ECO 209Y MACROECONOMIC THEORY AND POLICY

LECTURE 12: THE DERIVATION OF THE AGGREGATE DEMAND CURVE

FIXED-PRICE MODEL

- Everything we have done in the IS-LM model has been in terms of *demand*, where AE determined *supply*
 - We assumed that the *price level* was *fixed* and, therefore, that firms were willing to supply all that was demanded at this given price level
- Therefore, the *equilibrium* determined in the IS-LM model was referring exclusively to the demand side of the economy

That is, it could be said that the **IS-LM** equilibrium indicated the *real value* of the quantity demanded of goods and services at the fixed price level

FLEXIBLE-PRICE MODEL

 We will now allow the price level (P) to change and see how this affects the *demand side* of the economy

That is, how the IS-LM equilibrium changes as P changes

- Allowing P to change, we will construct the *aggregate demand* (AD) curve for the economy
 - We will do so while holding AE and M constant

The AD curve shows the real value of the quantity demanded of goods and services (Y) at each price level (P)

 Therefore, the AD curve maps out the combinations of P and Y at which the goods and assets markets are simultaneously in equilibrium (while still assuming that firms supply all that is demanded at each price level)

THE DERIVATION OF THE AD CURVE IN A CLOSED ECONOMY

- In order to derive the AD curve we must allow the price level to change and see how it affects the level of output in the IS-LM model of a closed economy
- As the price level increases, for instance, the real supply of money (M/P) decreases and the LM curves shifts upward
- Recall that the equation for the LM curve is given by i = - (M/P)/h + (k/h) Y

where \mathbf{h} is the interest sensitivity of the demand for money and \mathbf{k} is the income sensitivity of the demand for money

- As P increases, therefore, the IS and LM curve intersect at lower levels of income
 - > Hence, the AD curve has a negative slope

THE DERIVATION OF THE AD CURVE



When the price level is P_1 , the real money supply is M/P_1 and the corresponding LM curve is $LM(P_1)$.

When the price level is P_1 , the goods and the money markets are in equilibrium at Y_1 . This combination of P and Y is one point on the AD curve.

If the price level increases to P_2 , the real money supply decreases and the LM curve shifts to $LM(P_2)$.

When the price level is P₂, the goods and the money markets are in equilibrium at Y₂. This combination of P and Y is another point on the AD curve.

THE SLOPE OF THE AD CURVE



THE SLOPE OF THE AD CURVE

- But what determines the slope of the AD curve?
- Since changes in P affect the real money supply (M/P), we need to see how changes in the real money supply affect the equilibrium income in the IS-LM framework
- Recall that the equation for equilibrium income is given by:

 $Y = \beta_{FP} \overline{AE} + \beta_{MP} (\overline{M}/P)$

- Hence, the larger the monetary policy multiplier (β_{MP}) the flatter the AD curve
- Also recall that the monetary policy multiplier is:

$$\beta_{MP} = \frac{1}{(h/b)[1-c(1-t)]+k}$$

THE SLOPE OF THE AD CURVE



When the price level is P_1 , the real money supply is M/P_1 and the corresponding LM curve is LM(P_1).

If the price level decreases to P_2 , the real money supply increases and the LM curve shifts to LM(P_2) when the monetary policy multiplier is β_{MP}^{-1} . This is a movement down along the AD₁ curve.

If the monetary policy multiplier is β_{MP}^{2} instead, then the LM curve shifts to LM'(P₂) when the price level decreases to P₂. This is a movement down along the AD₂ curve.

THE EFFECT OF FISCAL POLICY ON THE AD CURVE



When the price level is P_1 , the goods and money markets are in equilibrium at Y_1 . This combination of P and Y is one point on the AD curve.

The horizontal shift of the IS curve is equal to $\alpha_{AE} \Delta \overline{G}$.

After the increase in G, and with no change in the price level, the goods and money markets would be in equilibrium at Y_2 . This combination of P and Y is one point on a different AD curve.

The horizontal shift of the AD curve is equal to $\beta_{FP} \Delta \overline{G}$.

THE EFFECT OF MONETARY POLICY ON THE AD CURVE



When the price level is P_1 , the goods and money markets are in equilibrium at Y_1 . This combination of P and Y is one point on the AD Curve.

After the increase in M, and with no change in the price level, the goods and money markets would be in equilibrium at Y₂. This combination of P and Y is one point on a different AD Curve.

The horizontal shift of the AD curve is equal to $\beta_{MP} \Delta(M/P)$.