

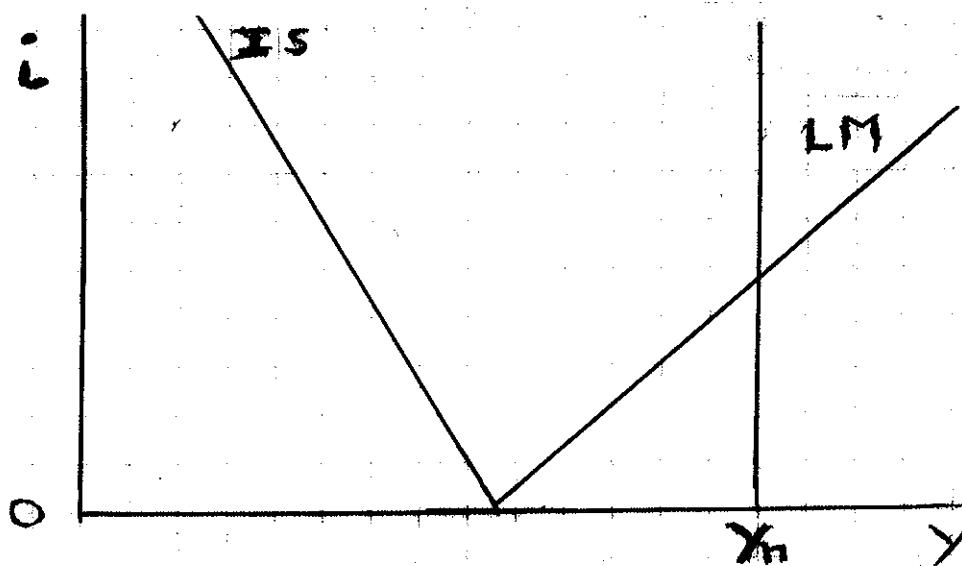
Final Exam

This is a 2 hour exam. The exam has 150 points, use the point totals next to each question to allocate your time.

1) (30 points) Answer each of the following questions True or False (if something is not always true, then it is false), and briefly explain your answer:

- A nation whose private savings is greater than domestic investment will have a current account surplus.
- An exogenous increase in a nation's capital outflows will depreciate its nominal exchange rate.
- If the markup is constant, the percentage change in the price level will equal the percentage change in unit labor costs.
- If labor productivity is growing faster than real aggregate demand, then the number of workers employed will fall.
- If the growth rate of GDP is positive ($g_y > 0$), then the unemployment rate will fall.
- Changes in aggregate demand shift the wage setting line in the labor market model.

2) (30 points) The Great Recession, like the Great Depression, resulted in nominal interest rates that are approximately zero. Assume the economy during the Great Recession was as depicted below:



The Government wants to achieve the following two goals:

- 1) Raise GDP to full employment, and
- 2) Leave the level of national investment **unchanged** (neither raise nor lower it). With respect to this goal, assume that the parameter i_1 equals nx_1 .

a) Find the point on the Y_n line in (i, Y) space that the government wants to reach under the assumption that inflationary expectations are zero. Be careful: Spend some time answering this question because your other answers depend on it.

Evaluate **each** of the following taken separately in terms of their ability to reach the point you found in a) under the assumption that inflationary expectations remain at zero:

- b) Expansionary monetary policy
- c) The Neoclassical Synthesis (the self-healing mechanism)
- d) Expansionary fiscal policy
- e) Expansionary monetary and fiscal policy
- f) If the government could engineer an increase in inflationary expectations, would it be able to achieve its two goals? Why or why not?

3) (30 points) F. Scott Fitzgerald once wrote that "The test of a first rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function." Prove you are a "first rate intelligence" by answering the questions below with respect to an **increase** in the savings rate (the percentage of disposable income that people save). Be sure to **briefly** explain your answers.

a) In the Short Run, what will this do to:

- i. GDP
- ii. Interest rates

b) In the Medium Run (assuming that you started at full employment before the increase in the savings rate), what will this do to:

- i. GDP
- ii. Interest rates
- iii National Investment

c) In the transition to the new Long Run Steady State, what will this do to:

- i. GDP per person
- ii The growth rate of GDP per person

d) In the new Long Run Steady State, what will this do to:

- i. GDP per person
- ii The growth rate of GDP per person

4) (36 points) Consider an economy which at $t = 0$ is in medium equilibrium with $\pi = 2\%$ and $u = u_n$. Assume the Phillips Curve has a slope of .5. The government is up for reelection and wants to lower the unemployment rate to increase its chances of victory. Analyze what happens to this economy in the short run (period 1), the transition to the medium run, and the medium run equilibrium for each of the cases below:

a) The government raises the growth rate of nominal aggregate demand (g_{NAD}) by 2 % in period 1, but then returns g_{NAD} to its original level.

b) The government raises the growth rate of nominal aggregate demand (g_{NAD}) by 2 % in period 1 and keeps it there forever.

c) The government convinces the central bank to raise its inflation target by 2%.

Don't panic: the next three questions, while interesting, only count for a total of 12 points

d) In case a) when the economy returns to medium run equilibrium, what is the relationship between the total point years that the unemployment rate was below the natural rate and the total point years that the unemployment rate was greater than the natural rate? Think hard about this.

e) In case b) when the economy returns to medium run equilibrium, what is the relationship between the total point years that the unemployment rate was below the natural rate and the total point years that the unemployment rate was greater than the natural rate? You should be able to come up with an actual number.

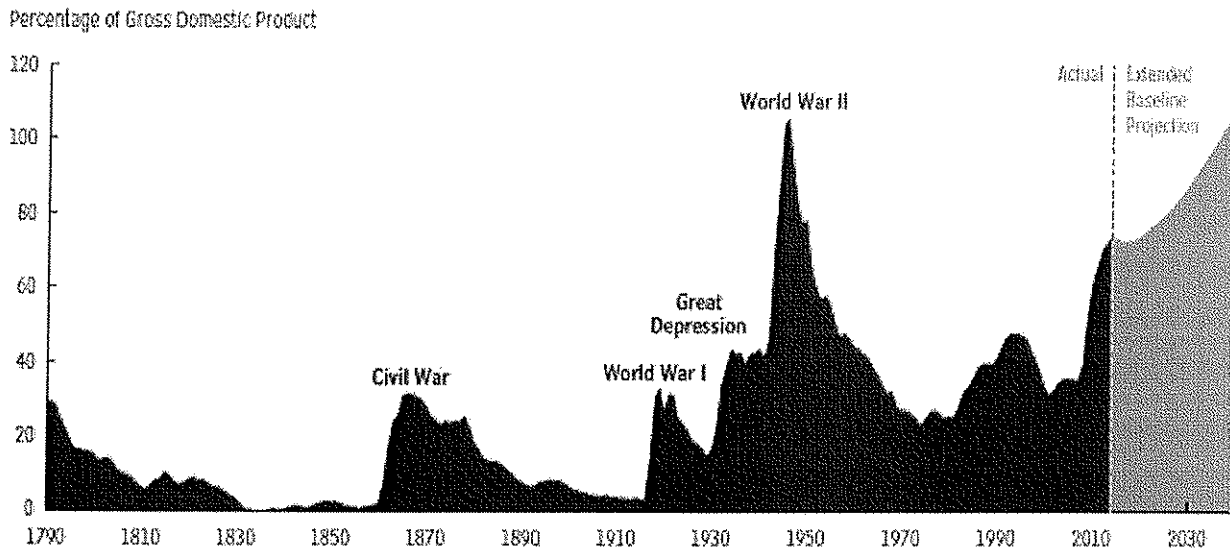
f) In case c) when the economy returns to medium run equilibrium, for how many point years was the unemployment rate below the natural rate? For how many point years was the unemployment rate greater than the natural rate? How does this answer relate to your answer in e)?

Question 5 is on next page

5) (24 points) The figure below depicts the Government Debt to GDP ratio for all of American history and the Congressional Budget Office's projection until 2040:

Figure 1-1.

Federal Debt Held by the Public



- What is the relationship between the government deficit and the government debt? [Hint: Yes, this is an easy question]
- What were **two** causes (there are three) for the sharp increase in the Government Debt to GDP ratio during the Great Recession from 2008 to 2010?
- From World War II until the 1980's, the Government Debt to GDP ratio was falling even though the government usually ran primary budget deficits. How can this be?
- The Congressional Budget Office is assuming that interest rates will be relatively close to the growth rate of GDP (g_y) from now until 2040. What, therefore, must be the reason for the rise in the Debt to GDP ratio?
- If American private savings (S) is insufficient to fund our desired level of national investment (NI^1) in the future (and given your answer in d), does the path of the Debt to GDP ratio from now until 2040 represent good or bad fiscal policy? Why?