

INVESTMENTS IN EDUCATION DEVELOPMENT

Course:

Economics II (macroeconomics)

Chapter 4

4.1 Aggregate Demand and Aggregate Supply, Part I

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Introduction

We will focus here on the clarification of the economic context, processes and principles to explain the foundation the curves of aggregate demand and aggregate supply curve and provide students with prerequisites for a deeper and more accurate understanding of the nature of the functioning of the market mechanism.

In this lecture we leave the analysis of the impact of fiscal and monetary policy, which was based on the assumption of a fixed price level. Now we develop a model of aggregate demand and aggregate supply, which allows us to examine simultaneously:

- determinants of changes in the level of equilibrium production;
- determinants of changes in aggregate price level.

Attention will be focused on explaining the problem of the shape of the aggregate supply curve in the short term, which even today is a controversial issue of world economic theory. Because the aggregate supply curve is condensed expressed initial postulates characterized by various schools, respectively. various theoretical concepts that will be addressed in the lecture not only an explanation of these concepts, but also their impact on the assessment of the effects of fiscal and monetary policy, i.e. on the equilibrium level of output and the price level in different economic situations.

Analysis of aggregate demand and aggregate supply (using the model of aggregate demand and aggregate supply) results in the analysis of the economic cycle, i.e. the analysis of short-term macroeconomic fluctuations in production, employment and other important macroeconomic variables around long-term trends in economic development.

Like the short run aggregate supply curve condenses different starting postulates various schools of economic thought (different theoretical paradigms of concepts), just as there is no single paradigm to explain the economic cycle (short-term macroeconomic fluctuations), but there are many interpretations of the causes and nature of these fluctuations. Therefore, one of the goals of this course is explaining these differences in initial postulates individual schools increase their knowledge and their ability to perceive and assess differences in the proposed (and received) economic and political measures of the state government, respectively other political entities.

1 Aggregate demand and its characteristics

a) derivation of the aggregate demand curve using the IS-LM model

Fig. 4.1.1 Derivation of the aggregate demand curve using the IS-LM model



The derivation of AD curve using the IS-LM model

Derivation of curves based on the same assumptions under which it was derived IS-LM model, which at the intersection of IS and LM curves shows the current balance in the market of goods and services on the one hand and the money market (assets) on the other hand, provided a fixed price levels. We now assume that the price level increases, i.e. when the price index increases, real money balances will be reduced, which causes an increase in interest rates and the subsequent decline in demand for investment, and in autonomous expenditure ultimately reduce aggregate spending and thus the production decline (in order to maintain macroeconomic equilibrium).

Partial conclusion: the lower the price level, the higher the real money balances, the lower the interest rate, and therefore the higher the level of equilibrium production and expenditure. And vice versa: the higher the price level, the lower real money balances, the higher the interest rate, and therefore the lower the equilibrium level of output and expenditure.

The graphical derivation shows that the aggregate demand curve shows a combination of price levels and the level of equilibrium production (aggregate expenditures) under which the market for goods and services and money market (assets) simultaneously in equilibrium.

Equation aggregate demand curve is a plot of the equilibrium product size autonomous expenditures multiplied spending multiplier and the price level and the amount of money (nominal money stock) multiplied by the multiplier of monetary policy. The slope of the aggregate demand curve reflects the sensitivity of aggregate expenditures on the change in the price level (and thus the change in real money balances). Generally, curve AD is the flatter, thereby:

- lower sensitivity of money demand to the interest rate;
- greater sensitivity of investment demand to the interest rate;
- greater spending multiplier is simple;
- lower sensitivity for money for retirement.

The flatter the IS curve is, the flatter the curve AD becomes. The steeper the curve LM is, the flatter the curve AD becomes.

b) the situation of "deflationary impotence"

In a situation where the vertical IS curve, and this means that the demand for autonomous expenditure is completely insensitive to the interest rate (b = 0) in terms of influencing the equilibrium level of production monetary expansion (restriction) is completely ineffective. The aggregate demand curve in this case is vertical and lies, as well as the IS curve) to the left of its potential.





Deflationary situation impotence is called the continuing lack of aggregate demand, respectively inability of the economy to regulate itself at levels not fulfill employment.

The reason lies in pessimistic expectations of entrepreneurs and consumers, respectively low levels of consumer and business confidence.

Solution: increase in autonomous expenditures planned so that the IS curve shifted and crossed the LM curve to the level of potential output. The concept of J. M. Keynes and fiscal policy of the government has become an effective tool against the continuing recession caused by deficient aggregate demand.

c) the situation of a "liquidity trap"

Situation: LM curve is horizontal and the IS curve intersects it left from potential output, the aggregate demand curve is vertical: monetary policy is impotent, increasing the supply of real money balances cannot increase the actual production towards potential production and unemployment towards the natural rate of unemployment.

Fig. 4.1.3 Derivation of the aggregate demand curve using the IS-LM model in terms of horizontal LM curve





d) the effect of real money balances

Keynes' s criticism of the ineffectiveness of monetary policy based on the assumption that there is only one connection between the money supply and economic activity of the country, through the bond market (i.e. Keynesian transmission mechanism, respectively Keynes effect).

Keynes effect is indirect stimulation of aggregate expenditures by a decline in interest rates, which is caused either by increasing the nominal money stock, or a reduction in the price level or both. In an economy with liquidity traps no money exchanged for

bonds, and therefore monetary policy can restore balance to the level of potential output. Keynes' s theoretical effect by funding vertical aggregate demand curve.

To the contrast, A. C. Pigou developed the thesis that demand for commodities may directly depend on the level of real money balances, which can be changed by changing prices.

The effect of real money balances (the Pigou effect) is a direct stimulus-induced growth in consumer spending real money balances, due to a reduction in the price level in the (unchanged) nominal money supply.

Unlike Keynes effect, the Pigou effect does not require lowering interest rates. His condition is flexible price level: if it affects Pigou effect, AD curve can never be vertical, but it is always negatively sloped.

A. C. Pigou rehabilitated classical doctrine, but also showed that in real economic life cannot be price deflation, respectively. self-regulating mechanism of the economy, a powerful instrument for recession since direct stimulatory effects of price deflation trigger these negative (opposite) consequences:

(1) The effect of expectations (during the fall in the price level, people will expect it to fall further and limit their consumption and investment spending);

(2) The effect of redistribution (unexpected deflation causes redistribution of income from debtors to creditors). This effect of price deflation, which may outweigh the direct Pigou effect, was formulated I. Fisher (the Fisher effect) as a direct response to the allegations of Pigou.

In this context, the border between the structures of net wealth, which in the private sector consists of so-called. Internal money (assets and liabilities of entities within the private sector) and external money (liabilities publisher, which is not domestic private sector entity (entities claims against the state as an asset e.g. gold, etc.) Only external money as part of the total amount of money consists of net cash wealth of the private sector, and the only money they are able to stimulate aggregate consumer spending via the effect of real money balances. Because it is only a small part of the total amount of money, the base of Pigou effect is very small, limited.

e) position of the AD curve and points outside the curve, the shape of aggregate demand curve

Location AD curve (i.e. a shift to the right and left) depends on all the same factors that influence the position of the IS and LM curves (except for the price level).

Fiscal policy (change in autonomous expenditures) and its influence on the curve AD:

- optimistic expectations of investors;
- optimistic expectations of consumers;

- increase in government spending;
- increase transfer payments;
- reduction of autonomous taxes.

These factors influence, along with a multiplier of fiscal policy) IS curve shift to the right (the opposite effect then left), i.e. a shift of AD to the right (in the opposite effect to the left).

Monetary policy shifts the AD curve to the right (left) due to changes in the nominal money stock (i.e. increase or decrease the supply of real money balances) of monetary policy multiplier times the increase in supply of real money balances.

The shape of the aggregate demand curve

Mainstream macroeconomic theory:

a) agrees that the aggregate demand curve has a negative slope;

b) is not consistent with the fact that forces, respectively factors influencing shifts AD curve:

- Monetarists: changes in aggregate expenditures are primarily determined by changes in the money supply;

- Keynesians: "Not only money causes here" but a direct and immediate impact on changes in consumption and investment spending are changes in each component of autonomous expenditure in nominal money supply unchanged.

2 Aggregate supply and its characteristics

Aggregate supply = total quantity of production, which at given prices firm offer and given the wages demanded by households. Companies are deciding on the extent of their production on the basis of maximizing profits. Households decide the amount of work that will be offered on the basis of real wages.

Aggregate supply curve describes the relationship between aggregate output of the economy and the price level.

a) technical and economic foundations of the aggregate supply curve

The starting point for the analysis is the production function, showing the dependence on the volume of production work involved, and, due to the effect of the law of diminishing returns factor with each additional unit of labor involved with declining productivity (product) - the marginal product of labor.

Assuming that the volume of capital is fixed, firms will hire workforce until that moment when the marginal (marginal) product of labor will be equal to the real wage.

Aggregate demand curve for labor is decreasing character (equal to the marginal productivity of labor) and is represented by all combinations of levels of real wages and employment levels at which firms maximize profits. Of the curve means that the lower (higher) the real wage, the higher (lower) the amount of work demanded.

b) classical aggregate supply curve, and fiscal and monetary policy

Classical curve is vertical and is based on the assumption that the economy always operates at the level of potential output, i.e. product at full employment. As a result of perfectly flexible nominal wages and prices, the labor market is always balanced at full employment and there is no involuntary unemployment. The flexibility of nominal wages balances labor supply and labor demand, thus "cleans up" the labor market. (graphical derivation of the classical aggregate supply curve).

Fiscal expansion assuming classical aggregate supply curve

Since the AS curve is vertical, due to fiscal expansion leads to excess AD and the inability to increase the supply of production. This leads to an increase in the price level, which causes a decline in real money balances (nominal money supply unchanged) and growth rate. Increase in interest rates has resulted in crowding out private investment and consumer spending. There is a total crowding-out effect which is caused by a reduction in aggregate supply, i.e. on the supply side of the economy. In the IS-LM model was the cause of full displacement effect on the demand side of the economy, the vertical curve LM.

Effects of fiscal expansion provided the classical aggregate supply curve:

- production and employment remain unchanged,
- price level has increased,
- the interest rate was increased,
- total crowding-out effect.

Monetary expansion assuming classical aggregate supply curve

The effects of monetary expansion assuming classical aggregate supply curve:

- production and employment remain unchanged,
- real money balances are unchanged,
- the interest rate does not change,
- the price level increases at the same rate as the nominal growth of money supply (money neutrality)

Money neutrality means that the change (rise, decline) nominal money supply leads only to changes (increase, decrease) in the price level and at the same time does not change any of the real economic variables.

The theoretical basis of the classical approach to aggregate supply curve is the quantity theory of money, the original version of the "purest form" formulated by Irving Fisher and modified Cambridge School is based on the quantitative equation, i.e. M. V = P. Y (+ Cambridge effect).

Partial summary:

Classical economists proceeded from the assumption that the economy there is a self-regulating mechanism, i.e. the forces that guide the economy to full employment and prevent that real output (Y) and for a longer significantly deviated below the level of potential output (or above level). There is regulation mechanism of perfectly flexible wages and prices, which immediately absorbs the impacts of changes (increase or decrease) in aggregate demand.

c) extreme Keynesian aggregate supply curve, and fiscal and monetary policy

Horizontal aggregate supply curve represents an extreme case, showing the extreme situation in the economy (crisis).

Extreme (special) Keynesian aggregate supply curve in the short term based on the assumption that nominal wages are fixed in the short term and so in the short term do not adapt to changes in aggregate demand. Likewise prices are presumed fixed in this period. The curve is horizontal.

Fiscal expansion in Keynesian AS curve in the extreme case

Fiscal expansion in case of horizontal AS leads to a new equilibrium at a higher product. The new balance of the economy is characterized by:

- production has increased,
- price level has not changed,
- increased product is equal to the fiscal policy multiplier times the increase in autonomous expenditure.
- the interest rate has increased.
- fiscal expansion is most effective.

Monetary expansion in the Keynesian AS curve in the extreme case

The effects of monetary expansion assuming an extreme case of short-term Keynesian aggregate supply curve:

- production has increased,

- price level has not changed,
- increase in product equals the multiplier of monetary policy multiplied by an increase in real money balances supply,
- the interest rate has decreased,
- monetary expansion is maximally effective.

References and further reading:

MACH, M. *Macroeconomics II for Engineering (Master) study, 1st and 2nd part.* Slany: Melandrium 2001. ISBN 80-86175-18-9.

ŠTANCL, et al. *Fundamentals of the theory of military-economic analysis.* 1st ed. Brno: Monika Promotion, 2012. ISBN: 978-80-905384-0-5.

MAITAH, M. *Macroeconomics in practice*. 1st ed. Praha: Wolters Kluwer CR, 2010. ISBN 978-80-7375-560-1

WAWROSZ, P., HEISSLER, H., MACH, P. Facts in macroeconomics - professional texts, media reflection, practical analysis. Prague: Wolters Kluwer ČR, 2012. ISBN 978-80-7275-848-0.

OLEJNÍČEK, A. et al. *Economic management in the ACR*. 1st ed. Uherské Hradiště: LV. Print, 2012. ISBN 978-80-260-3277-9.

ROMER, D. *Advanced Macroeconomics.* 3rd edition. New York: McGraw-Hill/Irwin, 2006. 678 p. ISBN 978-0-07-287730-4.