

Consider an economy with the following parameters:

Production: $Z = 40$, $K = 4,000$, $\rho = 4$, $N = 121$, $\alpha = 0.3$, $\delta = 0.35$, $\gamma = 0.35$

Government: $G = 400$, $t = 20\%$

Consumption: $C_0 = 200$, $C_Y = 0.75$

Imports: $IM_Y = 0.1$

Exchange rate: $\varepsilon_0 = 110$, $\varepsilon_r = 700$, $r^f = 5\%$

Gross exports: $GX_Y = 0.02$, $Y^f = 3,000$, $GX_\varepsilon = 1$

Investment: $I_0 = 300$, $I_r = 1,200$

1. Solve the model. All dollar quantities can be rounded to no decimal places. The interest rate should be shown to two decimal places (e.g., 3.45%, or 0.0345). [10 pts]

$Y =$

$T =$

$R =$

$C =$

S (private) =

S (public) =

$IM =$

$r =$

$GX =$

$I =$

2. Now consider a situation where there is a large increase in the resource supply. Simultaneously, there is a *decrease* in Z , down to a new level of 38 and an *increase* in ρ up to a new level of 4.5. The net effect on the quantity of labor from increased resource supply and decreased Z is that the employment level rises to 128.

Solve the model. The same rounding guidelines apply as in question 1. [10 pts]

$Y =$

$T =$

$R =$

$C =$

S (private) =

S (public) =

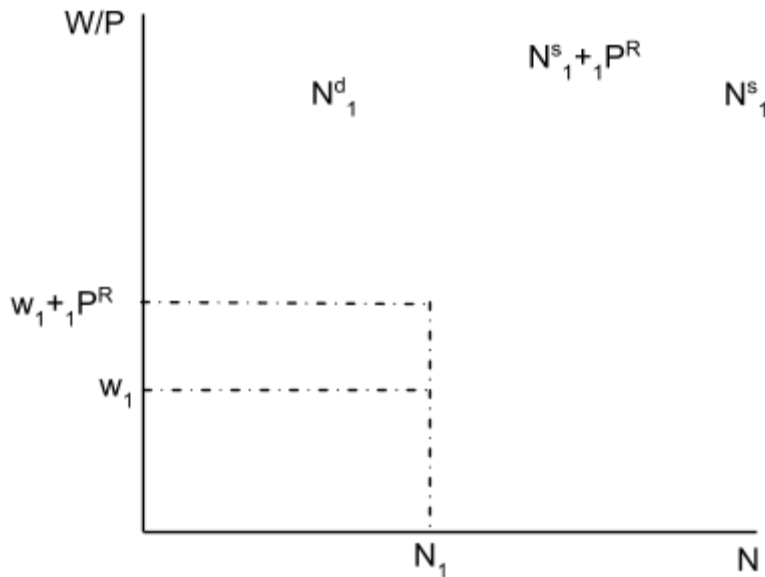
$IM =$

$r =$

$GX =$

$I =$

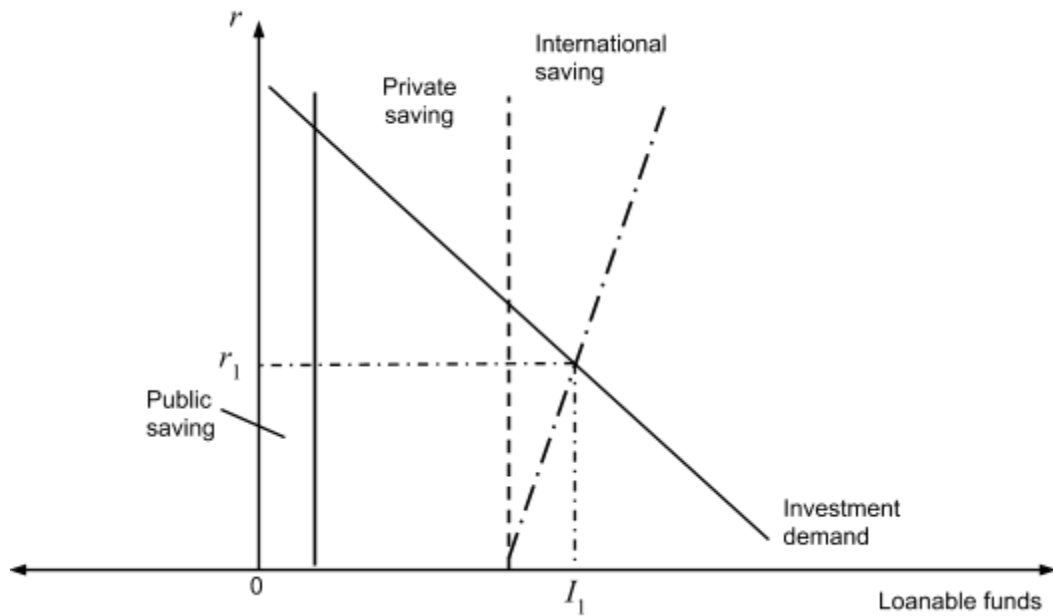
3. On the diagram below move any curves that need to be moved to reflect the situation in question 2 (increased supply of resources, decreased level of Z , increased level of ρ). Explain why you're moving any curve(s) that you move. If any shifts are ambiguous (you could make an argument for them going either way), note that. Note: since question 2 specifies that the equilibrium labor input goes up, be sure to draw your curves such that you end up with $N_2 > N_1$. [10 pts]



4. Why might the increase in resource supply actually be a *cause* (over enough time) of the decline in Z and increase in ρ ? (5 pts)

5. On the diagram below, treat the printed lines as depicting the situation in question 1. Draw new lines based on your results from question 2. (They don't have to be *quantitatively* accurate, but they should be *qualitatively* in line with the way your answers in question 2 differed from your answers in question 1—that is, everything should move in the right direction, but the exact distance is not important). Label the new interest rate r_2 and the new

level of investment I_2 . Indicate the quantity of international saving in the question-2 situation (in other words, the quantity that is shown by your new lines). [8 pts]

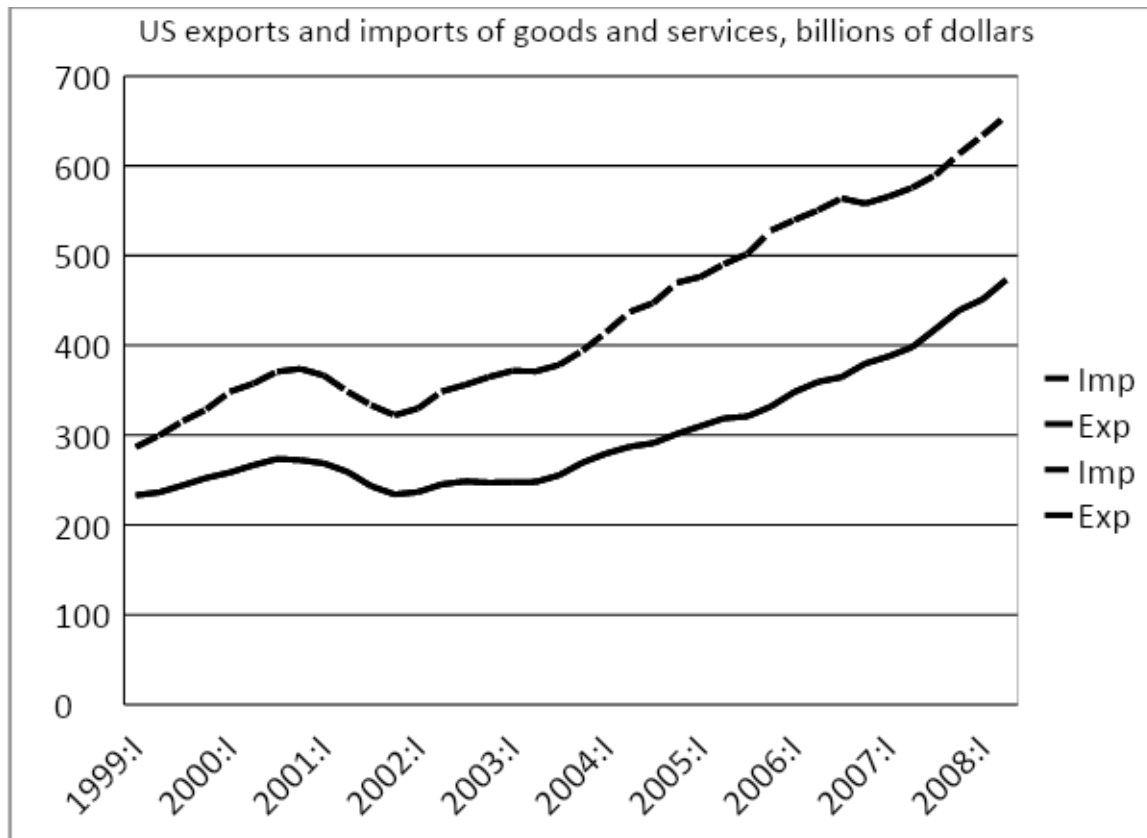


6. (Don't show this on the diagram above.) How would you expect increased resource supply in question 2 to affect the investment demand? Explain. [5 pts]

7. If investment demand changed in the way you said in question 6, how would that affect the interest rate? [3 pts]

8. If investment demand changed the way you said in question 6, how would that affect the trade balance? [3 pts]

9. In the data chart below, what is happening to the U.S. trade balance? [2 pts]



10. What change in ϵ_0 would tend to cause the effects seen in the data above? Explain the mechanism (i.e., *how* would your answer about the change in ϵ_0 lead to the effects seen in the chart?). [5 pts]
11. What change in IM_Y would tend to cause the effects seen in the data above? Explain the mechanism (i.e., *how* would your answer about the change in IM_Y lead to the effects seen in the chart?). [5 pts]

