Questions *Macroeconomics* (with answers)

6 Aggregate Demand (Keynesian Model)

This exercise is based on the following source:


1 Consumption, investment and saving
   (neither government nor foreign trade)

### Questions 1.1 - 1.10

#### Q 1.1
General form of the consumption function: \( C = a + bY \).
Calculate the numbers of a and b according to graph 1?

#### Q 1.2
Explain the difference between autonomous and induced consumption.

#### Q 1.3
Explain the marginal propensity to consume (MPC).
Q 1.4
What happens to the consumption-line C in graph 1 if
- a rises;
- b rises?

Q 1.5
Compare the consumption functions in two different countries by using a graph:
- Country A: \( C = 0.8Y \)
- Country B: \( C = 0.6Y \)

Q 1.6
Y is the sum of \( C + S \) (= saving). If \( C = a + bY \), then \( S = -a + (1-b)Y \).
Draw the saving function in a graph (using for a and b the numbers according to Q 1.1):

\[
\begin{array}{c|c}
\text{Saving} & \text{Y} \\
\hline
0 & \end{array}
\]

Q 1.7
How much is the marginal propensity to save (MPS) (Q 1.6)?

Q 1.8
Explain why the sum of MPC and MPS equals to 1.

Q 1.9
Investment (I) is dependent on the interest rate and on the expectations of future profits, but not on income. Illustrate this in a graph:

\[
\begin{array}{c|c}
\text{Investment} & \text{Y} \\
\hline
0 & \end{array}
\]

Q 1.10
How does graph 1 look like if aggregate demand = \( C + I \)
Assume that \( I = 10 \)
Questions 1.11 - 1.20

Q 1.11
Explain the 45°-line in graph 2 (x- and y-axis have the same scale.).

Q 1.12
Where is the equilibrium in graph 2?

Q 1.13
Is the equilibrium-Y also the full-employment-Y?

Q 1.14
In graph 2, I rises. Illustrate the new equilibrium and the multiplier.

Q 1.15
Choose in graph 2 a point of disequilibrium and explain the tendency to equilibrium.

Q 1.16
During a recession, a country wants to get a higher Y (+ 600). By how much must rise investing if the multiplier is 2.4?

Q 1.17
Multiplier* = \( \frac{1}{1 - \text{MPC}} \)  \hspace{1cm} (MPC = Marginal propensity to consume)
Calculate the multiplier if the consumption function is as follows: \( C = 5 + 0.75Y \)

* (The multiplier is the result of such a geometric progression: \( 1 + b + b^2 + b^3 + \ldots + b^n \))
Q 1.18
Calculate the multiplier if the marginal propensity to save (MPS) is 0.26.

Q 1.19
Two different consumption functions:
- Consumption function I: \( C = 10 + 0.8Y \)
- Consumption function II: \( C = 10 + 0.7Y \)
In which case is the multiplier larger?

Q 1.20
In equilibrium, injections (investing) equal withdrawals (saving). Illustrate this in a graph as follows:

![Saving, Investing](image)

Assumptions:
\( S = -a + (1-b)Y \)
\( I \) depends on interest rates and on expectations, not on \( Y \).

2 Aggregate demand with government (but without trade)

Questions 2.1 - 2.3

Q 2.1
Government spending (G) is part of AD and is dependent on political decisions, not on Y. How must be changed graph 2 (page 3) if we add G?

Q 2.2
- Taxes (T) depend on income; they reduce income and consumption:
  \( T = tY \quad (t = \text{Marginal propensity to tax, MPT}) \)
- The consumption function depending on disposable income: \( C = a + b(Y-T) \)
Calculate the multiplier by substituting \( tY \) for \( T \).
Q 2.3
This graph shows AD (C + I + G) before taxes. How must be changed the graph if we take into account taxes?

3 Aggregate demand with government and foreign trade

Questions 3.1 - 3.5

Q 3.1
- Exports (X) are part of AD and depend on incomes abroad, not on domestic Y.
- Imports (M) reduce AD and depend on Y:
  \[ M = mY \]  
  (m = Marginal propensity to import, MPI)

Draw three graphs as follows:
Q 3.2
AD = C + I + G + (X - M)
\[ C = a + b(Y - T) \]
\[ T = tY \]
\[ M = mY \]
Substitute \( tY \) for \( T \) and \( mY \) for \( M \) and calculate the overall multiplier.

Q 3.3
How must be changed this graph if we take into account foreign trade?

Q 3.4
The injections \( I, G \) and \( X \) do not depend on income, whereas the withdrawals \( S, T \) and \( M \) are dependent on income. Equilibrium exists if \( I + G + X = S + T + M \).
Illustrate the equilibrium in an open economy in a graph:

Q 3.5
Rearranging the formula in Q 3.4, we get: \( (I - S) + (G - T) + (X - M) = 0 \)
What can be concluded if \( I > S \) and, simultaneously, \( G > T \)?

→ Answers. Click here!