

# EPA143A – Week Three

## Questions

### KEYNESIAN MACROECONOMICS

Required readings:

- J. Crotty. 1994. Are Keynesian Uncertainty and Macro-theory Compatible? Conventional Decision Making, Institutional Structures, and Conditional Stability in Keynesian Macro-models.
- S. Storm. 2019. Lost in Deflation: Why Italy's Woes Are a Warning to the Whole Eurozone. *International Journal of Political Economy* 48 (3): 195-237. Link: <https://www.tandfonline.com/doi/full/10.1080/08911916.2019.1655943>
- EPA143A LECTURE NOTE W-3.

The EXERCISES **W-3.1**, **W-3.2**, **W.3-3** and **W.3-4** for Week 3 are given below. On Brightspace, we have provided you with more exercises on the Keynesian macro model.

## EXERCISE W-3.1

Consider the following Keynesian macro-economic model:

- |     |                                   |   |
|-----|-----------------------------------|---|
| (1) | $y = d = c + g + i + e - m$       | macro-economic equilibrium                |
| (2) | $c = c_0 + mpc \times (y - \tau)$ | $c$ = real consumption                    |
| (3) | $g = \bar{g}$                     | $g$ = real government current expenditure |
| (4) | $i = i_0 - \rho \times r$         | $i$ = real investment                     |
| (5) | $e = \bar{e}$                     | $e$ = real exports                        |
| (6) | $m = m_0 + \mu \times y$          | $m$ = real imports                        |

where  $y$  = real GDP;  $d$  = aggregate demand;  $mpc$  = the marginal propensity to consume ( $0 < mpc < 1$ );  $c_0$  = autonomous real consumption;  $\bar{g}$  = exogenous real government current expenditure;  $i_0$  = autonomous real investment;  $r$  = the real interest rate;  $\bar{e}$  = exogenous real exports;  $m_0$  = autonomous real imports;  $\tau$  = real income taxes paid by households;  $\rho$  = the sensitivity of real investment to the real interest rate; and  $\mu$  = the marginal propensity to import.

1. Derive the reduced form equation for equilibrium real GDP.
2. What is the formula for the multiplier?
3. Derive the multiplier for  $g$ ? What is the multiplier for  $\tau$ ?
4. What will be the impact on equilibrium real income of a simultaneous increase in  $g$  (by 1 euro) and in  $\tau$  (by one euro)? This multiplier is called the balanced-budget multiplier.

Assume that  $mpc = 0.75$ ;  $c_0 = 200$ ;  $\bar{g} = 150$ ;  $i_0 = 100$ ;  $r = 4$  (%);  $m_0 = 50$ ;  $\tau = 400$ ;  $\rho = 5$ ;  $\bar{e} = 400$ ; and  $\mu = 0.25$ . All variables except  $r$  are in billions of euros.

5. Calculate equilibrium real GDP? How large is the multiplier? How big is the balanced-budget multiplier in this numerical example?
6. Suppose real exports increase by 25%. By how much do  $y$ ,  $c$  and  $m$  increase? What happens to the trade balance of this economy?
7. Suppose the central bank raises the (real) interest rate by one percentage point to 5%. What is the impact of this monetary policy action on  $y$ ?

## EXERCISE W-3.2

Let us continue to work with the numerical Keynesian macro model of Exercise W-3.1 and assume that labour demand is a function of the real wage and real GDP:

$$(7) \quad L^D = 0.00002 \times y \times \left(\frac{W}{p}\right)^{-1}$$

Labour supply is exogenous:  $L^S = \bar{L}^S = 20.645$  million workers. The rate of unemployment is:  $u = \frac{L^S - L^D}{L^S} \times 100\%$ . The nominal wage  $W = 1$ ; and the general price level  $p = 1$ . If  $y = 960$  (billion euros), then  $L^D = 19.2$  million workers. The rate of unemployment is 7%.

1. What is the impact on the rate of unemployment of a fiscal stimulus of  $\Delta g = \text{euro } 20$  billion?
2. What do you expect will happen to the real wage ( $W/p$ ) as unemployment comes down?
3. What do you expect will happen to inflation following the fiscal stimulus and the decline in the unemployment rate? Explain your answer (using the notion of the Phillips-curve in your argument).

## EXERCISE W-3.3

In an article in The New York Times from August 2014, 'The Fall of France', Paul Krugman criticizes the austerity policy implemented in France. Use what you have learned about the fiscal multiplier to explain why, in Krugman's opinion, fiscal austerity in France (and more generally in Europe) would fail (explain carefully what you think Krugman means by 'fail').

## The Fall of France



By Paul Krugman Aug. 28, 2014

François Hollande, the president of France since 2012, could have been a contender. He was elected on a promise to turn away from the austerity policies that killed Europe's brief, inadequate economic recovery. Since the intellectual justification for these policies was weak and would soon collapse, he could have led a bloc of nations demanding a change of course. But it was not to be. Once in office, Mr. Hollande promptly folded, giving in completely to demands for even more austerity.

Let it not be said, however, that he is entirely spineless. Earlier this week, he took decisive action, but not, alas, on economic policy, although the disastrous consequences of European austerity grow more obvious with each passing month, and even Mario Draghi, the president of the European Central Bank, is calling for a change of course. No, all Mr. Hollande's force was focused on purging members of his government daring to question his subservience to Berlin and Brussels.

It's a remarkable spectacle. To fully appreciate it, however, you need to understand two things. First, Europe, as a whole, is in deep trouble. Second, however, within that overall pattern of disaster, France's performance is much better than you would guess from news reports. France isn't Greece; it isn't even Italy. But it is letting itself be bullied as if it were a basket case.

On Europe: Like the United States, the euro area — the 18 countries that use the euro as a common currency — started to recover from the 2008 financial crisis midway through 2009. But after a debt crisis erupted in 2010, some European nations were forced, as a condition for loans, to make harsh spending cuts and raise taxes on working families. Meanwhile, Germany and other creditor countries did nothing to offset the downward pressure, and the European Central Bank, unlike the Federal Reserve or the Bank of England, didn't take extraordinary measures to boost private spending. As a result, the European recovery stalled in 2011, and has never really resumed.

At this point, Europe is doing worse than it did at a comparable stage of the Great Depression. And even more bad news may lie ahead, as Europe shows every sign of sliding into a Japanese-style deflationary trap.

How does France fit into this picture? News reports consistently portray the French economy as a dysfunctional mess, crippled by high taxes and government regulation. So it comes as something of a shock when you look at the actual numbers, which don't match that story at all.

France hasn't done well since 2008 — in particular, it has lagged Germany — but its overall G.D.P. growth has been much better than the European average, beating not only the troubled economies of southern Europe but creditor nations like the Netherlands. French job performance isn't too bad. In fact, prime-aged adults are a lot more likely to be employed in France than in the United States.

Nor does France's situation seem particularly fragile. It doesn't have a large trade deficit, and it can borrow at historically low interest rates.

It's hard to escape the suspicion that it's political: France has a big government and a generous welfare state, which free-market ideology says should lead to economic disaster. So disaster is what gets reported, even if it's not what the numbers say.

And Mr. Hollande, even though he leads France's Socialist Party, appears to believe this ideologically motivated bad-mouthing. Worse, he has fallen into a vicious circle in which austerity policies cause growth to stall, and this stalled growth is taken as evidence that France needs even more austerity.

It's a very sad story, and not just for France.

Most immediately, Europe's economy is in dire straits. Mr. Draghi, I believe, understands how bad things are. But there's only so much the central bank can do, and, in any case, he has limited room for maneuvering unless elected leaders are willing to challenge hard-money, balanced-budget orthodoxy. Meanwhile, Germany is incorrigible. Its official response to the shake-up in France was a declaration that "there is no contradiction between consolidation and growth" — hey, never mind the experience of the past four years, we still believe that austerity is expansionary.

So Europe desperately needs the leader of a major economy — one that is not in terrible shape — to stand up and say that austerity is killing the Continent's economic prospects. Mr. Hollande could and should have been that leader, but he isn't.

And if the European economy continues to stagnate or worse, what will become of the European project — the long-term effort to secure peace and democracy through shared prosperity? In failing France, Mr. Hollande is also failing Europe as a whole — and nobody knows how bad it might get. (End of article.)

#### EXERCISE W-3.4

Automatic stabilizers are automatic changes in government spending or tax revenues that reduce the strength of upswings or downswings in economy that occur without any discretionary action taken by government. Normally you might think of fiscal policy as a stimulus package by the government that might include tax cuts, extension of unemployment compensation, investment tax credits, increased government spending and other fiscal budget

changes. But the structure of the government tax and spending system influences how the government budget responds to the business cycle. The Keynesian model suggests that you want government spending to increase and taxes to decline as the economy moves into a recession. When the economy moves into a recession total income falls and income taxes withheld also decline. Income tax represents an automatic stabilizer.

Consider the following table and indicate which items of government spending and taxation work as automatic stabilizers and how they work in a recession or in an upswing.

	The economy moves into:	
	recession	upswing of the business cycle
defense spending		
unemployment compensation		
public infrastructure investment		
income taxation		
wealth taxation		
social security benefits		
spending on climate change mitigation		

### EXERCISE W-3.5

This exercise concerns the article by S. Storm. 2019. ‘Lost in Deflation: Why Italy’s Woes Are a Warning to the Whole Eurozone.’ *International Journal of Political Economy* 48 (3): 195-237.

1. What is meant by the term “fiscal consolidation” (on p. 202)? What were the impacts of fiscal consolidation on Italy’s economic growth according to the article?
2. The increase in the public debt-to-GDP ratio can be estimated using the following equation:

$$\Delta debt = fiscal\ deficit + (i - g) \times debt$$

where  $\Delta debt$  = the percentage-point change in the public debt-to-GDP ratio; the fiscal deficit (as a percentage of GDP) does not include interest payments;  $i$  = the nominal rate of interest;  $g$  = the growth of nominal GDP; and  $debt$  = the initial public debt-to-GDP ratio. Italy had an annual primary surplus of 3% of GDP on average during 1995-2008. Explain why this primary surplus lowered the debt to GDP ratio by circa 40% during 1995-2008 (when we keep all other factors constant).

3. According to the Keynesian model, fiscal austerity may not work in reducing the public-debt-to-GDP ratio. Explain why this may happen and use the Italian case in your answer.

4. Real wage moderation in Italy had three important macroeconomic impacts (p. 210). Review the three impacts and evaluate whether these impacts were beneficial or not to Italian macroeconomic performance.
5. Consider the following definition of the (manufacturing) real profit rate  $\rho$ :

$$\rho = \frac{\text{real profits } \Pi}{\text{real capital stock } K} = \frac{\Pi}{K} = \frac{\Pi}{y} \times \frac{y}{y^{FE}} \times \frac{y^{FE}}{K} = \pi \times u \times \kappa$$

where  $y$  = real GDP;  $y^{FE}$  = full-employment real GDP;  $\pi$  = the profit share;  $u$  = capacity utilization; and  $\kappa$  = the full-employment output-capital ratio (which is assumed exogenous). What happens to the real profit rate when  $u$  increases? Explain your answer.

6. What are the structural forces underlying the permanent demand shortage in Italy? Use Figure 18 in your answer.
7. Why is Italy's crisis considered to be a 'permanent crisis'?