Take Home Exam #1

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Question 1

a)

Step 1 - Use the graphs

There is no effect on N^d curve and there is an effect on N^s curve. If each household receives $2000 from the government, which is a form of transfer payment TR, the wealth of each household will increase by $2000 and the change in wealth only has income effect, which forces people to consume more leisure and work less. Thus, the N^s will shifts left and N^s will decline.

Step 2 - Determine Additional Endogenous Variables

Employment decreases (lower labor supply)

Output decreases (lower employment, unchanged productivity and capital stock)

Income decreases (output = income)

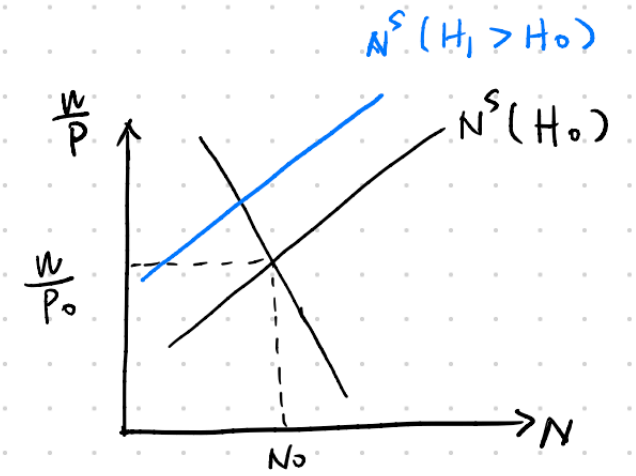
Step 3 - The Significant Other Test

b)

Their conclusion is not reasonable since the equation $Y = C + I + G$ cannot directly tell us the rise in consumption will raise Y (output) if I or G has been changed. Generally, with a policy that can be expected to increase consumption, output, income and employment may not be raised. Intuitively, the improvement in consumption might be companied with the increase of government deficit and it is possible that the output will decrease. Plus, we should base our analysis on the change of labor demand and labor supply if we want to know how output, income and employment will change but the change in consumption cannot tell us how labor supply and labor demand change.

c)

Step 1 - Use the graphs



There is no effect on N^d curve and there is an effect on N^s curve. The check leads to higher TR and higher wealth, which makes the N^s decline. The N^s will shift left.

Step 2 - Determine Additional Endogenous Variables

Employment decreases (lower labor supply)

Output decreases (lower employment, unchanged productivity and capital stock)

Income decreases (output = income)

Pre-tax real-wage increases (N^s shifts left)

Consumption decreases (less disposable income)

Utility increases

Step 3 - The Significant Other Test

If each household receives $2000 from the government, which suggests the TR will increase, the wealth of each household will increase by $2000 and the change in wealth only has income effect, which forces people to consume more leisure and work less, which means the labor supply will decrease and the pre-tax real wage will increase.

With less labor supply, there will be less employment. The output goes down since the total factor productivity and capital stock are unchanged but there is less labor supply. Plus, less output indicates less income since $output = income$. With no change in tax rates and decreases in pre-tax income, both household's disposable income and government tax revenues will be lower. The lower disposable income leads to lower consumption. With more leisure and less consumption, the change of utility seems unclear but people actually get more utility since they make the choice to get more utility.

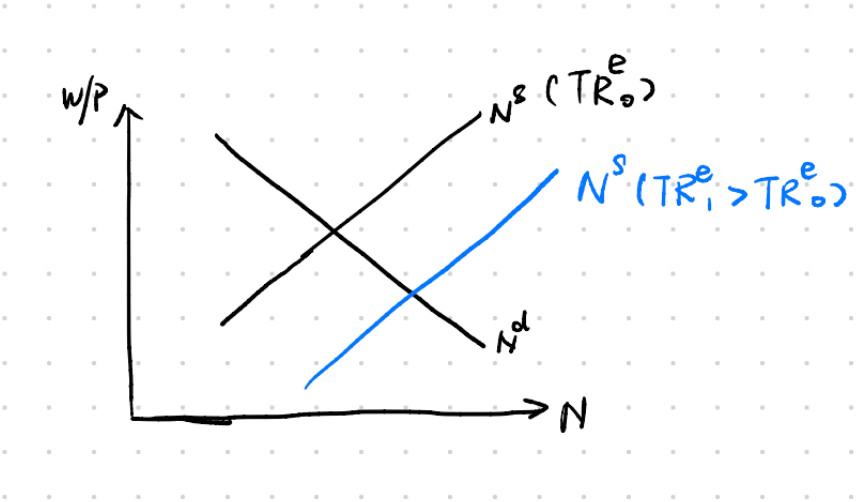
d)

In this question, government spending is the exogenous variable and the expected future income tax rate is the endogenous variable. However, in the classical model, the expected future income tax is an exogenous variable. Thus, the expected future income tax rate has double roles - both exogenous variable and endogenous variable. Thus, the augmented model is more complicated than the classical model.

e)

Suppose government spending is denoted by G^s and the expected future income tax rate by i^e.

Step 1 - Use the graphs



According to the question, with less G^s, the i^e will become smaller and the reduction in i^e can lead to the increase in TR^e. Then, the larger TR^e will make the after-tax real wage larger and the income effect of larger ATRW is stronger than its substitution effect so labor supply shifts right.

Step 2 - Determine Additional Endogenous Variables

Employment increases (higher labor supply)

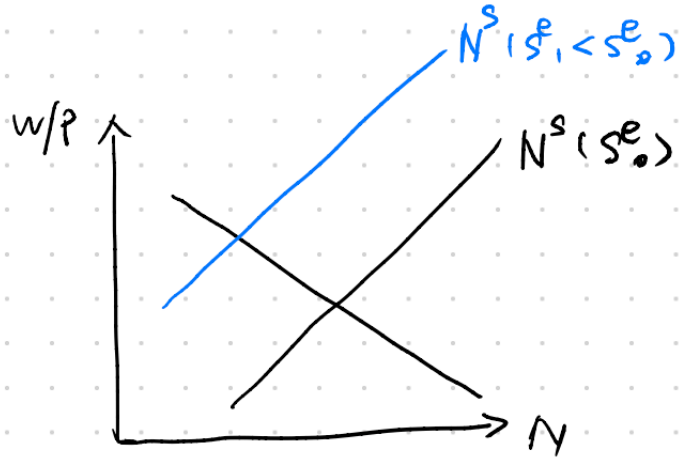
Output increases (higher employment, unchanged productivity and capital stock)

Income increases (output = income)

Step 3 - The Significant Other Test

Lower government spending will lead to less expected future income tax rate and households have more expected future allowable income tax deductions. Then, people are encouraged to work and labor supply will increase. With a higher labor supply, employment will increase and the output will be higher. Plus, income also increases due to the equation $output = income$.

If a decrease in government spending lead households to reduce their expected future sales tax rates, we will get inverse conclusions. The labor supply will decrease due to that the lower expected future sales tax rates will reduce ATRW and the income effect pushes people to work less. Then, output, employment and income will all decline.


$N^s(s^e_1 < s^e_0)$
$N^s(s^e_0)$
w/p
N