

EC1010: Solutions to Midterm

1.
 1. D
 2. B
 3. A
 4. C
 5. D
 6. D
 7. A
 8. D
 9. D
 10. D
 11. B
 12. A
 13. A
 14. B
2.
 - a)
 - i. See Figure 1. [9 MARKS]
 - ii.
 - 1 This *rises*: once the change occurs, savings/investment exceeds depreciation, implying the economy accumulates a higher capital stock, which leads to a higher level of real GDP, $Y = AK^\alpha L^{1-\alpha}$, in the new steady state. [3 MARKS]
 - 2 This *stays the same*: the steady state growth rate of both Y and the standard of living $\frac{Y}{L}$ is independent of the savings rate. (At steady state, this is dictated by growth in A .) [3 MARKS]
 - 3 This *falls*: because people are saving all their income, the level of consumption falls. [3 MARKS]
 - b)
 - i. The capital accumulation equation is $\Delta K = sY - \delta K$. At the steady state we have $\Delta K = 0 \Rightarrow sY = \delta K \Rightarrow \frac{K}{Y} = \frac{s}{\delta}$. [7 MARKS]

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- ii. Yes. Assuming all countries are in steady state and that δ is the same across countries, the Solow model predicts a positive relationship between countries' savings rates and their capital intensity. Because savings equals investment, the model therefore predicts a positive relationship between the investment rate $\frac{I}{Y}$ and capital intensity—consistent with Figure 1. [4 MARKS]
3. a)
 - i. According to the permanent income hypothesis, a fall in future income growth would lower lifetime wealth, and hence lower consumption *in each period*. Because income hasn't changed today, the level of savings would therefore *rise* today. [4 MARKS]
 - ii. See Figure 2. Because savings have risen, and investment demand has fallen, at the instant of the changes, savings exceeds investment, causing disequilibrium in the market. This excess supply places downward pressure on the real interest rate, causing it to fall to r' . [9 MARKS]
A greater response by people to interest rate changes implies the savings curve is flatter. To clear the loanable funds market, the interest rate needs only fall a little to reduce the level of savings again towards the new lower level of investment demand. As a result, the equilibrium interest rate is lower in this case. See Figure 3. [3 MARKS]
 - b)
 - i. No. From the quantity theory of money, we know that $\pi = g_m - g_Y$; that is, inflation equals the rate of money growth minus the rate of output growth. Although Figure 2 shows there was positive money growth over this period, this did not necessarily cause inflation if there was also positive output growth. [9 MARKS]
 - ii. According to the equation of exchange, $MV = PY$, if M rose, while V remained constant, then nominal GDP, PY , must rise. [4 MARKS]

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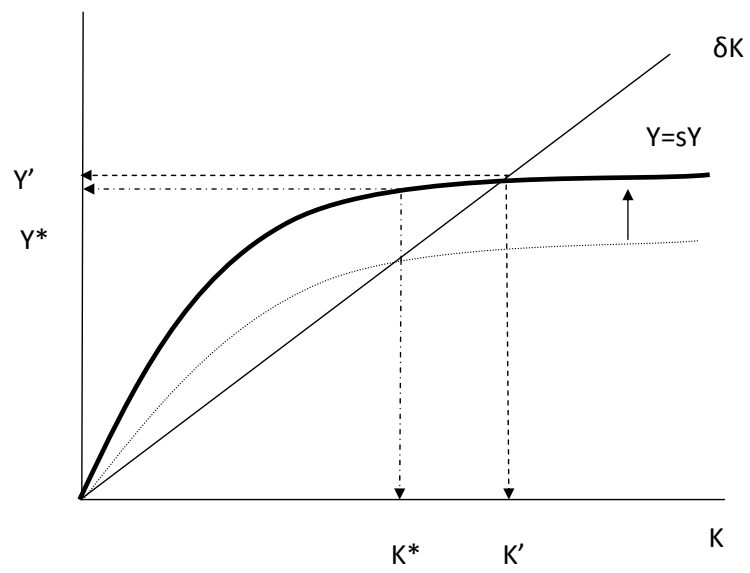


Figure 1: CONSUMERS SAVE ALL INCOME

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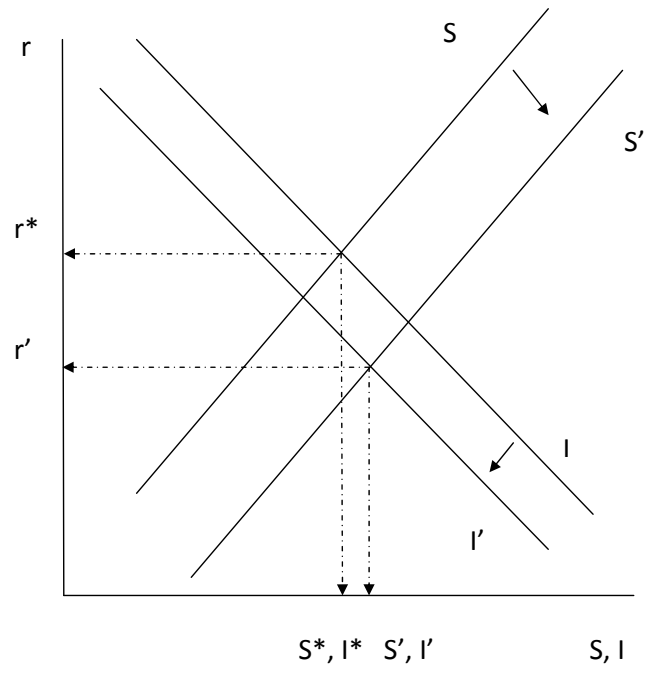


Figure 2: RISE IN SAVINGS AND FALL IN INVESTMENT DEMAND. THE HORIZONTAL DISTANCE BETWEEN S AND S' INDICATES THE INCREASE IN SAVINGS SUPPLY. THE INTEREST RATE FALLS FROM r^* TO r' .

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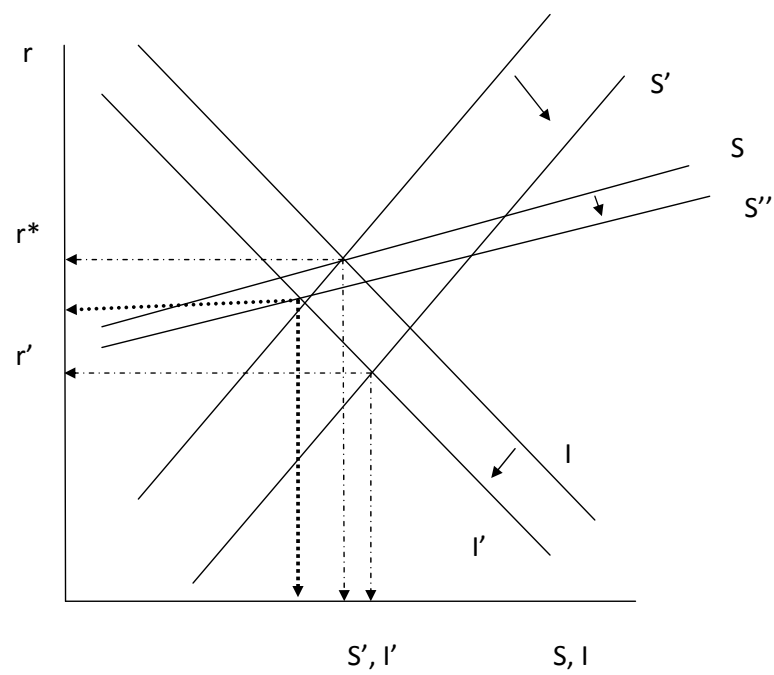


Figure 3: RISE IN SAVINGS AND FALL IN INVESTMENT DEMAND: A MORE ELASTIC SAVINGS RESPONSE. WHEN THE FLATTER LINE DICTATES SAVINGS DECISIONS, WE MOVE FROM S TO S'' . AS A RESULT, THE NEW EQUILIBRIUM INTEREST RATE LIES AT THE INTERSECTION OF S'' AND I' AND LIES BETWEEN r' AND r^* .