**MONETARY MACROECONOMICS**

Monetary macroeconomics is a way of thinking born to explain the **business cycle fluctuations**: booms and boosts are present since ancient times, yet the modern business cycle can be studied only **after** the **industrial revolution** period. In this period there were economic indicators that were helpful for such a study, so before it was impossible to analyze fluctuations because peaks and failures were the results of epidemics or other factors unrelated to business activity. After 19th century, some important economic indicators are individuated by statisticians. For example, real GDP is the output produced by an economy and the best indicator if its activity. When we refer to business cycle, we put real GDP in the y axis and time (t) in the x axis. The first way to study GDP is analyzing its long run trend, related to growth literature, whereas another way is to analyze its deviations over the long run trend (business fluctuations) and therefore its peaks and trough. The movement from a peak to a trough is called recession and the opposite pattern is called expansion. Business cycle studies the movement of real GDP over its long run trend. There are various explanations of business cycle, most of them related to monetary reasons.

**SCHUMPETER**

He is a member of historical school because his method of analysis is based upon that of this school. He suggests that there is no universal model that can be applied to all cases, yet a scholar must choose the most suitable model to study an economic case and therefore the model used changes according to the purpose of the specific economic study. Schumpeter explained the economic development and business cycle: he thought that the Walrasian one is an elegant way of explaining economics, yet it ignores growth (same level of output) and therefore cannot be used for this purpose. Growth is the result of the activity of the **entrepreneur** who introduces innovation and of the **banker** who finances it. The introduction of innovation is the starting point of growth, yet it is necessary to identify it and he finds five forms:

* **Introduction of a new good**
* **Introduction of a new method of production**
* **Opening of a new market**
* **Discovery of a new material** to be used in the production process
* **Identification of new ways to organize the firm**

Each of them produces the same result, driving economy out of the zero growth condition (steady state situation 🡪 Walrasian framework) with a positive shock in the level of output; eventually the economy reaches a new steady state. The introduction of innovation produces a new business cycle and implies that the level of economic activity and profits go up (positive conditions 🡪 boom). The firms are not able to finance innovation with their internal funds, so the banker is fundamental because he provides sources. In a second stage, after the innovation is introduced, it spreads over the economy, implying a reduction in the profits of firms and the necessity to repay the debt collected at the beginning of the period (recession phase). In the recession phase the less efficient firms default and only the most efficient ones stay in the economy. The final result is that the innovation introduces a business fluctuation and eventually brings to a new steady state, characterized by a different industrial structure 🡪 all the firms use the new technology introduced by the innovator.

**WICKSELL**

He identifies two different interest rates: a natural one and a market one (at which banks lend money to firms). Business cycle is the result of the deviation of natural interest rate from the market interest rate: if it is larger the market activity goes down (recession), while if it is lower the level of output increases (expansion). The natural interest rate represents an expected return from investment, so the business cycle is generated by monetary market.

**FISHER**

Business cycle is the result of **over-indebtness + deflation**: these two elements imply that the recession may occur. He focused on the Great Depression and related it to these two causes. The starting point is the accumulation of a large amount of debt by firms: then an external shock produces a reduction in the confidence in the market, so that firms try to reduce the debt level by liquidating (selling) it. So they start a debt repayment and this implies a **distress selling** of assets at low prices. This repayment of debt at aggregate level implies a reduction in money supplied and of price level. This results in an **increase** in **real value of debt** (nominal level of debt/price). This situation produces a default of indebted firms and a consequent reduction in credit market and in demand. A further consequence is that we observe a money hoarding, the desire to save rather to spend. The final consequence of this process is that the **real interest rate** goes **up** (= nominal interest rate – expected inflation rate/expected variation of price). In fact, if the expected inflation is very low (we were in a situation of deflation) the real interest rate goes up. The effect of an increase in real interest rate is a further reduction in demand. This cyclical pattern is the result of the two variables mentioned above.

**KEYNES**

J. M. Keynes was a British economist, considered the father of modern macroeconomics: most of his ideas can be found in the work called “*The general theory”*, where he considers an economy composed by four markets: commodity market, capital market, money market and labour market. The capital market is part of the commodity market and the labour market is residual (level of employment is determined when we know the level of output). Differently from Walrasian analysis where all markets are in equilibrium, in Keynesian one the labour market can be in disequilibrium despite all the others being in equilibrium.

His analysis is static and short run, differently from those of other scholars. He refused the Says law of no overproduction: in Keynesian analysis aggregate demand can be lower than aggregate supply. The key elements of his general theory can be summarized in some points:

* **Macroeconomic emphasis** (focus on the determinants of output 🡪 aggregate variables)
* **Demand orientation**: aggregate demand or aggregate expenditure plays a central role. It corresponds to the sum of consumption, investment expenditure, government spending and stocks if we consider a close economy. It may happen that the aggregate expenditure is lower than the level of output corresponding to a full employment level 🡪 people want to work but do not find a job 🡪 involuntary unemployment.
* **Instability of economy as result of erratic investment spending**: when firms buy a new stock of capital, they plan an investment project. The variation in investment plans generates fluctuations in output.
* **Wage and price are rigid**: wages correspond to a level resulting from union contracts and the prices are fixed by firms; both cannot change. This implies that a change in aggregate demand translates in a change in output.
* **Role of government**: government may influence the level of output through fiscal and monetary policies and this is the central point in Keynesian analysis.

The main theoretical elements of general theory are the components of aggregate demand:

* **Commodity market**: in the goods market we have consumption, which is a positive function of output and is proportional to it 🡪 consumers spend only a small fraction of the output they receive. This is called marginal propensity to consume (MPC), the fraction of output spent in consumption 🡪 c =   
  The same happens for the marginal propensity to save 🡪 🡪 s =
* **Investment spending:** investment is the franchise of a capital good and depends on marginal efficiency of capital (MEC). The firms decide to invest relating the latter to the interest rate and, from this comparison, they decide the level of investment. When a firm purchases capital stock, they expect to receive an earning equal to *Qn*: the stream of income depends on the duration of the capital stock. The marginal efficiency of capital is the discount rate *r* earned that satisfies this condition. So the cost of new capital is equal to the discount of future earning received if capital stock is implemented 🡪   
  The discount rate depends on firms exploitation of conditions in the market, so interest rates depend mainly on the relation between discount rate and interest rate. Discount rate, depending on expectation, can be considered an exogenous variable, so investments depend negatively on market interest rates. The goods market equilibrium requires that output (y) is equal to y = C + I + G
* **Money market:** the demand and supply of money is crucial to identify the level of interest rate. The amount of money depends on the liquidity preference of people. There are three reasons for holding money: **transaction reasons** (you hold money because you need to by goods), **precautionary reasons** (you hold money to face unexpected expenses) and **speculative reasons** (you hold money to invest it in the stock market in the best moment). The first two depend positively on the level of output, while the third one depends negatively on interest rates (cost of holding money in spite of the interest earned by investing them in the stock market).  
  The supply of money is controlled by central banks, an exogenous variable. The speculative part influences the negative relationship between money and interests and the supply of money is represented as a vertical line because it does not depend on interest rates. The equilibrium is determined by the intersection between money supply and speculative part of demand of money.

Summing up:

C = f(y)

I = f(r, i)

i = (Ms, L)

This shows how all the variables are interrelated and how they identify the equilibrium level of both output and interest rate; the former does not necessarily correspond to a full level of employment, which is a residual variable.

The role of the government in this framework is pivotal for generating variations in the level of output (fluctuations). It does it in two ways:

* **Monetary policies** change the vertical line representing the supply established by central banks. If the government decides to stimulate the level of output, it increases the level of money in circulation and leads to a rightwards shift of the vertical line. This way, interest rates decrease but, since they are a part of aggregate demand, investment increase and so does the level of output.
* **Fiscal policies** operate through government spending, namely the level of government intervention in the economy. If G increases, the level of output does the same (direct influence).

In this framework, Keynes supports a modification of the level of output through government intervention.

**HICK**

He translated Keynesian model in mathematical terms through the IS-LM model, a system of equations. The money supply is controlled by central banks and the demand depends on the level of output (transactions