nominal interest rate.
(c) the real interest rate is negative.
(d) None of the above

75. According to the Fisher equation,
(a) the nominal exchange rate is the real exchange rate plus the inflation rate.
(b) the unemployment rate is inversely related to the inflation rate.
(c) by subtracting the inflation rate from the nominal interest rate the real interset rate is obtained.
(d) None of the above

76. The Fisher equation
(a) mentions neither the interest rate nor the inflation rate.
(b) involves the unemployment rate and the inflation rate.
(c) does not relate GDP with the exchange rate.
(d) None of the above

77. The inflation rate rises while the nominal interest rate falls. This would contradict
(a) the macroeconomic savings identity.
(b) the money multiplier formula.
(c) the Fisher effect.
(d) None of the above

78. A discount factor equal to one means that
(a) the interest rate is zero.
(b) the discount factor has been calculated in the base period.
(c) the GDP deflator inflation rate is zero.
(d) None of the above

79. According to the Fisher effect there is a one-to-one relationship
(a) between the nominal exchange rate and the real interest rate.
(b) between the nominal interest rate and the inflation rate.
(c) between the real exchange rate and the CPI.
(d) None of the above

80. As a rule, economies with a high inflation rate are prone
(a) to have a low nominal interest rate.
(b) to have a very high money multiplier.
(c) to have a high nominal interest rate.
(d) to have a very low money multiplier.

81. The Fisher effect relates
(a) the GDP growth rate and the nominal interest rate.
(b) the GDP growth rate and the inflation rate.
(c) the government budget surplus and the nominal interest rate.
(d) the inflation rate and the nominal interest rate.

82. 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

83. 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

84. 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

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

86. 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

87. 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

88. 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.

89. 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

90. 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

91. What is the likely, immediate effect on the macroeconomic equilibrium of implementing, simultaneously, a contractionary fiscal policy and a supply-side policy?
(a) The inflation rate goes up while GDP does not vary.
(b) The inflation rate could remain unchanged and GDP could diminish.
(c) The inflation rate is reduced but GDP could not remain constant.
(d) None of the above

92. An increase in real GDP and a reduction 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

93. 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

94. 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

95. 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

96. 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

97. 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.

98. An example of a policy rule is given by
(a) Okun's law.
(b) the Laffer curve or the rule of 70.
(c) Taylor's rule.
(d) the Phillips curve.

99. The crowding-out effect has to do with
(a) the Laffer curve.
(b) the Phillips curve.
(c) neither (a), nor (b), nor (d).
(d) the Ricardian equivalence proposition and the impossible trinity.

100. Which sentence is true?
(a) An increase in the government revenues due to a tax raise stimulates the economic activity
(b) A cut in public spending or a tax raise or both tend to depress aggregate demand
(c) An increase in public spending causes a fall in the overall economic activity
(d) Only (a) and (c) are true

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

102. 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 reduce GDP.
(d) None of the above

103. According to Taylor's rule,
(a) the central bank should force the real interest rate to be below the long-run equilibrium real interest rate if the inflation rate is below the target inflation rate.
(b) the central bank should force the real interest rate to be above the long-run equilibrium real interest rate if the inflation rate is below the target inflation rate.
(c) the central bank should force the real interest rate to be below the long-run equilibrium real interest rate if the inflation rate is above the target inflation rate.
(d) the proper design of economic policy demands having at least as many instruments as targets (or goals).

104. 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

105. Which combination of measures cannot give rise to a contractionary fiscal policy?
(a) The tax rate is lowered and the government expenditure is increased.
(b) The central bank sells financial assets.
(c) The tax rate is raised and transfers are increased.
(d) None of the above

106. Which sentence is not false?
(a) Policies that improve the productive capacity of the economy constitute examples of demand-side policies.
(b) Monetary policy is an example of a supply-side policy.
(c) According to the quantity equation the higher the government budget deficit, the larger the crowding out effect on private expenditure.
(d) The classical dichotomy expresses a view on the relationship between real variables and nominal variables.

107. The quantity equation is not directly related to
(a) contractionary fiscal policy measures.
(b) the velocity of money.
(c) real GDP.
(d) None of the above

108. In the AS-AD model, GDP necessarily grows if
(a) taxes (paid by consumers) on sales rise and reserve requirements are brought down.
(b) transfers are increased and a contractionary open market operation is conducted.
(c) supply-side policies are adopted at the same time as government purchases fall.
(d) None of the above

109. What is likely to cause stagflation?
(a) A contractionary open market operation
(b) An expansionary fiscal policy.
(c) The closure of 30% of all the factories.
(d) A tax rise combined with an increase in transfers.

110. The policy consisting of an expansionary fiscal policy combined with a supply-side policy,
(a) shifts Goodhart's law to the right.
(b) shifts Taylor's rule to the right.
(c) shifts both the AS function and the AD function to the right.
(d) None of the above, or rotates the Laffer curve around its maximum point, or monetizes all the public debt, or always constitutes a temporally inconsistent policy, or contradicts the quantity equation.

111. Which variable does not appear in Okun's law, the Phillips curve, or the quantity equation?
(a) The government budget deficit.
(b) The unemployment rate.
(c) The stock of money.
(d) The inflation rate.

112. Which combination of policies alter the inflation rate in the same direction?
(a) Expansionary fiscal policy and contractionary monetary policy.
(b) Expansionary monetary policy and supply-side policy.
(c) Supply-side policy and contractionary fiscal policy.
(d) None of the above

113. What policy neutralizes the effect on the inflation rate and the real GDP of a positive shock to the aggregate supply function?
(a) An expansionary fiscal policy
(b) A contractionary fiscal policy
(c) A contractionary monetary policy
(d) None of the above

114. In the aggregate supply and aggregate demand model, what could neutralize the effect of stagflation on the macroeconomic equilibrium?
(a) An expansionary fiscal policy
(b) An contractionary monetary policy
(c) A supply-side policy
(d) None of the above

115. An expansionary fiscal policy aims at rising
(a) the money stock.
(b) the unemployment rate.
(c) foreign real GDP.
(d) None of the above

116. An expansionary fiscal policy on the inflationary region of the aggregate supply function
(a) stimulates production and rises the unemployment rate.
(b) causes a decline in production.
(c) has a negligible effect on the inflation rate.
(d) None of the above

117. An expansionary monetary policy aims at
(a) lowering the interest rate.
(b) a currency appreciation.
(c) Reducing the inflation rate.
(d) None of the above

118. Taylor's rule
(a) is an example of discretionary fiscal policy.
(b) is a supply-side policy measure.
(c) is an analytical tool to represent the monetary policy decisions taken by a central bank.
(d) None of the above

119. Which sentence is not false?
(a) Goodhart's law is a particular case of Okun's law.
(b) The Laffer curve consists of the part of the Phillips curve that is immune to the effectiveness lag.
(c) Taylor's rule relates changes in the inflation rate with changes in both the nominal and the real interest rate.
(d) The debate "rules vs discretion" is the debate on whether supply-side policies are preferable to demand-side policies.

120. Which sentence about the quantity equation is not false?
(a) It is a particular case of Goodhart's law.
(b) It refers to nominal GDP.
(c) It is the inverse of Okun's law.
(d) It is the sum of the money multiplier and the expenditure multiplier.

121. According to the crowding-out effect
(a) the exchange rate channel of monetary policy is more effective than the interest rate channel.
(b) the classical dichotomy invalidates the Ricardian equivalence proposition.
(c) the monetization of the government deficit reduces the inflation rate.
(d) None of the above

122. The crowding-out effect is a negative consequence of
(a) the existence of lags in the implementation of Taylor's rule when the Phillips curve becomes a temporary inconsistent policy.
(b) the existence of trade unions.
(c) a fiscal policy financed by issuing government bonds or T-bills.
(d) None of the above

123. Monetizing the public debt means that
(a) taxes rise now and are reduced in the future.
(b) the central bank conducts an expansionary fiscal policy.
(c) the central bank conducts an contractionary monetary policy.
(d) None of the above

124. What is a fiscal policy tool?
(a) The tax rate
(b) The unemployment rate
(c) The inflation rate
(d) The reserve ratio

125. Taylor's rule is
(a) a formula to calculate the GDP deflator.
(b) the equation that defines the purchasing power parity exchange rate.
(c) the same thing as Okun's law but from the standpoint of the aggregate supply and aggregate demand model.
(d) None of the above

126. In the AS-AD model, what could offset the negative impact on GDP of a recession?
(a) A revaluation, under a fixed exchange rate regime.
(b) A contractionary supply-side policy.
(c) An expansionary monetary policy.
(d) None of the above

127. An economy has just entered into a recession. An explanation that does not depend on the relative importance of the two events is that
(a) a supply-side policy and an expansionary open market operation have been executed.
(b) the number of consumers has increased and the number of firms has decreased.
(c) the economy has lost competitiveness and a severe drought has caused a rise in the price of electric power.
(d) contractionary monetary and expansionary fiscal policies have been implemented.

128. A monetary policy transmission channel
(a) operates through the government spending.
(b) operates through the exchange rate.
(c) operates through triangular arbitrage.
(d) None of the above

129. Demand-pull deflation is deflation caused by
(a) the balance sheet recession theory.
(b) an increase in the demand for liquidity.
(c) a reduction in aggregate demand.
(d) None of the above

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

131. What is likely to shift the AS function to the right and the AD function to the left?
(a) Supply-side policy plus expansionary monetary policy
(b) Closing down of firms plus expansionary fiscal policy
(c) Closing down of firms plus stock market crash
(d) Supply-side policy plus stock market crash

132. Using the quantity equation (with absolute or relative values), in which case is the inflation rate higher?
(a) With a constant velocity of circulation of money, the money stock increases by 10% and real GDP decreases by 5%.
(b) With a constant velocity of circulation of money, the money stock increases by 10% and real GDP increases by 5%.
(c) Nominal GDP increases by 5%, real GDP remains constant and the velocity of money rises by 2%.
(d) Both the money stock and the velocity of money remain constant, whereas real GDP falls by 12%.

133. In which case would the aggregate demand function shift for sure to the right but the inflation rate could decrease?
(a) A supply-side policy is implemented at the same time as 50% of all the firms close down.
(b) An expansionary monetary policy is implemented at the same time as a contractionary fiscal policy.
(c) An expansionary fiscal policy is implemented at the same time as a supply-side policy.
(d) None of the above

134. Which sentence is true?
(a) The Phillips curve is Taylor's rule when the inflation rate equals the interest rate
(b) The GDP deflator establishes how aggregate production changes and, in particular, how GDP changes.
(c) Okun's law, in essence, relates GDP with the unemployment rate.
(d) The aggregate supply function establishes a positive relationship between interest rate and unemployment rate.

135. Taylor's rule
(a) states that the Lucas paradox occurs when Okun's law coincides with the Phillips curve.
(b) is a particular case of the Swan diagram.
(c) is not an example of a monetary policy rule.
(d) None of the above

136. What is the likely, immediate effect on the macroeconomic equilibrium of implementing an expansionary fiscal policy and, simultaneously removing a previously applied supply-side policy?
(a) The inflation rate goes down while GDP does not change.
(b) GDP could remain unchanged but the inflation rate increases.
(c) GDP falls but it is not possible to ascertain whether the inflation rate moves up or down.
(d) None of the above

137. What would shift the AS function and the AD function in the same direction, at least initially and in general?
(a) A contractionary fiscal policy and an increase in the number of firms
(b) A contractionary monetary policy and an expansionary fiscal policy
(c) A supply-side policy and a rise in the financial wealth caused by a stock market boom
(d) A rise in energy prices and a depreciation of the domestic currency

138. In which case would the aggregate supply function shift for sure to the left but the inflation rate could decrease?
(a) A supply-side policy is implemented at the same time as 50% of all the firms close down.
(b) An expansionary fiscal policy is implemented at the same time as a supply-side policy.
(c) An expansionary monetary policy is implemented at the same time as a contractionary fiscal policy.
(d) None of the above

139. Which sentence is false?
(a) The inflation rate and the unemployment rate are both determined in the aggregate supply and aggregate demand model.
(b) Neither the real exchange rate nor the interest rate are determined in the currency market.
(c) The liquidity market model is not useful to find the value of the unemployment rate but it is to represent the effect of open market operations.
(d) Taylor's rule is an equation stating how a central bank would set the interest rate.

140. What is typically not an economic policy tool?
(a) Open market operations
(b) The liquidity ratio
(c) Taxes
(d) None of the above

141. Goodhart's law
(a) constitutes an example of a policy rule.
(b) is a way of financing the government debt.
(c) sets limits to what can be accomplished through economic policies.
(d) is inversely related to the Fisher equation.

142. The Ricardian equivalence proposition points out some limitations of implementing
(a) fiscal policies.
(b) the quantity equation.
(c) the business cycle.
(d) None of the above

143. The expression 'supply-side economics' means that
(a) liquidity is in short supply or that the central bank should supply liquidity.
(b) the government should supply public services.
(c) the money supply equals cash plus deposits.
(d) None of the above

144. What shifts the AS function and the AD function in the same direction, at least initially and in general?
(a) A contractionary fiscal policy and an increase in the number of firms
(b) A contractionary monetary policy and an expansionary fiscal policy
(c) A supply-side policy and a rise in the financial wealth caused by a stock market boom
(d) A rise in energy prices and a depreciation of the domestic currency.

145. To offset, using monetary policy, the effect on the inflation rate caused by a contractionary shift of the AS function, what function and in what direction will have to shift?
(a) The AD function, to the right.
(b) The AD function, to the left.
(c) The AS function, to the left.
(d) None of the above

146. In the aggregate supply and aggregate demand model, what combination of policies could leave GDP unchanged?
(a) Removal of a supply-side policy and exchange rate revaluation
(b) Expansionary fiscal policy and exchange rate devaluation
(c) Contractionary monetary policy and supply-side policy
(d) None of the above

147. The aim of an expansionary monetary policy
(a) is to lower the interest rate.
(b) is to raise the government budget deficit.
(c) is to lower the inflation rate.
(d) None of the above

148. What policy mix produces a non-ambiguous effect on GDP?
(a) Expansionary fiscal and contractionary monetary policy
(b) Expansionary monetary and supply-side policy
(c) Supply-side and contractionary fiscal policy
(d) None of the above

149. A positive shock has affected the AS function. What policy would revert the macroeconomic equilibrium to its initial state?
(a) Expansionary fiscal policy
(b) Contractionary fiscal policy
(c) Contractionary monetary policy
(d) None of the above

150. What is not a demand-side policy?
(a) An open market operation.
(b) Retraining programmes for the unemployed.
(c) A cut in unemployment benefits.
(d) A rise in the taxes that consumers must pay.

151. An expansionary fiscal policy aims at raising
(a) the money stock.
(b) foreign real GDP.
(c) the unemployment rate.
(d) None of the above

152. What policy mix produces a non-ambiguous effect on GDP?
(a) The government conducts an expansionary fiscal policy (specifically, government expenditure is increased) and the central bank conducts a contractionary open market operation.
(b) The government implements supply-side policies (those intended to expand the economy's production capacity) and the central bank conducts an expansionary open market operation.
(c) The government applies supply-side policies and, at the same time, cuts public expenditure.
(d) None of the above

153. In the AS-AD model, what combination of policies could leave the inflation rate unchanged?
(a) Supply-side policy and exchange rate revaluation
(b) Expansionary fiscal policy and a devaluation
(c) Contractionary monetary and supply-side policy
(d) None of the above

154. By the savings identity, if savings = investment,
(a) net exports are zero.
(b) the government deficit cannot be zero.
(c) a trade surplus implies a government deficit.
(d) None of the above

155. In the AS-AD model, what combination of policies could leave GDPunchanged?
(a) Removal of a supply-side policy and revaluation
(b) Expansionary fiscal policy and devaluation
(c) Contractionary monetary policy and supply-side policy
(d) None of the above

156. In the AS-AD model, what combination of policies could leave the inflation rate unchanged?
(a) Supply-side policy and exchange rate revaluation
(b) Expansionary fiscal policy and exchange rate devaluation
(c) Contractionary monetary policy and supply-side policy
(d) None of the above

Problem Set 5 · Exercises

157. Balance identity. Fill out the following table using the balance identity.

Case	Private balance	Government balance	Foreign balance
1	positive	positive	
2		negative	positive
3	negative		positive
4			zero
5	zero	negative	
6		zero	

158. Balance identity. Explain which of the following cases are possible according to the sectoral balance identity.

Case	Private balance	Government balance	Foreign balance
1	rises	rises	rises
2	rises	falls	does not change
3	falls	does not change	rises
4	falls	rises	falls
5	falls	rises	does not change
6	does not change	rises	falls

159. Savings identity. Find net exports if the government budget (spending minus revenue) is equal to net exports, savings are three times investment, and investment is 10.

160. Savings identity. Government purchases equal imports. Exports equal savings. Taxes equal investment. If possible, find, using the savings macroeconomic identity, the value of transfers.

161. Savings identity. Find savings **S** if the other six variables in the savings identity take the same value $x > 0$.

162. Savings identity. (i) Define net private saving as $\mathbf{S} - \mathbf{I}$ and the government budget as $\mathbf{G} + \mathbf{TR} - \mathbf{T}$. If both magnitudes double, what happens to the trade balance **NX**? (ii) If net private saving is positive and the trade balance negative, is there a budget deficit or a budget surplus?

163. Savings identity. Ascertain if investment **I** increases, decreases, or does not change if the trade balance rises, the government deficit falls and private savings **S** is always zero.

164. Savings identity. Fill out the following table (government deficit is spending minus receipts).

Case	Net private saving	Government deficit	Trade balance
1	positive	positive	
2		negative	positive
3	negative		positive
4			zero
5	zero	negative	
6		zero	

165. Savings identity. Show how to obtain the savings identity $\mathbf{I} \equiv \mathbf{S} + (\mathbf{T} - \mathbf{TR} - \mathbf{G}) + (\mathbf{IM} - \mathbf{EX})$ from the identity $\mathbf{Y} \equiv \mathbf{C} + \mathbf{I} + \mathbf{G} + \mathbf{NX}$.

166. Savings identity. Defining net private saving as $\mathbf{S} - \mathbf{I}$ and government budget as spending minus receipts, identify which cases are possible.

167. Savings identity. Net private savings have increased by 5%. Net exports have fallen by 2%. Find the the approximate change in the government savings.

Case	Net private saving	Government deficit	Trade balance
1	rises	rises	rises
2	rises	falls	does not change
3	falls	does not change	rises
4	falls	rises	falls
5	falls	rises	does not change
6	does not change	rises	falls

168. Savings identity. Find net exports if $\mathbf{S} = 50$, $\mathbf{G} = 20$, $\mathbf{TR} = 5$, and $\mathbf{T} = 30$.

169. Savings identity. (i) Using the savings identity, ascertain whether exports are higher than, smaller than, or equal to investment if: imports equal government expenditure; transfers equal taxes; and investment is half savings. (ii) Government purchases equal imports. Exports equal savings. Taxes equal investment. Find the value of transfers.

170. Savings identity. Net exports are –50. Investment is equal to savings. Determine the value of the government budget.

171. Savings identity. If possible, find imports if (private) savings are 10, the trade balance is zero, consumption is 20, the government deficit is zero, the inflation rate is negative, the unemployment rate is 24%, exports equal government spending, and government spending equals (private) savings.

172. Savings identity. Explain if it is possible to simultaneously have a private sector surplus, a balanced public sector and a foreign sector deficit.

173. Savings identity. There are only two economies, A and B. Exports from A are 4. Exports from B are 6. Public deficits (outlays minus receipts) in A and B are the same. In A, savings are 8 and investment is 1. Investment in B is 0. Calculate savings in B and the trade balance of B.

174. Savings identity. Private savings are 15. Investment is equal to taxes. Government purchases equal imports. Exports double transfers. Find, if possible, exports.

175. T-bills. Assume that the relationship between the economy's interest rate i and the price of T-bills holds. (i) The face value of T-bills is 1,000. The discount factor is equal to the interest rate. Find the price of T-bills. (ii) Find the interest rate if the price of T-bills doubles the face value of T-bills. (iii) The interest rate is 20%. Find by how much the interest rate should change to double the price of T-bills.

176. Interest rate. The real interest rate is zero. Real GDP has decreased by 5%. Nominal GDP has decreased by 3%. If possible, find the approximate value of the nominal interest rate; if not possible, explain why.

177. Fisher effect. Explain if having a negative real interest rate for five years is consistent with the Fisher effect.

178. Price and rate of return. Explain why a fall in the price of T-bills is likely to be accompanied by an increase in the rate of return of T-bills.

179. Interest rate. (i) May the nominal interest rate of an economy be persistently negative? What would it mean? (ii) And zero? (iii) Can people be considered more patient when $i = 0$ than when $i > 0$?

180. Rate of return. (i) Compute the rate of return of a €120 loan when only €80 are repaid. (ii) What if €80 are loaned and €120 repaid? (iii) Find in each case the corresponding discount factor.

181. Present value. Calculate the present discounted value in period 1 of €100: (i) from period 2 when the interest rate is 5%; (ii) from period 3 when the interest rate is 5% in period 1 and in period 2; (iii) from period 3 when the interest rate is 5% in period 1 and 10% in period 2; (iv) from period 3 when the interest rate is 10% in period 1 and 5% in period 2; (v) from period 3 when the interest rate is 10% in periods 1 and 2.

182. Fisher equation. Nominal interest rate has fallen by 2 percent points. Find the minimum change in the inflation rate ensuring a negative real interest rate.

183. Interest rate, discount factor. (i) Can the discount factor rise and the interest rate both rise? (ii) €50 from period 1 are worth €60 in period 2. Find the corresponding interest rate and discount factor.

184. Real interest rate. Find the real interest rate in a certain period if the nominal interest rate is 5%, the CPI at the beginning of the period is 200, and the GDP deflator at the end of the period is 220.

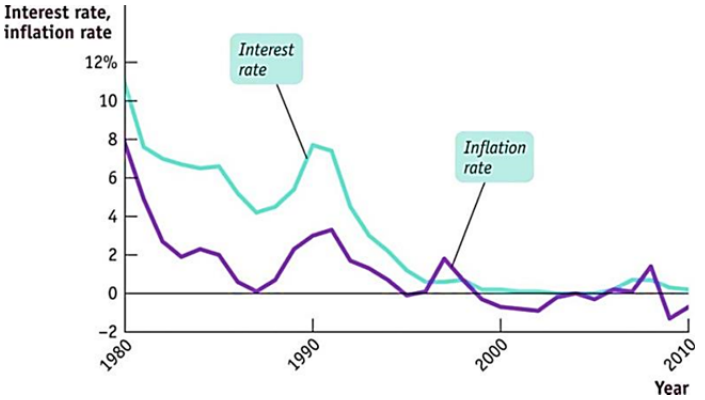
185. T-bills. (i) Compute the rate of return of a T-bill with face value $V = 210$ and price $P = 200$. (iii) Find the interest rate i under which the rate of return of the T-bill agrees with i. (iii) Find the face value of T-bills priced 200 if the interest rate is 5%.

186. T-bills. (i) Find the price (that prevents arbitrage) of a T-bill with face value 1,200 if the real interest rate is 5% and the inflation rate is 15%. (ii) The nominal interest rate is 10% and the price of a T-bill is 200. Calculate the face value of the T-bill.

187. Discount factor. (i) The discount factor is 0.6 and the price of a T-bill is 200. Given the relationship between the interest rate and the price of T-bills, find the face value of the T-bill. (ii) Calculate the present value of 200 if the (per one) interest rate is 2/3.

188. Real interest rate. Find the real interest rate: (i) if the nominal interest rate is 5% and the CPI is 200; (ii) if the real interest rate is constant and the inflation rate is 5%.

189. Real interest rate, Japan. (i) Does the chart below provide information concerning the real interest rate? (ii) If so, identify a period in which it is positive and another one in which it is negative. (iii) Can a period be identified during which it rises? And another one during which it falls?



http://bcs.worthpublishers.com/krugmanwellsmacro3/default.asp#t_768077____ (Chapter 16 → Student PowerPoint Slides)

190. Fisher equation. Economies **A** and **B** have the same real interest rate. The inflation rate in **A** is five percentage points higher than in **B**. According to the Fisher equation, which economy has the higher nominal interest rate and by how many percentage points? Justify your answer in detail.

191. Fisher effect. Indicate two variables having to do with the Fisher effect and another two completely unrelated to the Fisher effect.

192. T-bills. Assuming that the relationship between the economy's interest rate and the price of T-bills holds, determine the face value of T-bills if the discount factor is 5/6 and the price of T-bills when issued is 600.

193. T-bills. One million T-bills are issued in period t. Each one is sold at a price equal to €1,000 and promises to pay €V in $t+1$. The interest rate from t to $t+1$ is 50%. Find the value of V consistent with the absence of arbitrage opportunities.

194. Fisher equation. Using the Fisher equation, find the value of the nominal interest rate if real GDP is 100 and the GDP deflator inflation rate is 10%.

195. T-bills. Assuming that the relationship between the economy's interest rate i and the price of T-bills holds, find the price of T-bills (when issued) if their face value is 1,000 and the discount factor (based on i) is 1/2.

196. Purchasing power. Explain the meaning of the sentence "according to the CPI, the purchasing power in period t of €1,000 is 5 baskets of goods".

197. Real interest rate. The price level today is 100; tomorrow, 200. By lending €1,000 today, you get €1,200 tomorrow. Calculate the corresponding exact real interest rate.

198. Discount factor. Assuming valid the equation linking the price of T-bills and the interest rate of the economy, calculate the economy's discount factor if the price of T-bills, when issued, is 500 and their face value is 1,000.

199. T-bills. T-bills with face value V are about to be issued in period t. They mature in period $t+1$. The interest rate between t and $t+1$ is negative. What can be said about the relationship between V and the price P at which the T-bills are initially sold?

200. Real interest rate. Calculate the real interest rate between period $t=0$ and period $t=1$ if the CPI in $t=0$ is 100, the CPI in $t=1$ is 105, and the nominal interest rate between $t=0$ and $t=1$ is 3%.

201. T-bills. Assuming the formula that relates the face value of a T-bill, its price, and the interest rate calculate the face value: (i) if the discount factor is 1 and the price is 100; (ii) if the interest rate is 100% and the price is 100.

202. Real interest rate. Explain the meaning of the sentence "the exact real interest rate between periods t and $t+1$ is 10%".

203. Interest rate. The (exact) real interest rate between t and $t+1$ is 10%. According to the CPI, the purchasing power in t of €1,000 is 5 baskets of goods. The CPI in $t+1$ is 300. Find, if possible, the CPI inflation rate between t and $t+1$ and the nominal interest rate between t and $t+1$.

204. Poland. Poland economy data are shown below (http://www.focus-economics.com/countries/poland)

	2011	2012	2013	2014	2015
CPI inflation rate (annual variation, %)	4.6	2.4	0.7	-1.0	-0.5
Policy interest rate (%)	4.5	4.25	2.5	2	1.5
Stock market (annual variation, %)	-20.8	26.2	8.1	0.3	-9.6
Money (annual variation, %)	11.5	4.2	6.7	8.8	9.7

(i) Is the evolution of the first two magnitudes consistent with the Fisher effect? Justify the answer. (ii) Is the evolution of the second and third magnitudes consistent with the relationship between interest rates and prices of financial assets? Justify the answer. (iii) During which years is the evolution of the last magnitude consistent with an expansionary monetary policy and during which years consistent with a contractionary monetary policy? Justify the answer.

205. Real interest rate. Compute the real interest rate if the nominal interest rate equals the inflation rate.

206. Real interest rate. If you lend €1,000 in period t you get €2,000 in period $t + 1$. The CPI in t is 100. The CPI in $t + 1$ is 200. Find the real interest rate between t and $t + 1$.

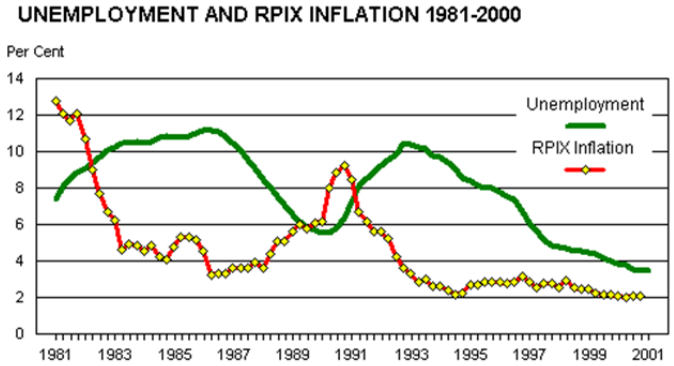
207. T-bills. (*i*) Assuming the formula that relates the face value of a T-bill, its price, and the interest rate, calculate the discount factor if the price of T-bills is 900 and their face value is 1,200. (*ii*) Explain what the value of the discount factor represents.

208. Interest rate. Calculate the real interest rate if nominal GDP equals the GDP deflator inflation rate.

209. Unemployment. (i) Is it possible that, at the same time, the participation rate rises and the unemployment rate falls? If so, why? (ii) Explain the differences between frictional unemployment and structural unemployment. Suggest examples of both. (iii) Is there any relationship between Moravec's paradox and structural unemployment?

210. Unemployment. (i) Explain if it is possible that, at the same time, unemployment increases and the unemployment rate decreases. (ii) Explain if it is possible that employment increases and, simultaneously, the unemployment rate also increases.

211. Inflation and unemployment. The chart below shows the unemployment rate u and the inflation rate π in the UK (RPIX = retail price index excluding mortgage interest payments ≈ underlying inflation). Identify periods during which u and π are consistent with a stable Phillips curve and periods in which they are not.



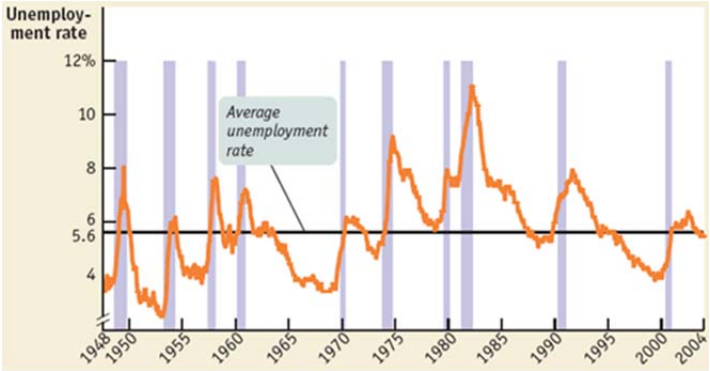
http://www.tutor2u.net/economics/content/topics/inflation/philips_curve.htm

212. Phillips curve and Okun's law. Indicate some feature than Okun's law and the Phillips curve have in common and some other that differentiates them.

213. Okun's law and AS function. Suppose Okun's law takes the following form: $\Delta u = 12 - \Delta y$, where $\Delta u = u - u_{-1}$ and $\Delta y = y - y_{-1}$. Let the Phillips curve be given by $\pi = 5 - u$. (i) Graph each of the two relationships. (ii) Combine the two equations to obtain an AS function and plot the function.

214. Phillips curve. Consider the Phillips curve $\pi = \alpha - \beta \cdot u$, where α and β are positive constants. (i) Make a graph of the Phillips curve. (ii) Let α include the inflation rate π^e expected by people. Show graphically the effect on the Phillips curve of an increase in π^e.

215. Business cycle and unemployment. The chart below shows the US unemployment rate u (shaded areas identify recessions). (i) On inspection, what is the relationship between u and the business cycle that the chart suggests? (ii) Does u appear to be a procyclical or a counter-cyclical variable?



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216. Goodhart's law. Exams are indicators of knowledge: the more one knows on a subject, the higher the mark one is expected to obtain in an (unannounced) exam 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 exams.]

217. Financing deficits. The government wonders whether to finance an unexpected public deficit by increasing taxes or by issuing T-bills. (a) Using the liquidity market model, show graphically the effect of each option on the interest rate. (b) For each option, explain the kind of monetary policy that the central bank should carry out to neutralize the effect on the interest rate established in (a).

218. Policy externalities. Policymakers in the US want the US economy to boom. Explain if the fact that the eurozone is already booming contributes positively or negatively to achieve that goal.

219. Goodhart's law. Taking for granted that students report their opinions honestly, each academic year the university invites students to fill in a questionnaire to assess the teachers' performance. Before the 2010-11 academic year teachers were informed of the students' assessment after the end of the academic year. Since the 2010-11 academic year the questionnaire must be filled in at the moodle website and the teacher can know the students' opinions even before he or she marks the students. (i) Why is Goodhart's law relevant to this situation? In particular, do students have an incentive to report truthfully their opinions under the new evaluation policy? (ii) Would you recommend going back to the traditional evaluation policy? Explain your answer.

220. Fiscal and monetary policies. Indicate some feature that an expansionary fiscal policy and an expansionary monetary policy have in common. Indicate a difference.

221. Taylor's rule. Using the Taylor's rule, prove that, when the economy's inflation rate is above the central bank's target, the current real interest rate is above the long-run equibrium real interest rate.

222. Taylor's rule. A central bank follows the Taylor's rule $i = \pi + \bar{r} + (\pi - \bar{\pi})/2$, where $\bar{\pi}$ is the bank's inflation target and $\bar{r}$ is the real interest rate to which the economy converges in the long run. Calculate by how much the actual real interest rate differs from $\bar{r}$ if $\pi = 2 \cdot \bar{\pi}$.

223. Taylor's rule. Consider the simple version of Taylor's rule in which $A = 1/2, \bar{r} = 4$ (the long-run equilibrium real interest rate), and $\bar{\pi} = 3$ (the central bank's target inflation rate). (i) Explain the meaning of $A = 1/2$ by means of an example. (ii) Find the nominal interest rate i set by the central in each of the case shown in the table below. (iii) Indicate the cases in which the real interest rate is above $\bar{r}$ and explain why it is above. (iv) In each period, how does the decision on the interest rate by the central bank affect aggregate demand, real GDP and the unemployment rate?

period	π	$\bar{r}$	$\pi - \bar{\pi}$	i	$r = i - \pi$
1	9%				
2	7%				
3	1%				
4	−1%				
5	3%				
6	5%				
7	0%				

224. Definitions. (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? (d) What have the following concepts in common and what differentiates each one from the rest: government debt, government deficit, government primary deficit? (e) What is a monetary policy transmission channel? (f) Is there any relationship between the Tinbergen precept and the Laffer curve?

225. Goodhart's law. 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 the detection of abnormal situations and uses of households (*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".

226. Quantity equation. Explain with the help of the quantity equation, or some transformation of that equation, if it is possible that the velocity of circulation of money does not change, nominal GDP grows by 2% and the money stock is reduced a 2%.

227. Debt-to-GDP ratio. The government wants the primary deficit-to-GDP ratio to be −10% in period t. The debt-to-GDP ratio in $t-1$ was 40%. In t, the real interest rate is 4% and the GDP growth rate is −1%. What would the approximate change in the debt-to-GDP ratio be in t?

228. Policy in the AS-AD model. Consider Exercise 111 from Problem Set 4. (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.

229. Policy in the AS-AD model. Let E be an economy and E′ the economy given by the rest of the world.

(i) Analyse graphically by means of the AS-AD model the effect on the macroeconomic equilibrium of both E and E′ of the return to E′ of all the unemployment immigrants currently in 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.

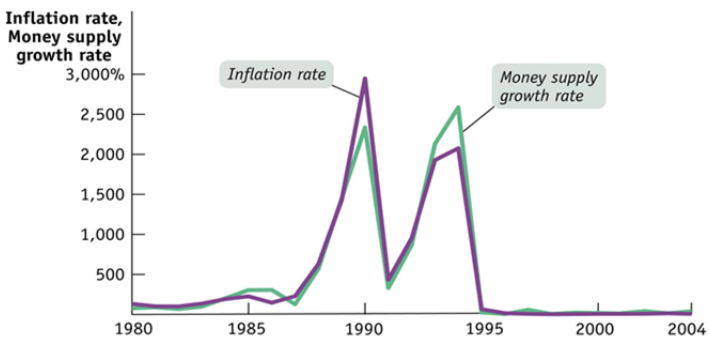
230. Policy in the AS-AD model. (i) Analyse graphically by means of the AS-AD model the effect on the macroeconomic equilibrium of the closure of all the factories owned by foreigners. (ii) Which type of economic policy could offset the effect on the equilibrium inflation rate of the closure? Analyse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

231. Macroeconomic policy. Indicate some feature that an expansionary monetary policy and an expansionary fiscal policy have in common and another one that differentiates them.

232. Macroeconomic policy. Explain how monetary policy can influence the exchange rate. Explain how fiscal policy can influence the exchange rate.

233. Simultaneous policies. Suggest a justification for conducting at the same time: (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?

234. Monetarism. Does the chart on the right provide evidence for the monetarist view?



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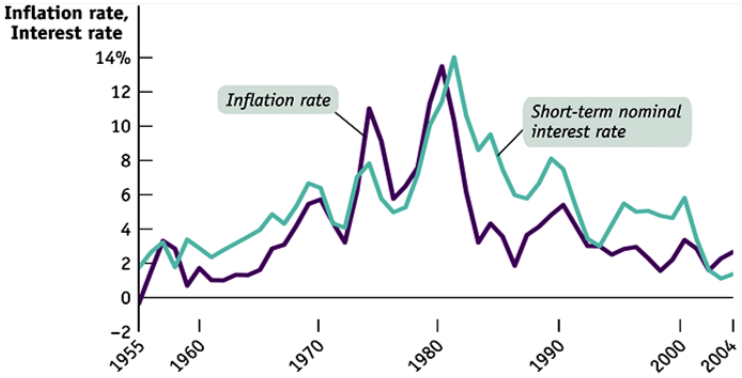
235. Monetary policy. Consider the chart on the right. (i) During which periods monetary policy could be consi-dered rather expansionary? Why? (ii) During which periods monetary policy can be considered contractionary? Why?



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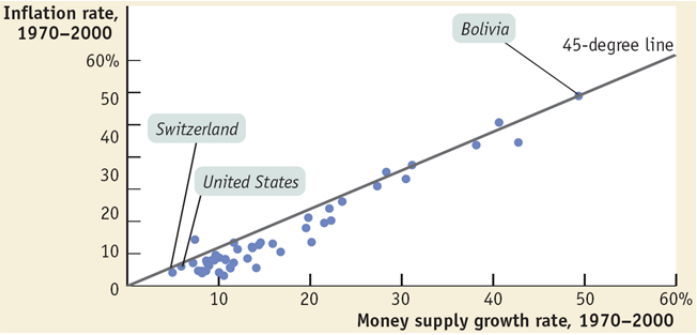
236. Policy effectiveness. A teacher makes the following proposal to a student that, though being near a borderline pass, has not passed Macroeconomics: "You will pass the course if you devote a couple of days in holidays to looking over your lecture notes". In connection with the factors determining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

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

238. Goodhart's law. Taking for granted that students report their opinions honestly, each academic year the university invites students to fill in a questionnaire to assess the teachers' performance. Before the 2010-11 academic year teachers were informed of the students' assessment after the end of the academic year. Since the 2010-11 academic year the questionnaire must be filled in at the moodle website and the teacher can know the students' opinions even before he or she marks the students. (i) Why is Goodhart's law relevant to this situation? In particular, do students have an incentive to report truthfully their opinions under the new evaluation policy? (ii) Would you recommend going back to the traditional evaluation policy? If so, why? If not, why not?

239. Monetary policy. (ii) Analyse 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.

240. Monetary policy. Does the chart on the right suggest that, in the period 1970-2000, monetary policy has been more expansiona-ry in the US than in Bolivia? Justify your answer.



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241. Fiscal policy. Explain whether an expansionary fiscal policy could generate some contractionary effect on the economy.

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

243. Simultaneous policies. 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.

244. Fiscal policy. (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?

245. AS-AD model. In order to curtail its debt, the government decides to increase the income tax and, simultaneously, to cut public spending. At the same time, the government decrees a labour reform that solely amounts to a fall of all wages by 10%. (i) Using the AS-AD model, explain the foreseeable effect of all those measures on the inflation rate, real GDP, and the unemployment rate. (ii) Indicate a monetary policy measure that could revert the inflation rate to its original value.

246. Quantity equation. Explain with the help of the quantity equation, or some transformation of that equation, if it is possible that the velocity of circulation of money does not change, nominal GDP grows by 2% and the money stock is reduced a 2%.

247. Policy. (i) Suggest a macroeconomic variable that typically grows in a booming economy, another one that typically falls, and, for each variable, indicate a policy measure that could neutralize the change in the variable. (ii) Do the same for a slumping economy.

248. Side/revenge effect. Explain if each event represents a side or a revenge effect (WA Sherden, 2011, *Tyranny of unintended consequences and how to avoid them*). (i) Minimum wages increase unemployment. (ii) Imposition of trade barriers to protect industries has resulted in the decline of those industries. (iii) The use of GPS to enhance safety has caused accidents by creating new hazards as users become overreliant on these devices. (iv) Efforts to prevent riots have precipitated them. (v) Hotheaded neighbors silence malfunctioning car alarm systems by trashing cars. (vi) Compulsory public education has allowed women to take on employment.

249. Policy comparison. Is there any sense in which, to help the economy expand, it is preferable to conduct an expansionary monetary policy rather than an expansionary fiscal policy? If so, why?

250. Tools. Indicate two fiscal policy tools and two monetary policy tools. Could some tool appear in both choices?

251. Quantity equation. The velocity of circulation of money is 5. The rate of growth of the money stock is zero. Using the quantity equation, find nominal GDP and the growth rate of nominal GDP.

252. AS-AD model. Suggests events causing the shifts of the functions indicated below and specifiy the effect on the macroeconomic equilibrium (if the effect is not ambiguous).

Events	AS function	AD function	infla-tion rate	GDP
	=	←		
	←	→		
	→	→		

253. Policies. State: (i) two contractionary fiscal policy measures, two expansionary monetary policy measures and two supply-side policies; (ii) two variables that typically grow during the expansionary phase of the business cycle and two that grow during the contractionary phase.