

Problem 1 (Sample Midterm 2, Question 2). It is year $t = 0$. Argentina thinks it can find \$150 of domestic investment projects with an MPK of 10%. Argentina invests \$84 in year $t = 0$ by borrowing \$84 from the rest of the world at the world interest rate $r^* = 5\%$. There is no further borrowing or investment. The project starts to pay off in year $t = 1$ and continues to pay off all years thereafter. Interest is paid in perpetuity, in year $t = 1$ and every year thereafter. In addition, assume that if the projects are not done, then $GDP = Q = C = \$200$ in all years.

For the following questions, use standard assumptions: initial external wealth $W = 0$, $G = 0$ always, $I = 0$ except in year $t = 0$, and $NUT = KA = 0$; and furthermore there is no net labor income so that $NFIA = r^*W$.

- If the investment project is not undertaken, what is the present value of output Q ?
- Should Argentina fund the \$84 worth of projects? Explain your answer.
- Why might Argentina be able to borrow only \$84 and not \$150?
- Going forward, assume the projects totaling \$84 are funded and completed in year $t = 0$. If the MPK is 10%, what is the total payoff from the projects in future years?
- At year $t = 0$, what is the new $PV(Q)$, $PV(I)$, and $PV(C)$?
- Suppose Argentina is consumption smoothing. What is the new level of C ?
- In year $t = 0$, when the investment project is started (but not yet completed), explain Argentina's balance of payments as follows: state CA, TB, NFIA, and FA.
- State the levels of CA, TB, NFIA, and FA in year $t = 1$ and every later year.

Problem 2 (Sample Midterm 2, Question 5). Assume the following functional forms:

Goods Market	Money Market	FX Market
$C = 50 + 0.75(Y - T)$	$M = 1000$	$E^e = 4$
$I = 1600 - 250i$	$L = 0.5Y - 500i$	$i^* = 5\%$
$G = 1200$	$P = 0.5$	
$CA = -260 - 0.2Y - 100i$		
$T = 1000$		
$\pi^e = 0$		

- Derive the equation for the IS curve.
- Derive the equation for the LM curve.
- Find the MPC, MPC_F , MPC_H , and MPS for this economy.
- Find the equilibrium (home) interest rate i , and the equilibrium (home) output Y .
- Compute equilibrium consumption, investment, and the current account.
- Compute the level of private, public, and national savings S . Comparing I and S . Is this consistent with your answer to part (e)?
- Compute the economy's exchange rate.
- Using an IS/LM/FX diagram, show the effect of an increase in G .