

Macroeconomics Field Exam
August 2021
Department of Economics
UC Berkeley

(3 hours)

Answer Both Parts

Part I (Yuriy Gorodnichenko): 90 points = 90 minutes

Short questions (True/False + a brief explanation; explanation determines the grade; 30 points=30 minutes; each question is 3 points):

1. Asset prices can't Granger cause dividends but dividends can cause movements in asset prices.
2. Recent U.S. recessions are characterized by rapid recoveries in the labor market and slow recoveries of output.
3. Inflation is a highly persistent time series.
4. Average inflation targeting is as good as the gold standard.
5. The basic business cycle model predicts that labor and output cannot comove.
6. Information rigidity means that economic agents are not rational.
7. Monetary policy shocks account for approximately 10 percent of business cycle fluctuations.
8. Relative to the Jorda local projections, VAR is a superior tool to construct impulse responses.
9. Menu costs model cannot produce time-dependent price adjustment.
10. Sunspot equilibria are attractive because they can rationalize large fluctuations with large shocks.

Longer questions (30 points= 30 minutes)

1. **Bank runs.** Two investors have each deposited \$100 with a bank. The bank has invested \$200 into a long-term project. If the bank is forced to liquidate the project before it matures, a total of \$120 can be recovered. If the project matures, it earns a return of 10% so that the total payoff is \$220 and each investor gets \$110. The investors can make withdrawals from the bank at two dates:
 - a. Date 1: before the bank's project matures
 - b. Date 2: after the bank's project matures

What is the minimum amount of liquidity that the lender of last resort needs to provide the bank to ensure depositors do not run on the bank?

2. **Commitment vs. discretion.** Suppose a central bank has the following loss function over inflation π and unemployment u :

$$L = \pi^2 + \lambda(u - \bar{u})^2$$

and the Phillips curve is given by

$$u = u^n - \alpha(\pi - \pi^e)$$

where \bar{u} is unemployment target, u^n is the natural unemployment, and π^e is expected inflation.

Suppose that economic agents form their inflation expectations in the following way. If the central bank delivers 2 percent inflation, economic agents expect inflation to be 1 percent. If the central bank delivers 4 percent inflation, economic agents expect inflation to be 2 percent. That is, economic agents expect a half of what is delivered by the central bank. If $\alpha = \lambda = 1$ and $\bar{u} = u^n$ and the central bank cannot commit, what rate of inflation will the central bank choose to deliver?

Long question on the policy response to the COVID-19 recession (30 points = 30 minutes)

- a. April 23, 2020. “(Reuters) - The Federal Reserve's balance sheet increased to a record \$6.62 trillion this week as the central bank used its nearly unlimited buying power to soak up assets to keep markets functioning amid an abrupt economic free fall due to the coronavirus pandemic.” Please explain the rationale (if there is any) for this policy and evaluate this policy.
- b. The same article from Reuters: “The Commercial Paper Funding Facility II LLC, a special-purpose vehicle set up by the Fed with seed money from the U.S. Treasury, rose to \$2.7 billion from \$974 million on April 15. That facility began operations last week.” Please explain the rationale (if there is any) for this policy and evaluate this policy.
- c. The Reuters article also reports, “The newest item appearing on the Fed's balance sheet was loans it has taken on from banks participating in the Small Business Administration's "Payroll Protection Program," initially rolled out at \$349 billion but set to be expanded under new appropriations from Congress after the original amount ran out in less than two weeks. The Fed held just over \$8 billion of PPP loans as of Wednesday, an amount certain to rise in the coming weeks.” Please explain the rationale (if there is any) for this policy and evaluate this policy.
- d. On April 24, 2020 Reuters reported, “The U.S. government is considering taking equity stakes in U.S. energy companies as it seeks to help the nation’s oil and gas sector amid the coronavirus outbreak, Treasury Secretary Steven Mnuchin said on Friday.” Please explain the rationale (if there is any) for this policy and evaluate this policy.
- e. The response of the fiscal policy to the coronavirus recession was (as summarized by the NY Times): “Any adult earning up to \$75,000 in adjusted gross income who has a valid Social Security number will receive a \$1,200 payment. The payment steadily declines for those who make more and phases out for those who earn more than \$99,000. For married couples, both adults receive \$1,200, with the phase-out starting at \$150,000 of income and falling to zero for couples who earn \$198,000. Parents will also get payments of \$500 for each eligible child; this is generally those 16 years old or younger. For heads of household with one child, the benefit starts to decline at \$112,500 and falls to zero at \$136,500.” Please explain the rationale (if there is any) for this policy and evaluate this policy.

Part II (Emi Nakamura): 90 points = 90 minutes

1. **10 points** Do the empirical findings of Atkeson and Ohanian (2001) suggest an important shortcoming of the New Keynesian Phillips curve? Why or why not?
2. (A) **10 points** Briefly describe the *most important* points made by Gali and Gertler (1999). Credit will be given for your ability to distill the key points, as opposed to including all the details. (No more than a few sentences).

(B) **10 points** Provide two critiques of the empirical conclusions of Gali and Gertler (1999). Be as specific as possible. (No more than 1-2 paragraphs).
3. **10 points** What would be the *ideal* dataset to estimate the model that Gourinchas and Parker (2002) lay out. What would be the advantages of this dataset relative to the dataset that they actually have? (No more than a paragraph).
4. (A) **10 points** Kaplan and Violante (2014) consider a model with two assets: a liquid and an illiquid asset. Can one think of the illiquid asset as a house? Why or why not? (No more than a paragraph).

(B) **10 points** How are the predictions of Kaplan and Violante's model similar to a model with hand-to-mouth consumers? How are they different? (No more than a paragraph).
5. **10 points** What do you think is the most compelling explanation for the decline in the labor share in recent decades? Why? (No more than 1-2 paragraphs).
6. (A) **10 points** In the literature on information effects of monetary policy shocks, one empirical finding is that positive monetary shocks are associated with output increases. Does this suggest that contractionary monetary policy can actually *increase* future output growth? (No more than a few sentences).

(B) **10 points** Suppose that the information effects of high frequency monetary policy shocks are very large—as in Nakamura and Steinsson's 2018 estimates. Does this imply that the coefficients on output and inflation in the Taylor rule should be reversed, since the effects of monetary policy are “backward” from what is typically assumed? (No more than a few sentences).