Introduction to Macroeconomics
TOPIC 2: The Goods Market

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Road map:

1. Demand for goods
   1.1. Components
      1.1.1. Consumption
      1.1.2. Investment
      1.1.3. Government spending

2. Equilibrium in the goods market

3. Changes of the equilibrium
1.1. Demand for goods - Components

What are the main component of the demand for domestically produced goods?

- Consumption C: all goods and services purchased by consumers
- Investment I: purchase of new capital goods by firms or households (machines, buildings, houses..) (≠ financial investment)
- Government spending G: all goods and services purchased by federal, state and local governments
- Exports X: all goods and services purchased by foreign agents
- Imports M: demand for foreign goods and services should be subtracted from the 3 first elements
Demand for goods

\[ Z \equiv C + I + G + X - M \]

This equation is an identity. We have this relation by definition.
Assumption 1: we are in closed economy: $X=M=0$
(we will relax it later on)

Demand for goods $= Z \equiv C + I + G$
1.1.1. Demand for goods - Consumption

**Consumption:**

- Consumption increases with the disposable income
  \[ Y_D = Y - T \]
- Reasonable assumption: \( C = c_0 + c_1 Y_D \)
  - the parameter \( c_0 \) represents what people would consume if their disposable income were equal to zero. Changes in \( c_0 \) reflects changes in consumption for a given level of disposable income.
  - the parameter \( c_1 \) is called the marginal propensity to consume. It gives the effect of an additional dollar of disposable income on consumption.

Consumption is an **endogenous** variable. It depends on an other variable of the model (\( Y \)).
1.1.1. Demand for goods - Consumption

Figure: Consumption as a function of the disposable income.

Consumption Function
\[ C = c_0 + c_1 Y_D \]

\[ \text{Slope} = c_1 \]
1.1.2. Demand for goods - Investment

\[ I = \bar{I} \]

**Investment** is an *exogenous* variable. It depends on variables that are not included in the model. We take investment as given.
1.1.3. Demand for goods - Government spending

Government spending is also an *exogenous* variable. It is chosen by the government, we won’t try to explain it within the model.
2. Equilibrium in the goods market

Demand for goods: \( c_0 + c_1(Y - T) + \bar{I} + G \)

Supply of goods: \( Y \)

**Equilibrium in the goods market** (production = demand):
\[ Y = c_0 + c_1(Y - T) + \bar{I} + G \]

NB: \( Y \) is both output and income (remember Topic 1)
2. Equilibrium in the goods market

To get the equilibrium output, let's rewrite the equilibrium equation:

\[ Y = c_0 + c_1(Y - T) + \bar{I} + G \]

\[ Y = \frac{1}{1 - c_1} [c_0 + \bar{I} + G - c_1 T] \]

- \( c_0 + \bar{I} + G - c_1 T \) is called autonomous spending.
- \( \frac{1}{1 - c_1} \) is the \textbf{multiplier}. It is called so because any increase in the autonomous spending will lead to an increase in output that is higher than the initial increase in autonomous spending.
Intuition of the **multiplier**: 

- An increase in autonomous spending leads to an increase in demand and therefore an increase in output.
- This increase in output reflects into an increase in income (the two are identically equal).
- This increase in income pushes demand up, and therefore increases output.
- ...... (successive rounds)
2. Equilibrium in the goods market

Figure: Equilibrium in the goods market.
2. Equilibrium in the goods market

Another way of thinking the equilibrium in the goods market:

Let's denote private savings by $S^{private}$ and public savings by $S^{public}$:

- $S^{private} = Y - T - C$: the part of disposable income that is not consumed
- $S^{public} = T - G$: the part of government revenues that is not spent

Let's rewrite the equilibrium equation in the goods market:

$Y = C + I + G$

$Y - T = C + I + G - T$

$I = S^{private} + S^{public}$

The equilibrium on the goods market requires that investment equals total saving. It is why it is called the IS relation.
3. Changes of the equilibrium

*How does an increase in $c_0$ affect the equilibrium?*

- Demand increase, creating an upward shift of the demand curve.
- To satisfy the higher level of demand, production (output) increases.
- This increase in production leads to an increase in income and therefore in demand.
- This leads to a further increase in output
- ...

The increase in $c_0$ leads to an increase in output, and this increase in output is higher than the initial increase in $c_0$ because of the multiplier effect.
3. Changes of the equilibrium

effect on equilibrium output of an increase in $c_0$.
Any change creating an increase in autonomous spending (for example, an increase in government spending) would lead to a similar effect.
Before to analyze how the goods market behaves in interaction with the financial market, lets study the financial market separately.