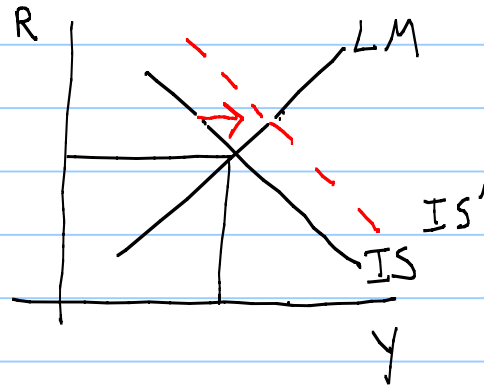


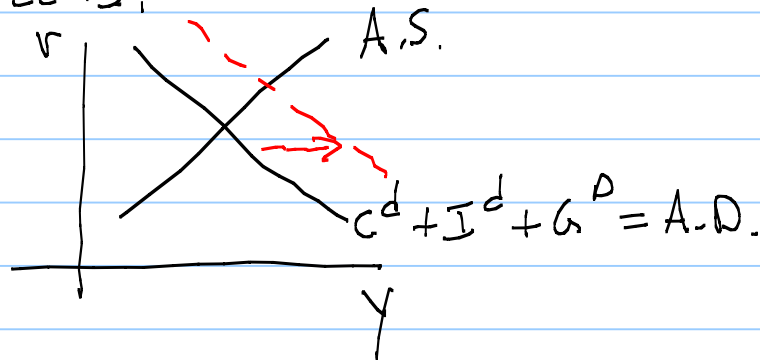
a) IS-LM model.



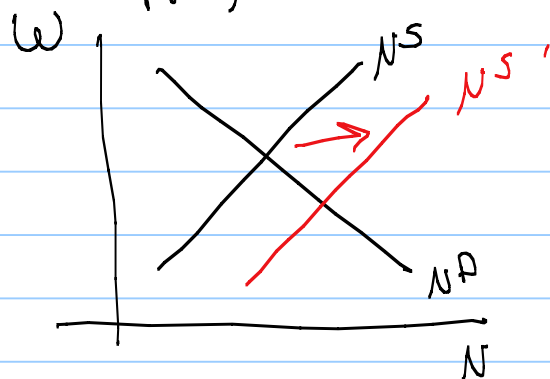
An increase in government purchases in the IS/LM model shifts the IS schedule to the right.

output The size of the government purchases multiplier depends on the interest elasticity of money demand. As this elasticity tends to $-\infty$ the government purchases multiplier tends to Hicks' "super-multiplier" which is larger than 1. See the discussion in 1st edition of Macroeconomics chapter 2 by Thomas Sargent for more details,

b) Hall & Barro: A temporary increase in government purchase has the following effects:



It increases the real interest rate and increases output. The real interest rate adjusts because this change is temporary. Households respond to the higher G & higher taxes by drawing down savings. This increases r . Output rises because workers supply more labor.



The output response to a 1 unit increase in g is less than 1. The reason is that government purchases crowds out private spending. See e.g. Barro "Macroeconomics" for more details.

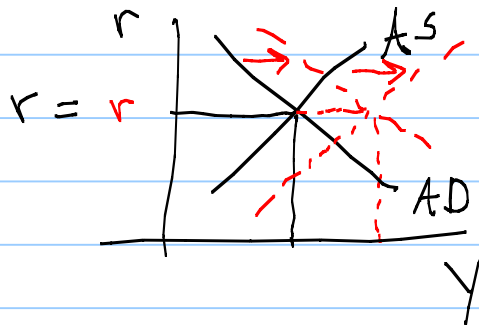
c) The principal distinction between the two models is that in the Keynesian model the multiplier can exceed 1. According to Hall/Barro it is always less than 1 for temporary increases in government purchases.

d) The traditional Keynesian model doesn't make a distinction between temporary and permanent changes in g . Newer versions of the Keynesian model do! See e.g. Blanchard's intermediate Macro textbook. Hall & Barro differ too. In Hall's analysis permanent increases in g leave the

aggregate supply & aggregate demand schedules unchanged.

The reason is that g crowds out c one for one.

In Barro's analysis Aggregate demand and aggregate supply increase by equal amounts leaving r unchanged. (Wealth effects are large, intertemporal substitution effects are small)



d) In the file:

```
"Frg1131commented.mod  
|inc#
```

```
51      g = 0.2 ;  
61      g = 0.2 ;  
76      values 0.4 ;  
75      periods 0.0 ;
```

Then output falls

consumption falls and the interest rate rises. The fact that output falls is inconsistent with all of the analyses above!

For a permanent increase set
line#

51	$g = 0.2$;
61	$g = 0.4$;
76	values 0.4 ;
75	periods 0.0 ;

The responses here are consistent with Hall's analysis: output and the interest rate don't change.

e) See the program gov.mod. Temporary and permanent increases in government purchases can be computed in the same way described above. There is one exception: set periods in the following way:

periods 1:1 ;

This has to do with dynare dating.

There are 2 common ways
to calculate the government
purchases output multiplier.

1) Measure the change in output on impact and divide it by the change in government purchases.

2) Find the period where the output response is largest, calculate the change relative to its initial steady state value and divide this by the change in government purchases.

f) There are many different ways to change the model. There are some examples.

i) assume that government purchases are a substitute for consumption

$$u(c, g) = \ln(c_t + \alpha g_t) + \psi \ln(g_t)$$

where $0 < \alpha < 1$

ii) Assume govt. purchases

enter the production function:

$$y_t = k_t^\theta N_t^{1-\theta} A_t g_t^\eta$$

iii) Put adjustment costs on capital or investment

iv) change the market structure to monopoly or monopolistic competition.