

The IS/MP Model

Introduction

The IS/MP Model is a recent rethinking of the Keynesian IS/LM Model. The IS curve is still included, but the Monetary Policy (MP) curve replaces the LM curve. The vertical axis is the real interest rate r , which equals the nominal interest rate R minus the rate of inflation PI .

The aggregate supply / aggregate demand diagram is replaced by an inflation adjustment / aggregate demand diagram. The IA / MP diagram has the inflation rate, rather than the price level, on the vertical axis. The horizontal axis on both diagrams is real output Y .

The goal of this analysis is to more realistically capture the workings of recent monetary policies. Where the IS/LM approach frames monetary policy in terms of the level of the money supply and price level, the IS/MP focuses on monetary policies expressed in terms of the interest rate and reacting to the inflation rate. Putting the real interest rate (rather than the nominal interest rate) on the vertical axis of the IS/MP diagram recognizes that the rough Keynesian approximation of fixed prices does not adequately describe the most recent decades.

The Model

The IS Curve is determined by $LF_d = LF_s$, where

$$LF_d = 50 - 12.5 (r - 2) + \text{Govt Deficit}$$

$$LF_s = 50 + 12.5 (r - 2) + 0.1 (Y - 500)$$

The MP Curve

$$r = a + b (Y - 500) + 3 - 21 / (1 + PI)$$

The EconModel simulation consider two cases: $b = 0$, which produces a flat MP Curve and $b = 0.001$, which produces an upward sloping MP Curve. The latter is empirically more realistic, but the former is simpler because it implies that the central bank simply sets the real interest rate to a particular number.

The AD Curve is derived from the IS/MP diagram. It traces out the response of Y to change in PI , which occurs because monetary policy (as recorded by the MP Curve) shifts when the inflation rate changes.

The IA Curve shows an immediate response of inflation to the difference between output Y and full employment output, which is here taken to be 500.

$$PI = d + e (Y - 500)$$

The EconModel simulations consider two cases: a flat IA Curve (with $e = 0$) and an upward sloping IA curve (with $e = 0.005$). The flat curve is simple, but the upward sloping curve is possible more realistic.

In either case, the term d responds to the output gap $Y - 500$, but with a lag:

$$d[t] = d[t-1] + 0.002 (Y[-1] - 500)$$

The term $d[t-1]$ causes inflation to continue to increase if Y is above 500. This whole process can be thought of as a dynamic aggregate supply process. The dynamic response of inflation to the output gap causes a difference between the short-term and long-term effects of monetary and fiscal policies.

Exercises

1. Analyze the short-term effects of monetary policy.
2. Analyze the long-term effects of monetary policy.
3. Analyze the short-term effects of fiscal policy.
4. Analyze the long-term effects of fiscal policy.