

CHAPTER 1

BUILDING THE FRAMEWORK FOR A GROWING ECONOMY

"We first survey the plot, then draw the model..."

— William Shakespeare, Henry IV, Part 2.

1.1 DEMAND AND SUPPLY IN MACROECONOMICS

In microeconomics, we study the interaction between demand, supply and price for an individual item, whether a commodity or a service. The intersection between the demand (D) and supply (S) curves for that item (say j), which are a function of the price of that item (say P_j) in turn, determines its price. Suppose the demand curve shifts up to D' while the supply curve is unchanged. Then both P_j and the quantity bought and sold go up, as seen in Figure 1.a below. If we aggregate the demand and supply curves for different buyers and sellers of that item, we get the aggregate or total demand, and the supply curve for that item.

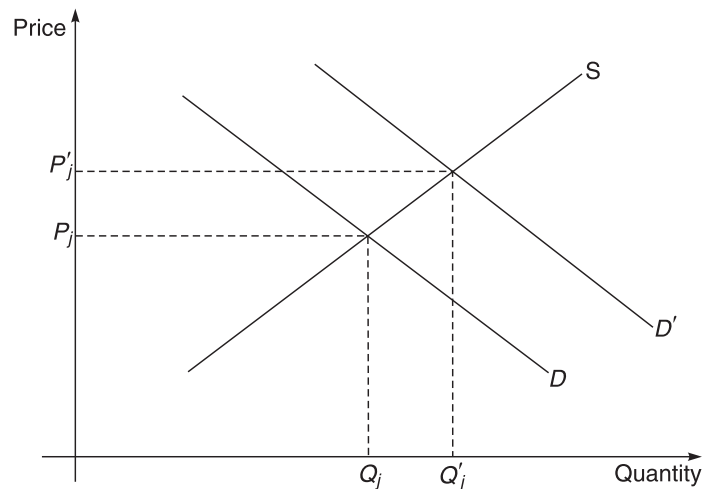


Figure 1.a Demand and Supply for Item j

2 Applied Macroeconomics: Employment, Growth and Inflation

The macroeconomic concepts of aggregate demand (AD) and aggregate supply (AS) pertain to the economy-wide demand and supply for all items. The sum of the quantities of all these items is aggregate output or GDP, which we will denote as y . The average price at which these are sold is denoted as P , the aggregate price level. While this interaction involves aggregation for the whole economy of the underlying demand and supply curves for individual items, AD and AS are based on *much more than* mere aggregation, as will be explained later. Hence, they cannot be easily shown graphically, as in the simple microeconomics case in Figure 1.a above. The acronyms AD and AS are terms and concepts from which specific values of variables will be derived.

We will use the following notation: aggregate demand is denoted as AD, aggregate supply is denoted as AS and π is the inflation rate, the percentage change in the price level, which is derived from the aggregate price level (P), the average price of all the goods and services in the economy—usually the Consumer Price Index (CPI).

$$\text{Thus} \quad \pi = \frac{P_t - P_{t-1}}{P_{t-1}} \times 100$$

Since the variables in question tend to rise over time, the concepts AD and AS used here are devised for a growing economy. Hence, instead of looking at the levels of aggregate output (y) and the aggregate price level (P), as many texts tend to do, we start by analysing the growth rate of output and the inflation rate.¹

In a growing economy, which, to repeat, is our focus, the variable that is generally taken to correspond to aggregate demand is real GDP growth or $g(y)$. This is measured and reported for every period. However, the variable that we will choose to correspond precisely to Aggregate Demand is not real GDP growth, but a ratio. This will be derived later.

The variable that is generally taken to correspond to Aggregate Supply is $g_{y,*}$ or potential GDP growth, i.e., the growth rate when the economy is making *full use* of its resources. It is important to note that this potential GDP is unobservable. Almost all economists agree on the importance of the concept of potential GDP. However, there is far less agreement amongst them about what are the factors that determine $g_{y,*}$ and more so how much is it, i.e., what concrete number? How fast can India (or whichever country) grow? Is it 9% or higher or lower? This is a billion dollar or trillion rupee question for policy makers, CEOs, financial analysts, traders, firms, workers, etc. We will discuss and evaluate different approaches to arriving at potential GDP.

Conceptually, it is very useful to break down actual growth $g(y)$ into two components as follows:

$$g_y = g_{y,*} \pm \text{Deviations from } g_{y,*} \\ \text{(structural or potential)} \quad \text{(due to } \textit{cyclical} \text{ demand fluctuations)}$$

¹ In the well-known textbook *Macroeconomics* by Dornbusch and Fischer, who first developed these concepts, they are called Dynamic Aggregate Demand (DAD) and Dynamic Aggregate Supply (DAS). In our usage, the adjective dynamic is *implicit*, since we are dealing with a growing economy from the start.

When the economy remains in Long-Run Equilibrium,

$$y_t = y_t^* \text{ and hence } g_y = g_{y^*} \text{ for all those periods.}$$

Analysis of the macro-economy can be broken down into two major components:

- (i) analysis of the long-run factors that influence g_{y^*} or potential GDP growth, and
- (ii) analysis of the factors that influence short-run fluctuations of actual growth g_y around g_{y^*} . The latter component—analysis of short-run fluctuations—is highly relevant to the world of business and finance.

To repeat, actual GDP growth can be conceptually thought of as the sum of its structural component (or supply determined potential GDP growth) and its cyclical component, due to demand-side fluctuations. Both potential and actual levels and growth are plotted in Fig. 1.j. In Long-Run Equilibrium (LRE), g_y converges to, or is at g_{y^*} . This is the basic conceptual framework to keep in mind.

Note that while g_{y^*} can and does change over time, it is reasonably stable and is assumed constant for the purposes of our macroeconomic analysis. The justification for assuming this is that while changes in technology or tastes for *individual commodities* will and do keep constantly occurring, for the economy as a whole these should *cancel out*. Economy-wide or aggregate changes in technology and tastes do occur, such as the advent of the Internet in the late 1990s. However, they are not very common. Similarly, some individuals may choose to work more and others may choose to work less, but changes in aggregate labour supply and hours worked (that affect the potential GDP) are also not so common. Some aspects of long-term analysis deal with the factors that change g_{y^*} over time.

We now introduce the crucial variable—ADSGAP—which is the *imbalance* or *gap* between AD and AS.

The term ADSGAP has been chosen to best capture what it represents: the AD–AS gap. I have shortened the full term Aggregate Demand Aggregate Supply gap to ADSGAP.

Based on theoretical and factual considerations, we can postulate:

1. When $\text{ADSGAP} > 0$, AD exceeds AS. The economy is overheated and inflation tends to rise.
2. When $\text{ADSGAP} < 0$, AD is less than AS. The economy has slack and inflation tends to fall.
3. When $\text{ADSGAP} = 0$, $\text{AD} = \text{AS}$. The economy is in LRE.

These concepts should become clearer as we analyze actual data and events.

1.2 FACTORS AFFECTING AGGREGATE DEMAND

This is a brief summary of entire topics in a full macroeconomics text. From the basic GDP accounts we know that:

$$Y = \text{AD} = C + I + G + X - M$$