Global Economy
Final Exam: SOLUTIONS

Part I (80 points): Answer 8 of the following 10 questions. Each question is worth 10 points. Explain whether the statement is true or false.

1. The increase in female labor-force participation in the US in the 1960s had a bigger impact on real GDP measurements than it did on actual real economic activity.

   TRUE. Since it was common for women to do valuable work at home, outside the market economy, their contributions to real economic activity went unmeasured by real GDP which is strictly market based. When these women entered the labor force, activities like childcare, food preparation and house cleaning, were then done by hired workers who were paid to provide these services. These new market transactions increased real GDP, but not necessarily real economic activity, since it reflected a substitution of market for non-market activity, and an improved measurement of economic activity, not an increase in that activity.

2. For a standard Cobb-Douglas production function, per capita output of 2 when the capital-labor ratio is 1 implies that total factor productivity must be equal to 2.

   FALSE. Per capita GDP, Y/Pop, is related to the capital-labor ratio, K/L, and total factor productivity, A, through the Cobb-Douglas production function:

   $$\frac{Y}{Pop} = \left(\frac{L}{Pop}\right)\left(\frac{Y}{L}\right) = \left(\frac{L}{Pop}\right)A\left(\frac{K}{L}\right)^{1/3}$$

   Therefore, when K/L is equal to 1, and per-capita GDP is equal to 2, we cannot infer the value of TFP unless we also know the labor-force participation rate, L/Pop. In fact, TFP could only be equal to 2 if participation was at an unlikely value of 100%.

3. A mandated 35-hour long workweek for all employees will create jobs since firms will need to hire more workers rather than increase the hours of existing workers.

   FALSE. Employment protection regulations like a mandated workweek, make it more difficult for employers to hire the efficient amount of labor, which will lower the demand for labor. Rather than hiring too many workers and creating losses, firms will hire less labor and accept smaller profits. On the other hand, workers will still want to supply labor, yet will be unable to find work, which will result in higher unemployment.

4. Since interest rates are pro-cyclical, an upward sloping yield curve is an indicator of a future recession.

FALSE. Yields on long-maturity bonds are an average of the current interest rate and the market's expectation for future interest rates (plus a risk premium). Therefore, when long-maturity bond yields are above the current interest rate, ie, an upward sloping yield curve, the market is anticipating that interest rates will rise. Since interest rates are procyclical, this implies that they are also anticipating a recession. If investors are expecting a recession in the future with lower interest rates, the yield curve may still be upward sloping if the risk premium on long bonds is sufficiently high. Therefore, unlike a downward-sloping yield curve, at best an upward sloping yield curve is an ambiguous indicator for future economic activity.

5. Unemployment in Greece is very high and we know that increasing the money supply can stimulate short-run economic activity, therefore, the ECB should increase the money supply to lower unemployment in Greece.

   FALSE. Monetary policy is conducted at the Euro-zone level: there is one monetary policy for all Euro-zone countries rather than country-specific policies. Increasing the money supply could stimulate economic activity across the Euro-zone, not just in some economically depressed regions like Greece. If economic activity is high in other regions, the net effect will not be more employment in Greece, but rather inflation in all Euro-zone countries.

6. Hyperinflation is a monetary phenomenon that has nothing to do with fiscal policy.

   FALSE. Hyperinflations have their origins in governments that want to undertake spending programs, but are unable to sell bonds or raise tax revenue to finance this spending, and who resort to increasing the money supply to finance these fiscal deficits. The net effect of this new money is inflation, and expectations of future inflation, which requires the government to print money at an ever increasing rate to try to finance its spending. The net result of this is hyperinflation.

7. When the Fed follows the Taylor Rule, it raises short term interest rates today when it expects inflation to be relatively high in the future.

   FALSE. The Taylor Rule requires the Fed to increase short-term interest rates when current inflation is relatively high, not expected future inflation. This policy will have an effect on expected future inflation through the private-sector's valuation of short-term bonds, but not because of the Taylor Rule itself.

8. A value-added tax is preferable to a large income tax.

   TRUE. Since a value-added tax applies a low tax rate across all goods and services in the economy, it typically implies a smaller loss of efficiency than a

large tax applied income, which can distort growth-enhancing decisions like physical and human capital accumulation.

9. A government can stimulate current consumption expenditures by households by running a deficit and transferring the income to households through lower taxes.

   FALSE. A government deficit is, by definition, a future tax liability. A deficit-financed tax cut will not affect consumer's wealth, hence, will not affect their current consumption decisions. (For this statement to be true, there must be some kind of substantial friction that someone allows consumers to ignore their future tax liability, such as an inter-generational friction in which current consumers try to force the tax burden onto future generations.)

10. Uncovered interest rate parity implies that countries with high interest rates tend to have currencies that appreciate over time.

    FALSE. Uncovered interest-rate parity implies the opposite. Investors will attempt to borrow in low interest-rate countries and lend in high interest-rate countries (ie, the so-called carry trade). UIC says that these profits will be zero on average since the currency of the high interest-rate country will depreciate in value over time eliminating the perceived profits.

Part II (80 points): Answer all parts of all questions.

1. In the US in 2008, prices fell, output fell, investment fell, and employment fell.

   a. Use the real business cycle model to evaluate the possibility that these co-movements were caused by eliminating a distortion in the housing market that caused over-investment in residential housing so that capital and labor could be reallocated to more productive uses. (10 points)

   In the real business cycle model, the reallocation of capital and labor to more productive uses would result in a temporary increase in total factor productivity. In turn, this would increase the demand for investment and the demand for labor by firms, but would not have much of an affect on either private savings or the supply of labor. The consequence of the TFP improvement would be to increase employment, investment and output, which does not match the facts from 2008.

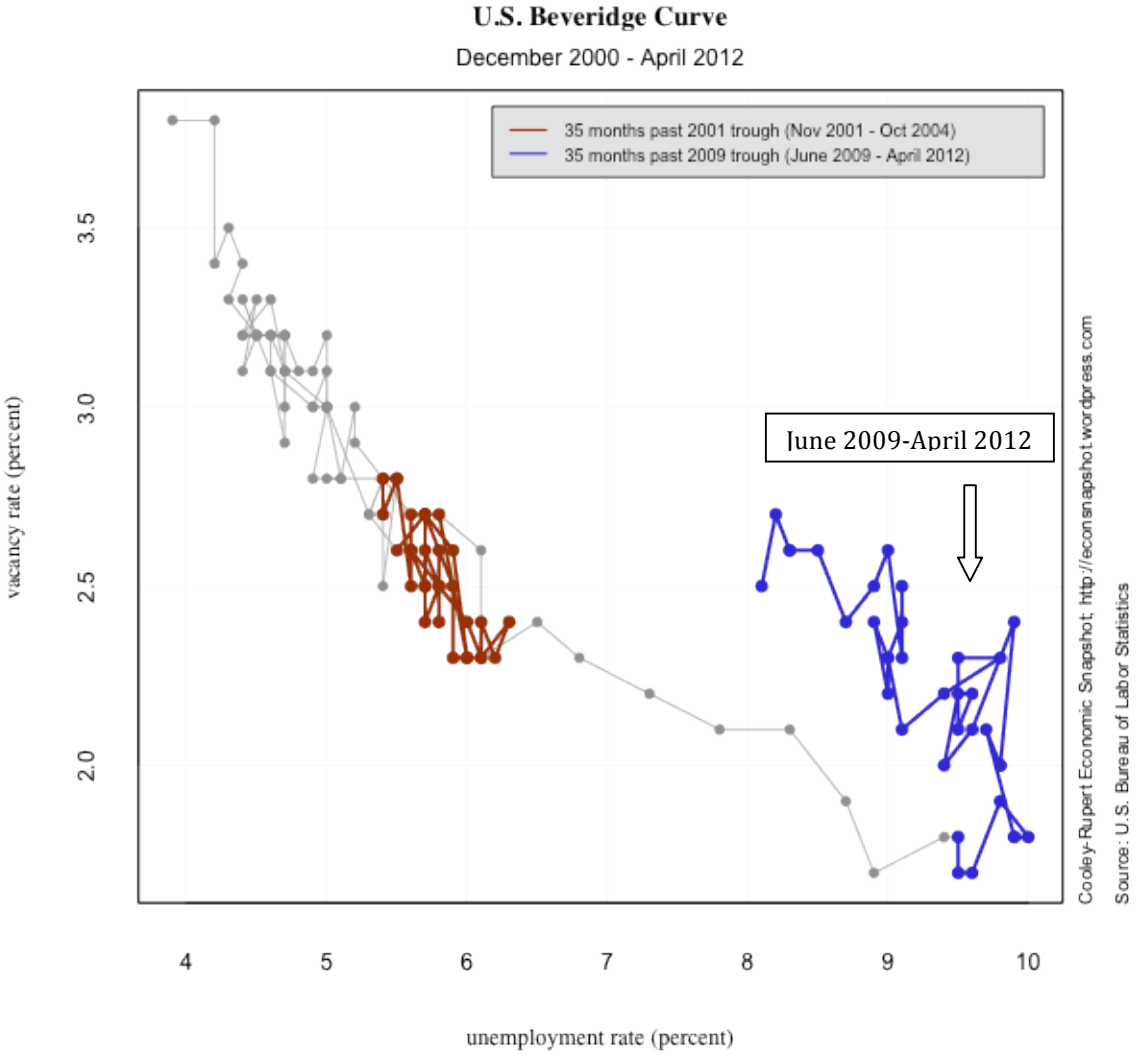
   b. Use the AS-AD model to evaluate the possibility that these co-movements were caused by a loss in confidence in financial institutions causing a large decrease in velocity. (10 points)

   A decrease in velocity would shift the AD curve to the left, but leave AS unchanged, resulting in a new short-run equilibrium with lower prices and lower output. This is a much more likely scenario given the facts of 2008

c. What monetary policy recommendation would you make for the scenario in part b.? Why? (10 points)

A increase in the money supply would help stimulate aggregate demand by accomodating the effects of the decrease in velocity, and reversing the reduction in AD.

c. The "Beveridge Curve" plots the job vacancy rate against the unemployment rate. Below is the Beveridge Curve for the US economy over the last 10 years. Comment on the odd pattern on the far right side of the graph (ie, the last three year's worth of data) relative to the rest of the curve. How is this related to the discussion of the causes of the last recession in part b, and the monetary policy recommendations in part c. (10 points)



The basic idea is that relative to historical patterns, the current unemployment rate looks much too high given the number of job vacancies. We typically see the unemployment rate around 5.5% not its current 8.5% with that many job openings (the Bureau of Labor Statistics puts the number at about 3.5 million job vacancies). In other words, the demand for labor seems quite strong, yet unemployment remains really high, which is puzzling. Labor market frictions on the supply side are the likely cause of this outcome. For example, extending unemployment benefits is likely is likely to be a big part of the story (it's nice to help people out when they are in need, but we shouldn't be naive about the unintended consequences of distorted incentives). A skills mismatch could also be part of the story. For example, auto makers laid off low-skilled assembly-line workers and are now hiring higher-skilled IT workers.

2. France's presidential election was held on May 6, 2012. The electoral campaign saw the challenger, Francois Hollande, differentiate himself from the incumbent, Nicolas Sarkozy, primarily along economic-policy dimensions.

   a. Mr Hollande proposed that taxpayers with annual income of more than 1 million Euros (1.3 million US dollars) be taxed at 75%, a sizeable increase from the current 50% marginal tax rate. How would you expect tax revenues and GDP to change as a result of such policy? Please explain. (10 points)

   Such a tax hike will lead high-income individuals to lower their consumption and possibly also their labor supply. It may also lead high- income individuals to leave the country. Bottom line: both GDP and tax revenues will decline.

   b. Mr Hollande forecasted that the tax hike would lead to an increase in tax revenues. He proposed that the added revenues be used to finance an increase in government expenditures, ie, government's purchases of goods and services, in order to provide more free services to the population. Assume that tax revenues do indeed increase. What are the most likely effects of an increase in government purchases on GDP? On personal consumption expenditures? On French standards of living? (10 points)

   The policy proposed by Mr Hollande is a permanent increase in government expenditures financed with distortionary taxes. It is likely to lead to an increase in GDP, but also to a decline in personal consumption expenditures. It is the increase in taxes that will crowd-out personal consumption expenditures. The effect on people’s well-being is difficult to assess. Because of the change in policy, households total consumption will include less private consumption and more consumption of publicly provided goods. To some extent, whether households will be better off or worse off will depend on whether (1) the goods and services provided by the government are actually of some use to households and (2) the same goods and services are not already available in the private market.

c. Mr Hollande vowed to create a government-owned and -operated bank, whose purpose would be to subsidize small and medium firms, as well as prop up investment in innovative sectors and green technologies. Do you see any downside to such policy? Please explain. (10 points)

One downside is that there is no good reason to believe that government or a government-operated institution may be in the best position to decide what sectors are most promising. In fact, we have evidence to the contrary.

3. Between 1960 and 2007, Jamaica and Barbados had very different growth experiences even though they have a lot in common both geographically and historically. In fact, they share almost identical legal and political institutions inherited from their British colonial experiences. Yet average annual growth in GDP per worker in Barbados was 3.4% but only 0.9% in Jamaica. Employment in both countries fell over this period, with Barbados experiencing an even greater loss in employment than Jamaica: -0.09% in Barbados and -0.02% in Jamaica. The capital stock in Barbados, however, grew slightly faster at an average annual rate of 0.7% compared to an average rate of 0.027% in Jamaica. Can differences in productivity growth over this period explain the differences in economic performance? (Clearly state any assumptions that you make about production functions in the two countries.) Jamaica has strong labor unions, foreign trade restrictions and an unstable currency. Barbados has wage increases determined by productivity increases, liberal trade policies, and a very stable currency. Do these differences matter? Why? (10 points)

   From the data given in the question we can calculate TFP growth rates for both Barbados and Jamaica over this period.

   Barbados:

   $$\gamma_A = \gamma_{Y/L} - \alpha\gamma_{K/L} = \gamma_{Y/L} - \alpha(\gamma_K - \gamma_N) = 3.4 - (1/3)(0.7 + 0.09) = 3.14\%$$

   Jamaica:

   $$\gamma_A = \gamma_{Y/L} - \alpha\gamma_{K/L} = \gamma_{Y/L} - \alpha(\gamma_K - \gamma_N) = 0.9 - (1/3)(0.027 + 0.02) = 0.88\%$$

   Clearly, the vast majority of the difference in economic performance is attributable to the difference in productivity growth. Labor market frictions and foreign trade restrictions have a direct effect on the efficiency of production. With fewer restrictions in labor markets and foreign trade relative to Jamaica, Barbados was able to use capital and labor more efficiently. A stable currency would be helpful for attracting foreign investment, however, growth in the capital stock was not much higher in Barbados than in Jamaica over this period, hence this is less likely to have played a significant role.