

SIMON FRASER UNIVERSITY
Department of Economics

Econ 305
Intermediate Macroeconomic Theory

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MIDTERM EXAM
(Solutions)

The first five questions are True, False, or Uncertain. Briefly explain your answers. No credit without explanation. (10 points each).

1. The Solow model predicts that in the long-run all countries will converge to the same level of per capita income.

FALSE/UNCERTAIN. *In the Solow model, the steady level of per capita income is determined by productivity, the savings rate, the population growth rate, and the depreciation rate. Countries will converge to the same level of per capita income only if all these factors are identical across countries.*

2. Increases in the CPI overstate increases in the cost-of-living.

TRUE. *The CPI uses a fixed basket of goods when comparing prices across time periods. This ignores the fact that households can substitute towards goods which have become relatively cheaper.*

3. Fiscal deficits cause current account deficits.

UNCERTAIN. *This will only be true if private investment and saving remain constant. However, there are reasons to believe that private saving might react to public dissaving.*

4. Inequality has been increasing in the world economy.

UNCERTAIN. *It depends on how you look at it. At the national level, inequality has increased, mainly because of the relatively poor performance of Africa and Latin America. However, if you inequality at the individual level, inequality has decreased in recent decades, due to the relatively strong growth performance of China and India (which account for roughly 1/3 of the world's population!)*

5. According to the DMP model, an improvement in the matching technology will reduce the unemployment rate and increase output.

TRUE. *Increased match efficiency will shift out the zero profit line, which then produces an increased labor market tightness (in order to restore zero expected profits). It will also shift up the workers indifference curve, so that more workers enter the labor force, since it is now more likely you will find a job. The unemployment rate will therefore fall, both because labor markets are tighter and because matching is more efficient. With more people working, output will obviously increase.*

6. (25 points). The covid pandemic has had major economic repercussions, as well as being a major source of increased health risks. Let's use our neoclassical/market-clearing model of the labor market to understand some of the economic effects. In particular, let's compare two alternative ways of modelling this shock. First, suppose we think of the pandemic as producing a sudden increase in the demand for 'leisure', as people withdraw from market activity. Describe the effects in the labor and goods markets. What are the predicted effects on output, employment, consumption, and wages.

Now suppose instead we think of the shock as a (temporary) negative productivity shock, which reduces the demand for labor. Again, describe the predicted effects on output, employment, consumption, and wages. Briefly discuss how we could use market data to discriminate between these two interpretations. Use graphs to illustrate your answer.

If we think of the pandemic as increasing the demand for 'leisure' (or non-market activity), then the labor supply curve shifts up. As a result, employment and output decrease, while wages increase. If we think of the pandemic as a negative shock to productivity, the demand curve for labor would shift down and to the left. Again, employment and output would decrease. However, in this case, wages would fall.

Notice that both interpretations predict that output and employment fall. The key to distinguishing between them is to look at wages. If wages rise, then the 'leisure shock' interpretation would be more likely. If wages fall, then the 'productivity shock' interpretation would be more likely. In reality, there has not been a strong movement in wages, which suggests that both forces were at work. As a result, there has been a severe decline in output and employment, with little or no change in wages. Interestingly, in recent months there has been much discussion of 'worker shortages' and 'signing bonuses', even for unskilled jobs in retail and food service. This suggests that recently the leisure shock story has come to dominate.

7. (25 points). In class, we assumed that people save a fixed fraction of their income, no matter what the level of their income is. This might not be such a good assumption at very low levels of income. Instead, suppose that at very low levels of income, people are simply worried about subsistence, and consume all their income, i.e., the saving rate is zero. For simplicity, suppose that once this subsistence level is exceeded, people start saving a fixed fraction of their income, as we assumed before.

- (a) Illustrate this new savings function in the usual 'Solow diagram', with the capital/labor ratio on the horizontal axis and per capita income on the vertical axis.
- (b) Does the economy have a unique steady state? Does the long-run fate of the economy depend on where it starts?
- (c) Briefly discuss the policy implications of this analysis.

I got lazy, and stole this question from Problem Set 2 (Question 3) in the Spring 2011 class. The solution is posted on the webpage for that class, so I won't repeat it here. The point of this question is that a variable savings rate makes it possible for there to be multiple (stable) steady states. The low income steady state is often referred to as a 'poverty trap' in the growth and development literature. The key policy implication is to somehow kick start the economy out of the low saving/low income steady state, perhaps using externally financed development aid.