

NOTE ON AA-DD MODEL

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1. CLOSED ECONOMY

In the closed economy model there are three endogenous variables, i , Y and P . We need three equations to solve for the three endogenous variables.

Curve	Endogenous Variable
IS	i, Y
LM	i, Y, P

TABLE 1. Deriving the Aggregate Demand

AD: The Demand Side. We use the IS and LM to get a relationship between Y and P by solving them as simultaneous equations and eliminating i . This relationship between Y and P gives us the demand curve, i.e., tells us what the demand in the economy would be for given levels of exogenous variables.

AS: The Supply Side. AS, the supply curve tells us the amount of Y that can be supplied at a given price level.

Equilibrium Output. Using the supply curve, we can solve for Y and P .

Curve	Endogenous Variable
AD	Y, P
AS	Y, P

TABLE 2. Equilibrium Output

Thus, the AS and AD is solved to give us Y^* and P^* , the equilibrium output and price level of the economy.

2. OPEN ECONOMY

In the open economy, the endogenous variables are e , i , Y and P . We need four equations to solve for the four endogenous variables. These four curves would be the UIP, LM, DD and AS.

Curve	Endogenous Variables
UIP	e, i
LM	i, Y, P

TABLE 3. The Augmented LM curve

The AA curve. We use the LM and UIP to solve for the AA curve, which gives us a relationship between e , Y and P .

The DD Curve. The DD curve is just the open economy IS curve with its relationship with i suppressed. So, investment is exogenous and current account is an increasing function of real exchange rate eP^*/P and disposable income $Y - T$.

The Demand Side. In the closed economy, we obtained the aggregate demand relationship between Y and P by solving IS and LM curves simultaneously and eliminating i . Diagrammatically, this was done in the $i - Y$ space and gave us the aggregate demand in $i - Y$ space for each price level.

In the open economy, we use the AA and DD curve to get an aggregate demand relationship between Y and P . This is done by solving AA and DD as simultaneous equation and eliminating e . Note that we do not need to worry about i because it has been suppressed in the DD curve and has already been eliminated in the AA curve.

Curve	Endogenous Variables
DD	e, Y, P (<i>open Economy IS</i>)
AA	e, Y, P (<i>LM augmented with UIP</i>)

TABLE 4. Deriving the Aggregate Demand

The Supply Side. Now this is the confusing bit. The book or notes do not explicitly deal with the aggregate supply curve AS. In stead you are told that sometimes the prices are sticky and at other times it is flexible. These assumptions about the supply curve are actually hints on what the actual supply curve looks like.

So, when they say that the prices are sticky, they are just assuming that the supply curve is just horizontal in the $P - Y$ space. When prices are flexible, it just means that the supply curve is just vertical in the $P - Y$ space.

Equilibrium Output. Using the hints about the prices, we use the simple horizontal or vertical supply curve to solve for the equilibrium output. Remember that these equations are now being solved in the $P - Y$ space and e and i have been eliminated for the aggregate demand relationships.

Curve	Endogenous Variable
AD	Y, P <i>AA (UIP+LM) and DD</i>
AS	Y, P <i>prices sticky or flexible</i>

TABLE 5. Equilibrium Output

Thus, the AS and AD is solved to give us Y^* and P^* , the equilibrium output and price level of the economy.