R Gordon, Macro

ch 4: Spending, the Interest Rate, and Money

This chapter opens the way to the key questions at the heart of recent economic debates:

Why do interest rates shifty

(2) Can G crowd out I_n ?

(5) Which is more ad Wageous: an increase in G, a reduction of T, or an increase in the supply of money?

1294

1 nta

4-2 The Relation of private autonomous planned spending to the interest rate.

United Airlines calculates that it can earn 3 million dollars per year from one additional DC-10 jet plade (paying all expenses except interest) costing 20 million.

all expenses except interest) costing 20 million. If interest is 10%, and 3/20 million is 15%, the earnings will be 5% and so one million a year.

But a second plane would not have such good routes as the first; it could earn 2 million a year, and so it could pay the 10% interest and no loss would be incurred; but a third and still more fourth plane would have less favorable routes and then the DC-10's would be **BER** operating at a loss.

What holds for investment spending also holds for autonomous concumption spenifding: the marginal utility of more consumption goods and services may be positive, zero, or negative; and zero is where added marginal utility balances the interest rate.

In the left hand frame of figure 4-2 (p. 91) gives the Ap line for the various values of Ap at various interest rates. In the ± right hand frame are correlated values of Q at with interest rates.

When the multiplier (k) is 4.0, and A_p is 500, then Q will be 2000 were the rate of interest zero; and it would be 2400 if A_p were 600 and interest zero. As interest rates increase, Q decreases.

 $\Delta Q = \mathbf{k} / \mathbf{\overline{A}}$ where $\mathbf{\overline{A}}$ is $\mathbf{A}_{\mathbf{p}}$ and the interest rate is zero.

0

87

О

С

R. Gordon

ch. 4-3: The IS curve

The IS curve shows all the different combinations of the interest rate (r) and income (Q) at which the economy's market for commodities (goods and services) is in equilibrium. Equilibrium occurs only when income equals planned expenditures with no unintended inventory accumulation or decumulation.

45 LOI 1

О

104

С

4-4 Learning to shift and tilt the IS curve.

(OL (1) Why does the IS curve siant down to the right.

A lower interest rate raises A_p and a higher level of A_p raises equilibrium Q by k times as much.

(2) What shifts the IS curvey

The horizontal intercept of the IS curve is always equal to the multiplier (k) times \overline{A} , the amount of planned autonomous spending at a zero interest rate (see figure 4-2).

Anything that changes k or \overline{A} will shift the IS curve.

<u>Changes in k</u>: basically k is the inverse of the marginal propensity to save (1/s). Appendix to ch 3 qualifies this: an increase in the income tax or in imports reduce k and shift the IS curve to the left; a decrease in either of these shift the IS curve to the right.

Business and consumer confidence: both m the A_p demand ourve and the IS curve will shift if business men and consumers become more optimistic and interest the amount they dezire to speared for any given interest rate. E.g., bank failures in 1929 may have shifted the IS to the left and the inauguration of Roosevelt in 1933 may have shifted IS to the right.

<u>Government actions</u>: $A_p = I_p + a - c\overline{T} + G$. So any change in government spending (G) or autonomous taxes change A_n .

(3) What is true of points that are off the curve? The area to the left of IS is characterized by excess demand for commodities. The area to the right is characterized by purchases below production, and so undesired inventory accumulation, an excess supply, a need for a change to a new equilibrium.

0

R. Gordon, Macro, ch 4-4

94 (4) What changes the slope of the IS curve?

The slope changes when $\lambda A_p / \overline{\lambda} r$ changes. It increases (becomes steeper) when autonomous spending increases as the interest rate decreases, and it decreases autonomous spending gacreases as the interest rate increases.

- %)05 "A basic rationale for government action in periods of business and consumer pessimism is that its spending or its reduction of taxes can keep A constant and thus insulate income and the IS curve from any effects of business or consumer attitudes." (roughly)
 - 105 4-5 The money market and the LM curve.

The government also can modify the interest rate by changing the money supply: increasing the supply tends to lower the interest rate and decremaning the supply tends to raise the rate.

 $M^d = 0.5PQ$ $M^d/P = 0.5Q$ slants downward, correlates r with $\frac{1}{2}Q$; fig 4-4 M^d the demand for nominal money M^d/P the demand for real income M^s/P the supply of real money (vertical graph: independent of r) $LM(M^s/P = 400)$ correlates Q and r horizontal axis: r = 0; Q = 800; LM slopes upward; reveals all points at which money market is in equilibrium; money supply equals demand equals 400; graph 4-4 RHS is $400 = \frac{1}{2}Q - 40$ r

+01 (1) 4-6 Learning to tilt and shift LM curve

(1) Why does LM slope upward

When M^{S}/P is fixed, the higher the rate of interest, the more ready people are to cut down on ready cash and current accounts; rhs of 4-4 means: for every 1% increase in r permits an 80 billion increase in Q (40 billion in $\frac{1}{2}Q$).

Aliter increasing interest rate x increases velocity of money

$$T = \frac{Q}{M^{S}/P} = \frac{PQ}{M^{S}} = \frac{PQ}{M^{S}}$$

(2) What shifts the LM curve? An increase in the money supplity, shifts LM to the right. When M^S equals 000, LM crosses zero interest line at Q equals 1200.
(3) What alters slope of LMQ Control of the prove line of t

Θ

C

О

(3) What alters the slope of LM?

 $A \mathbb{H}^S / A \mathbb{r}$ the rate of increase of \mathbb{M}^S with respect to the rate of increase of r.

 $\bigwedge Q \;/\; \bigwedge M^{\mathbf{S}}$ the rate of increase of Q with respect to the rate of increase of $M^{\mathbf{S}}$

The product of these two rates elinates M^S to give

 $\Delta Q / \Delta r$ the responsiveness of income to changes in r;

for a given change in r, how much bigger will Q be?

Changes in this ratio tilt the LM curve

Responsivences of money demand to a

,a

^µ^

1ª

Ċ.

0

money demand to a Slope of higher interest rate LM schedule

0	Vertical
small	Steep
large	Flat
infinte	Horitontal

4-7 Simultaneous Equilibrium in the Commodity and Money markets. Is had when the IS and the LM curves intersect.

Points on IS **KKH** gurantee equilibrium in commodity market but if above LM the demand for real money is below the real supply; and if below LM the real supply is below the demand

0

Points on LM grantee equilibrian in the money market, but if below IS the demand for commodities exceeds production, and if above IS the demond for commomdities falls short of production (hence unintended inventory accumulation)