



Course:

Economics II (macroeconomics)

Chapter 1

The Determination of Equilibrium Output

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Introduction

The main content of the lecture is the gradual creation (designing) of the single Keynesian model. The model is based on the fact that aggregate expenditures (the effective aggregate demand) determine the extent of growth of output (income) and back, output growth affects the size of aggregate expenditures. This chapter will begin with the product fluctuation analysis in the short run, i.e. the analysis of the economic cycle.

The first part of the lecture is devoted to analysis by determining the equilibrium production in 2-sectoral model (households, firms), and then attention is focused on determining the equilibrium production model in three sector (households, firms, the Government). The content of the final part of the chapter is to analyze the problem of determining the equilibrium output and state budget.

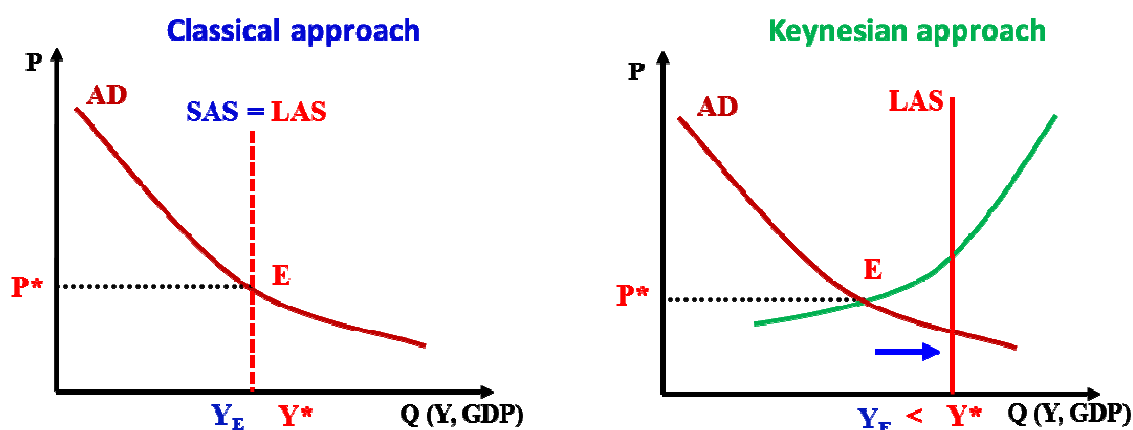
Interpretation of all these problems lectures will be based on the conclusions which were examined and explained during the course of Economics I and these problems should be developed, deepened and applied to current issues of defense and security.

Historical context of Keynesian theory (1929-33 global economic crisis as a failure of economic policy based on the critical role of aggregate supply and classical paradigm of free play of market forces).

J. M. Keynes' General Theory of Employment, Interest and Money (1936) - the key is effective demand" and market forces must be supplemented by the active role of the state.

As can be seen in Fig. 1.1, we distinguish between Classical and Keynesian approach when explaining the macroeconomic equilibrium.

Fig. 1.1 Classical and Keynesian approach of macroeconomic equilibrium



1 Determination of equilibrium production in 2-sectoral model

a) two-sectoral model of the economy consists of the household sector and the business sector, which are interconnected market for goods and services and market factors of production;

b) two-sectoral model of the economy with the financial system.

Households behave rationally and therefore the purchase of goods and services do not issue their entire pension. The remaining portion - saving (savings - S) will bring additional higher income.

Companies in pursuit of their goals need to raise funds to restore production and other additional funds for its expansion and that means they need to get a loan to buy the necessary means of production. The need for firms leads to the necessity of a financial market in which the household saving converted into investment resources companies Conversion of household savings in investment firms' resources is achieved in two ways:

I. households deposit their savings in financial institutions (mainly banks), which provide loans to businesses. The relationship between households and firms is mediated via money market.

II. households buy their savings securities issued by the company and thus directly, without mediation by the banks, companies provide the necessary capital investment. In this case, the relationship of households and firms mediated securities market.

Household spending on goods and services, i.e. consumption expenditure (consumption spending – $C = f(Y)$; consumption function is dependent on disposable income).

$$C = Ca + cY$$

Ca ... autonomous spending.

cY ... induced spending where *c* is marginal propensity to consume and *Y* is product.

Equality of the total income and total product is preserved, and therefore the total (national) income and total product typically indicate the same symbol - *Y* (income). The size of the total product is equal to the total expenditures (expenditures - *E*) that were incurred in the economy ($Y \equiv E$).

Planned expenditures: $AE \equiv C + I$

Premise:

a) actual expenditures may vary from the planned expenditures

b) only investment spending may vary (from the planned investment)

c) real consumer spending will always be equal to the planned consumption

IP ... planned investment, IU... unplanned investment

If: $IU > 0$... unplanned stock accumulation

$IU < 0$... stock drawing

c) Determinants of macroeconomic equilibrium

Investments and savings in the economy have different roles. Investments are "injection" (injections) into the economy. Savings are contrary leaks (leakages) from the economy. Injections increase the flow of spending and consequently income (excluding household consumption expenditure, which excludes both the injection and not to spill). Leakages refer to everything that reduces the flow of spending, and consequently pensions. Investment growth increases the total expenditure, i.e. aggregate demand, provides additional income producers (firms), while the growth stimulus of the total product (economic output). The growth of savings in turn, reduces overall costs and its consequences may lead to a drop in production.

Fig. 1.2 The consumption function (C) and the Keynesian model

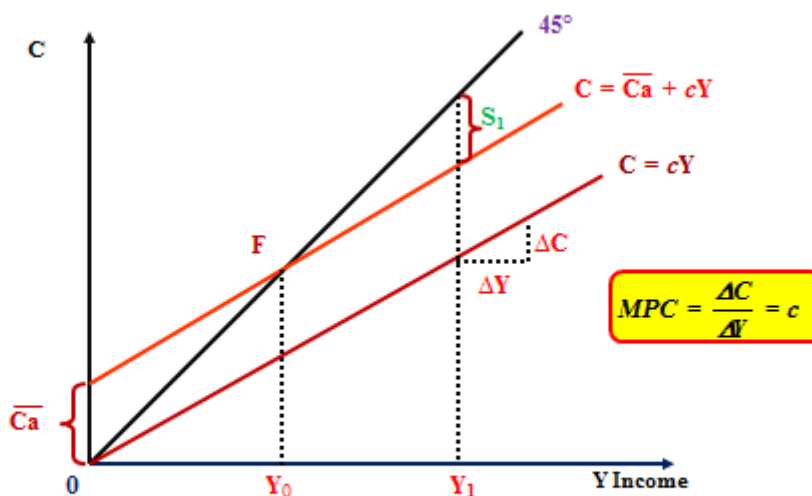
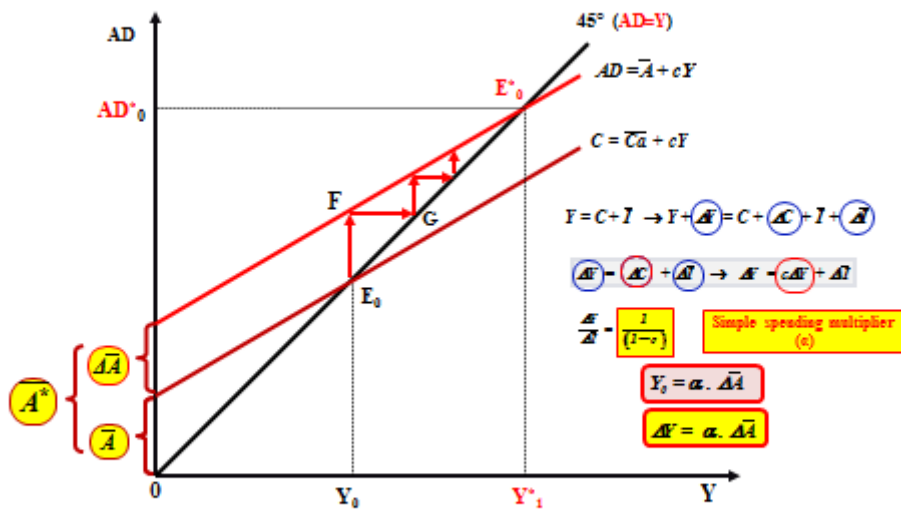


Fig. 1.3 Macroeconomic equilibrium in the 2-sectoral economy and the multiplier effect



2 Determination of equilibrium production in the 3-sectoral model

a) 3-sectoral model of the economy

Inclusion of the state (government) to macroeconomic analysis with two-sector model of the economy transformed into three sector model, enriched with a number of new macroeconomic context and the relationship between economic entities (sectors).

For three sector model of the economy there are the same conclusions as for the two-sector model, i.e. total product is equal to the total income, total expenditures are equal to the retirement and injections are equal evasion. Unlike a two-sector model, spending three sector model economy consists of three components: household consumption, investment and government purchases.

b) the Government and the modification of aggregate demand:

- Government spending - G;
- Taxes – TA, t.Y;
- Transfer payments - TR.

Gradually, to analyze the possibility of fiscal policy to influence aggregate demand:

a) Product determination model and automatic stabilizers.

Automatic stabilizer (especially progressive income tax and unemployment benefits) is such a mechanism in the economy, which reduces the size of production changes

in response to changes autonomous expenditures (autonomous components of demand).

b) Analysis of the individual components of fiscal policy and its impact on the level of equilibrium production:

- changes in government purchases of goods and (spending multiplier of income tax);
- changes in transfer payments (multiplier transfer payments);
- changes in the level of autonomous taxes (tax multiplier);
- changes in the rate of income tax.

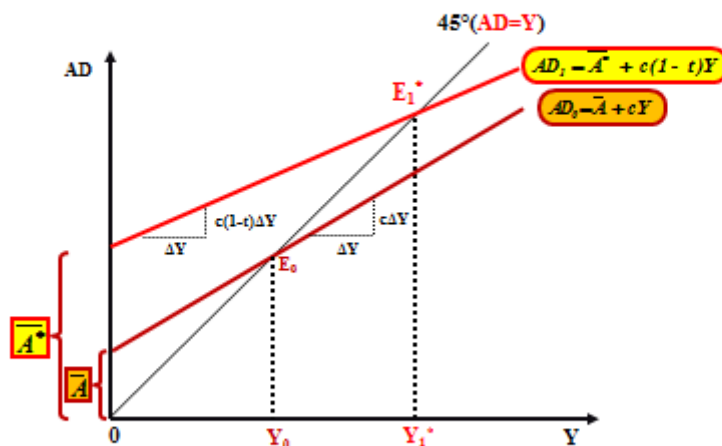
The equation of AD:

$$AD = C + I + G \rightarrow C + I + G \equiv AE \equiv Y \equiv C + S + (TA_T - TR)$$

$$AD = cY - ctY + \bar{A} \rightarrow AD = \bar{A} + c(1-t)Y$$

The equation of disposable income: $YD = Y - TA_T + TR$

Fig. 1.3 Macroeconomic equilibrium in the 3-sectoral economy



3 State budget and equilibrium level of production

The structural surplus (deficit) - budget surplus (deficit) is defined by the natural rate of unemployment, respectively when the economy is operating at full employment

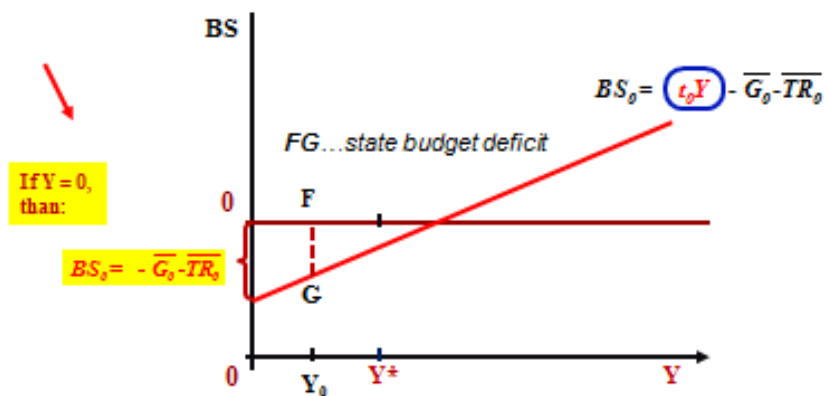
level (natural real product), while the cyclical surplus (deficit) is defined when the output is above (below) the potential output.

Fig. 1.4 Budget surplus and budget deficit

The equation of state budget balance:

$$BS = TA_T - \overline{G} - \overline{TR} \rightarrow BS = \overline{TA} + TA - \overline{G} - \overline{TR} \rightarrow BS = tY - \overline{G} - \overline{TR}$$

BS line – dependent on income (Y), its slope is determined by the tax rate (t)



The structural surplus (deficit) is defined as a budget surplus (deficit) at the natural rate of unemployment, respectively. This is the situation when the economy is operating at full employment level.

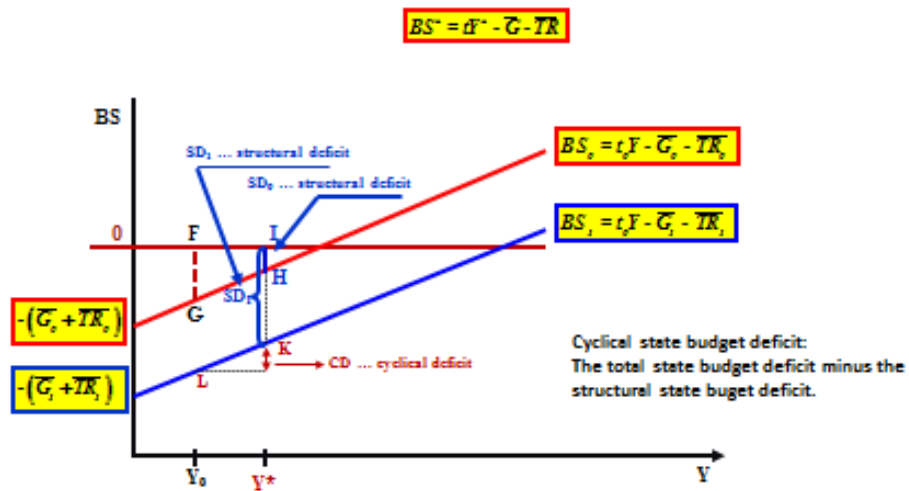
Cyclical deficit (surplus) is the difference between the actual deficit (surplus) and the budget deficit (surplus at full employment (structural deficit or surplus)).

When production (income) is below the potential level, then structural surplus is higher than actual.

When the actual production is higher than the production potential, then the structural surplus (deficit) is smaller than the actual surplus (deficit) – see Fig. 1.5.

Fig. 1.5 Structural and cyclical deficit

The budget surplus (deficit) that occurs when the economy is operating at the level of Y^* , respectively at the level of full employment], is called the structural surplus (deficit).



References and further reading:

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