Participants: IS19 (ita, dark shirt) S1 (male student, not pictured)

Context: IS19 is teaching a recitation at the whiteboard.

0:00
xxx IS19: ((undecipherable, the microphone is interfering))
0:22
xxx and uh (.1)
xxx investment function.
xxx ((pause))
xxx and also uh (.)
xxx the values for the government purchases and the tax.
xxx which are both (.1) one hundred.
xxx so first we need to derive the i s curve.
xxx so,
xxx I believe you are (.1) all familiar with the procedure.
xxx I mean we just begin from this (.2) equation,
xxx the income equals to the expenditure,
xxx which is consumption plus investment plus government
xxx expenditure,
xxx (.2)
xxx so we plug (.2) the function for consumption and investment
xxx into the (.1) righthand side.
xxx (.3)
xxx so it’s two hundred plus,
xxx ((pause))
xxx three quarters times,
xxx y minus (.1) the tax (.1) which is one hundred in this case.
xxx and investment (.1) two hundred minus (.1) twenty five r,
xxx plus (.1) government expenditure which i-is one hundred.
xxx and from this equation we can (.1) get a (.1) relationship
xxx between the income and the interest rate.
xxx so the result is
xxx (.3)
xxx one thousand seven hundred minus (.)
xxx one hundred times the interest rate.
xxx ((pause))
xxx and also we need to plot it (.1) in a graph,
xxx so.
xxx ((pause to draw))
xxx so the y axis is interest rate and the (.1) x axis is (.)
xxx income.
xxx r-uh-f-
and we need to plot it from a range of zero to eight for interest rate. (.3) so: when the interest rate is zero, from this equation, we know the income is (.) one thousand (.3) and when it is eight, ((pause)) the income will be ((pause)) I mean- ((pause)) nine hundred. (.3) here. ((pause))

3:00

so we connect these two (. ) points and this is our i s curve. ((pause)) and for (. ) part b, (.2) we are given a (. ) real money demand, ((pause to write)) money supply, and uh price level. which is two. so we need to solve the (equilibrium) in the (monetary market) for this (. ) uh (l m) curve. so in- in equilibrium the (.1) money supply (.1) equals to the (. ) money demand. (.1) so we plug in the values, it’s (. ) one thousand over two equals to the expression for money demand. ((pause)) so we (arran-) we (arranged) this equation we can get (.2) the equation for the (l m) curve. so it’s y equals to five,
and we plus (.1) one hundred r.
and we plot it in the same graph,
again from the range of eight to- uh: eight to zero.
so when r is zero,
(.2)
y equals to five hundred.
(.2)
and when (.r) r is (.e) eight,
y equals to (.3) thr-thirty-thirty eight hun-hundred.
((pause))
so.
it’s something like this. ((draws))
this is our l m curve. (.3)
and for part c,
we need to find the equilibrium point.
so we just solve these two equations together,
S1: ((coughs))
IS19: and we can solve for the equilibrium levels.
((pause to write))
so for the i s curve, (.)
we use this equation.
so y equals to
((pause))
one thousand seven hundred minus (.)
one hundred r.
and for the l m curve,
it’s y equals to (.)
five hundred plus (.r) one hundred r.
(.2)
we have (.)
6:00
two equations for two unknowns.
so we can solve for the equilibrium.
(where) the value for the income is
((pause))
eleven hundred.
and (.r) for the interest rate is- it is (.2)
six.
so this point is-
((pause))
it’s our equilibrium.
(.2)
and, (.1)
for part d,
now we have a fiscal policy.
the government produces (rates) from (.1) one hundred to
one hundred fifty.
so the government expenditure go from (.1)
one hundred to one hundred fifty.
so the change (.1) in the government expenditure
delta g equals to (.1) fifty.
and remember that when there is a-
(or) the change in the government expenditure,
we have a (.1) change in eq- government purchase,
then this whole (.1) i s curve
will shift (.1) with a value of (.1)
one over one minus,
marginal propensity for consumption,
times this (.1) change.
and in this case the mpc equals to (.1) this value.
point seventy five.
so it equals to
one over one minus point seventy five times fifty.
which is (.2) two hundred.
and you can (.2) check this.
so that means this whole curve will shift to the right (.2)
by two hundred units.
((pause))
and it will be parallel to the old i s curve.
((pause to draw))
so this is our (.3) new i s curve.
denotate as (.3) i s prime.
((pause))
and also we can (.2) express it by equation so.
since it increase by two hundred,
so the original one is y equals to (.1)
uh this value minus one hundred r.
and now since it increase by two hundred,
now this new curve becomes
(.3)
this (.3)
i s prime (.1) becomes y equals to
(.2)
one hundred- uh one thousand nine hundred plus-
minus one hundred r.
((pause))
because it shift to the right by (.1) this value.
9:01
by two hundred.
so we add this two hundred to this number.
and to solve for the-
(.2)
for the equilibrium,
for the new equilibrium,
we use the uh previous l m curve.
which is this one.
so it’s y equals to (.)
five hundred plus (.). one hundred r.
and by solving these two equations,
we can get (.). the income (.). equilibrium is (.1)
twelve hundred.
and interest rate equilibrium is (.1)
seven.
((pause))
so this new equilibrium.
((pause))
twelve hundred and seven.
((pause))
°so.
((pause))
this is our (.). i s curve in part a, and
((pause))
this is the l m curve °in part b.
((pause))
so in the next part,
we are given a (.). monetary policy.
so the money supply↑
goes up from (.). one thousand to (.). one thousand two
hundred.
so now we will get a new (.). uh l m curve.
but um the i s curve will be the same.
because there is-
(no) there is only a monetary policy.
so in order to solve for the new l m curve,
again we use these (.). uh formula that
the equilibrium the money (.).
demand equals to the money supply.
but now we have a new money supply which is
one thousand two hundred. (.1)
over the price level two.
which equals to the (.). money demand
and it’s also the same.
(.2)
so: by solving this, we can get a new l m curve.
so that we call it \( l_m \) prime,
which is \( y = 600 + 100r \).

And since the money supply \( m \) goes up,
this will cause an \( l_m \) curve shift to the right.

So, in the graph,
this curve the \( l_m \) curve,
will shift (.) to the right.

And now we only have a monetary policy.

We do not consider this (.) two policies together.

So the two (.) equations we use is
the original (.) \( i_s \) curve
which is (.) \( y = 1000 - 700 - 100r \).

And then we can solve the equilibrium,
and we can get the income equilibrium as
one thousand one hundred fifty.

And the interest rate is (.)
five point five.

So this (.) intersection is
eleven fifty and five point five.
a:nd for (.1) part f, (pause)
with the (.1) initial value for (.3)
uh money ((undecipherable)) fiscal policy suppose that uh
the price level (.1)
rises from two to four.
so,
(.2)
now the only difference is in the price level.
so that may cause a (.1) change in the l m curve.
so. (.2)
initially the (.1) i s curve is (.)
y equals to (.)
one thousand seven hundred minus one hundred r.
a:nd now with the- (.1) with the new uh price level,
and the same uh (.2) money supply,
which is one thousand,
we can get a new l m curve.
so:
first we can derive it (.1) again using the same formula,
so
(.2)
money supply↑ (.3) divided by price level,
equals to ((pause))
15:00
money demand.
one minus one hundred r.
and by solving it (.1) we can get the new l m curve is
y (.2) equals to
(.2)
two hundred fifty plus one hundred. (.)
times the °interest rate.
((pause))
and by solving these two equations,
we can get
(.2)
the equilibrium
(.3)
is uh:
income is nine seventy five and interest rate is (.1) seven
point twenty five.
so because the price level (.1) rises from two to four,
the real money supply actually decrease.
so this l m curve will shift to the left.
so that’s why w-we will get a (.), lower income and a higher interest rate in equilibrium.
((pause))
so that’s the answer for what happens (.), with respect to this (.),
rise in price level.
((pause))
so that’s for (.), part f and for the last part,
we need to derive the aggregate demand curve.
((pause))
so.
((pause to erase))
so to de- (.), to derive this aggregate (amount),
we also need to find out what is the (.)
i s curve and the l m curve.
the equation for these two curves.
but here notice that (.), for the aggregate (amount),
we have- now we are in the long run.
so the price level is- is not fixed.
now it is flexible.
so we cannot plug into our certain level for the price.
and instead we use this (.), just use this p to denote the price.
so for the i s curve now what we (.2) get is
I mean the- i-initial one
y equals to (.), one thousand (.), seven hundred minus (.),
one hundred r.
and for the l m curve,
((pause))
we need to write it in the- (.1) in the sense of the uh (.3)
supply equals to demand.
so now that supply is (.), one thousand over p,
because now p is flexible.

18:01
a:nd
the amount is the same,
so that’s the two (.), equations we use (.), to solve for the aggregate demand.
and (.), from these two uh equations we can cancel out (.).
uh the interest rate.
and what we left is a relationship between the income $y$ and the price level. so that’s exactly what we want to get. so.

(and we uh:) (will need) the procedure and (.2) so following this (.2) logic you can get um the aggregate (.2) demand curve is (.2) $y$ equals to (.2) eight hundred fifty, plus (.1) five hundred over $p$ the price.

so it’s a function of $y$ with respect to the price level. and (.2) let me draw this curve in a graph

so now we have a- have the same x axis. as in the ((undecipherable)) model. which is the income. but for the y axis, it is different. it is (.2) now the price level instead of the interest rate. (.3) and (.2)
to plot this graph, we only need to get some- to (catch) some features of this function. so by the- by some simple (.2) derivation we- we can see that

this income is decreasing in the price level. and also this function is convex. so that’s the two most important features that we need to get to draw uh- to plot this curve. so (.2) basically it looks like (.2) this (right) so it is our aggregate demand. ((pause)) and to make it more precise we can (.2) mark some points on this curve so for example when the price level is (.2) ten, ((pause to draw)) your income would be (.2) nine hundred. (.2) and when your price level is (.2) two, ((pause)) your income level- uh your income would be (.2) eleven hundred.
so.

((pause to draw))

21:00

((pause))

so it’s our a d curve.

(.2)

And what happens to this a d curve uh when we are facing the fiscal and monetary policy as described in part d

and e,

so.

(.2)

For the fiscal policy,

we will get a different i s curve. And for the monetary policy, we will get a (.)

different l m curve.

((pause))

so basically we just analysis it using the (. same

procedure but

the only difference is that we use a- a price level- a

fix- flexible price level p here.

instead of a (. fixed value.

((pause to erase))

so under the fiscal policy,

((pause to write))

we’ll get a different i s curve.

we would use this i s prime curve.

which is (. this one.

so y equals to (.)

nineteen hundred minus one hundred r.

and we use the original l m curve.

but (. pay attention that here

uh

(.3)

we- we use the p instead of the level two.

so we need to derive it.

so.

remember the (. money supply is one thousand,

and price level is p.

denotate by p.

and

the (money demand) is y minus (. one hundred r.

((pause))

and from these two equations,
you can get a function \( f(.) \) of \( y \) 
in \( f(.) \) the interest uh in the price level.
so \( f(.) \) what we get is \( f(.) \) nine hundred fifty, 
plus five hundred over \( p \).
\[ \text{(2)} \]
so \( f(.) \) by comparing these two \( f(.) \) equations,
for the aggregate (demand) we can see that
uh \( f(.) \) this new \( f(.) \) I mean this \( f(.) \) this new a d curve is
just shifted \( f(.) \) to the right by this previous one.
\[ \text{so this old curve shift to the right.} \]
\[ \text{so this is our new \( f(.) \) aggregate \( f(.) \) demand} \]
under the fiscal policy.

24:00

and it shift to the right by one hundred.
because of you see the difference in the constant right?
it is one hundred.
\[ \text{and \( f(.) \)} \]
then under the monetary policy,
\[ \text{the is curve is the original one, which is} \]
y is equal to \( f(.) \)
one thousand seven hundred minus one hundred \( r \).
and \( l \_ m \) curve is the- \( f(.) \) is the one \( f(.) \) after the \( f(.) \)
policy- after the monetary policy.
so the new money supply is
one thousand two hundred.
it’s this one.
divided by price level equals to the real money supply-
\[ \text{uh amount.} \]
y minus uh: y minus one hundred \( r \) yes.
and \( f(.) \) by eliminating the interest rate,
we can get the aggregate (demand)
is \( f(.) \) equals to \( f(.) \) eight hundred \( f(.) \) fifty plus
six hundred over \( p \).
\[ \text{(pause)} \]
so \( f(.) \) in the graph, \( f(.) \)
this \( m \)- this may also cause a \( f(.) \) shifting to the right \( f(.) \)
from the \( f(.) \) previous- from the original curve.
so.
\[ \text{((pause to draw))} \]
so this may be our
((pause to draw))
so this is our (.1) aggregate (amount) under the monetary policy.
((pause))
because we have a increase in the money supply,
so this- (.1) this whole- uh the whole aggregate demand will
shift to the right.
and the same things happens when we have a (.1) increase in the (.1) in the fiscal- when we have a stimulating fiscal policy.
when the (.1) government purchase increase or- (.1) or the tax decrease.
((pause))
so
that is for (.1) the last part.
so do you have any question about the first one?

27:00
((pause))
so for question two and three, I will just briefly talk-
discuss about the-
some key points
about these two questions and
you need to read the slides and the textbook
and to write down your own understanding.
s.
((pause to erase))
first for question two,
((pause))
first you- you need to answer what is the (.1) (short run) policy object.
((pause))
I mean ob-ob-objective.
so it is simple because the objective is just to: stabilize the economy.
((pause to write))
because from the analysis of the i s (r m) model,
((pause to draw))
so all we are discussing is about when we face a shock,
what can the government or the central ((undecipherable)) do
to- I mean to mitigate the- the shock and to let this (.1) income level go back to with previous level.
((pause))
so that is the objective for the policy, (.)
and second you need to answer the difference between active
and passive policy.
((pause))
so the difference is only about the timing of the-
of responding to certain shocks.
so for example if you respond to the shock immediately,
in a short time, then it is an active policy.
but if you wait for a while and you want to check what is
the problem,
you want to wait to see what- what is actually happens,
and you do not conduct a policy immediately,
then it is a p- I-I mean a passive policy.
so it’s only about-
I would say the (. ) timing of the (.2)
of conducting the policy.
((pause))
but I mean do not just copy it you can write your own
understanding as long as it (. ) makes sense.
so.
((pause))
and then with your arguments for and against the (.1)
active
policy.
((pause))
30:00
for and against.
so for just means uh the advantage of uh conducting active
policy.
so one reason may be that,
uh:
(.3)
so if we: uh
if we respond to certain shocks actively- immediately,
then it may (. ) uh (. ) it may reduce the-
I mean reduce the cost of the whole society because
I mean if we have a recession,
if we wait for sometime and (it may cause) a recession,
and then (. ) it will cost a lot for this whole-
uh for this whole society.
I mean if we have a recession,
if we wait for sometime and (it may cause) a recession,
and then (. ) it will cost a lot for this whole-
I mean reduce the cost of the whole society because
I mean if we have a recession,
I mean if we have a recession,
a shock.
so if there is a shock that cause this i s curve (.)
shift to the left,
then we can for example increase the money supply,
so that this income level will go back to its initial level.
so that’s- that’s what we can do.
so if we can I mean conduct the right policy,
then it makes sense to conduct some active policy.
so that is one reason (.) for the active policy.
and (.)
against (.) I mean the disadvantage of (.)
this kind of policy is that there are-
I mean there are lags
so and this lags comes from two parts.
one is inside and the other one (.) comes from the outside.
((pause to write))
so inside lags and outside lags.
((pause))
so inside lags means (.)
first (.) you may need some time to-
to figure out what is the- what is the specific shock.
and (.) then after you find out what is the shock,
and (.) you need some time to (pass a law) to-
to really conduct- to implement that policy.
and both of these two aspect will take some time.
and outside lags means after you implement the policy,
it may take some time to- for the policy to really work in
the economy.
and (.) there are some (.) transition period (.)
during the implement-implementation of the policy.
so for example if the government
um conduct a fiscal policy,
and it want to uh increase its uh government purchase
to build some in-infrastructure,
then,
so they may need some time to hire new workers,
and to buy some materials from the-
uh from the (plants),
ccc and plants may also need some time to buy
new machines and to hire (.) new workers-
new workers all of these will take some time to work.
so that are the outside lags.
((pause))
so:,
(.2)
that’s the argument.
and
(.2)
finally we need to answer