

Exam 1. Econ520. Fall 2021

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UNC

Instructions:

- Answer all questions.
- Write legibly.
- If you need more space, attach additional pages. Number your answers. Do not write on the back of the pages.
- *Explain* your answers – do not just state them.
- *Show* your derivations – do not just state the final result.
- Do not refer to any notes or books. You may use a calculator.
- The total time is 75 minutes.
- The total number of points is 100.

Name:	PID:
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1 Short Questions

1. [10 points] Would you expect the marginal propensity to consume out of a one-time stimulus payment to be large or small? How about a recurring payment that is paid out every year indefinitely? Explain.

Answer _____

Think permanent income hypothesis. Consumers want smooth consumption. A one-time payment has little effect on lifetime income and therefore on lifetime consumption. Most of it will be saved. A recurring payment has larger income effects and therefore the MPC will be higher.

2. [10 points] Imagine wages were indexed to inflation (this happened in the 1970s). What do you think would happen to the Phillips curve? Explain.

Answer _____

At least in our model the Phillips curve “works” because unanticipated inflation either causes workers to set the “wrong” wages (wages are set ahead of time based on P^e), or because workers incorrectly believe that high inflation erodes their real wages (recall that we have two stories underlying the AS curve). In both stories, wage indexation would destroy the Phillips curve. In the first story, wages would be fixed in real terms, not in nominal terms. In the second story, workers would presumably figure out that wage indexation fixes their real wages, regardless of inflation. The short-run AS curve would become vertical. Monetary policy would lose its bite. This is what happened in the 1970s.

3. [10 points] If you plotted countries’ long-run output growth rates against their trade balances, what would you expect to see? Explain.

Answer _____

The key is $NX = (Y - T - C) - (T - G) - I$. Faster growth would likely increase investment (or I/Y). That would worsen the trade deficit. There is no clear link to the government budget deficit or to private saving. If you want to be sophisticated, you could argue that faster growth could induce consumers to save less (they will be richer in the future). That would also worsen the trade deficit. So we would expect that fast growing countries typically have trade deficits. This is true in the data.

4. [10 points] Uncovered interest parity requires $i = i^* - RP^* + x$ where RP^* is the risk premium for holding the foreign currency and x is the expected appreciation rate of the foreign currency. Suppose the foreign interest rate rises. Explain how UIP gets restored. Is the foreign currency strong or weak when its interest rate is high?

Answer

Returns on foreign bonds are higher than returns on domestic bonds. Investors buy foreign bonds, driving up the exchange rate. As $E \uparrow$ (foreign currency appreciates), $x \downarrow$ (holding E^e fixed). This expected capital loss reduces the total return on holding foreign currency. The process continues until the expected capital loss (depreciation $-x$) exactly offsets the interest rate gap.

The foreign currency gets stronger ($E \uparrow$) when i^* rises. But it is weak (in the sense of E falling over time) as long as i^* remains high.

2 IS/LM: Liquidity Trap

Consider a simple IS/LM closed economy model where

$$IS : Y = C(Y - T) + I(Y, i) + G \quad (1)$$

and

$$LM : M/P = YL(i) \quad (2)$$

1. [10 points] Draw the IS/LM diagram for an economy in a liquidity trap. Explain what you draw.

Answer _____

See the slides. The key is that the LM curve has a flat portion at zero interest rates because at that point liquidity is free. That's where the IS curve intersects LM.

2. [10 points] Show that monetary policy is ineffective and explain the economic intuition.

Answer _____

Shift the LM curve and nothing happens as long as the economy stays in the liquidity trap. When liquidity is free, agents soak up unlimited amounts of it. This breaks the usual transmission mechanism for monetary policy (interest rates).

3. [10 points] Show that fiscal policy is highly effective and explain the economic intuition.

Answer _____

Shift the IS curve and we get an expansion that is bigger than in "normal" times. The reason is that interest rates stay at zero. The usual dampening effect of rising interest rates is not present in a liquidity trap.

3 AS/AD

The Covid-19 pandemic caused a massive reduction in labor supply. Explain how this plays out in an AS/AD model. The equations are

$$AS : Y = F\left(\frac{P}{P^e} \frac{1}{1+m}, z\right) \quad (3)$$

and AD combines

$$IS : Y = C(Y - T) + G + I(Y, i) \quad (4)$$

and

$$LM : M/P = YL(i) \quad (5)$$

Assume that the reduction in labor supply (a change in z) is transitory (z returns to normal when the pandemic is over).

1. [15 points] Show the changes in the short run and medium run assuming that the pandemic does not affect aggregate demand (not realistic, but also not that far from the truth). Explain what happens to interest rates and investment.

Answer _____

Medium run: nothing has changed; by assumption, really.

Short run: AS shifts left. AD is by assumption unchanged. So we get lower output and higher prices (which is exactly what we see in the data). In the background (IS/LM diagram), LM shifts left (due to higher P and interest rates rise). Higher i and lower Y both reduce investment.

2. [15 points] Could government policy stabilize output (in the model)? What happens to investment and interest rates in that case? What happens to inflation?

Answer _____

Expansionary monetary or fiscal policy could shift AD to the right and get us back to full employment right away (that would not work in reality in a pandemic). What happens to interest rates depends on whether $G \uparrow$ or $M \uparrow$.

Fiscal policy increases i which crowds out I . But the total change in I is ambiguous (higher Y increases I). Monetary policy lowers i (think IS/LM graph) and therefore I rises unambiguously.

In both cases, we get inflation (which is one of the main risks being debated right now). While the government keeps $Y > Y_n$, P^e keeps rising (it's below P), shifting AS up.

End of exam.