

Problem Set 2

Due *in lecture* on Monday, October 9. Be sure to put your name on your problem set. Put “boxes” around your answers to the algebraic questions.

1. Consider an economy where money demand depends on wealth. The Administration and Congress are contemplating a massive tax cut, on the order of \$2.2 trillion over the course of a decade.

1.1 Show in an IS-LM diagram what would happen if the tax cut occurs. Be sure to show each curve shift. You can assume the monetary authorities hold the money supply constant.

1.2 Can we determine whether output rises or falls?

1.3 (Optional) Suppose the marginal tax rate is zero. Under what conditions does output fall in response to the tax cut?

2. Consider the Aggregate Demand-Aggregate Supply framework. Suppose government spending is increased when we are in a liquidity trap, and the Fed does *NOT* target the interest rate. You can assume for simplicity expected inflation is always zero.

2.1 Show what happens in an IS-LM and AD-AS graph in the period the government spending increase occurs, and output ends up below potential GDP, and remains in a liquidity trap.

2.2 Show what happens over time to output, the price level, and the interest rate.

2.3 Redo 1.1, but now show what happens in an IS-LM and AD-AS graph in the period the government spending increase occurs, and output ends up above potential GDP, and out of a liquidity trap.

2.4 Show what happens over time to output, the price level, and the interest rate.

3. Consider the following data from US Treasury <http://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yield> (accessed 9/30/2017):

Date	1 Mo	3 Mo	6 Mo	1 Yr	2 Yr	3 Yr	5 Yr	7 Yr	10 Yr	20 Yr	30 Yr
09/01/17	0.96	1.02	1.10	1.24	1.35	1.46	1.73	1.99	2.16	2.51	2.77
09/05/17	1.30	1.03	1.13	1.23	1.30	1.40	1.65	1.90	2.07	2.43	2.69
09/06/17	1.04	1.07	1.17	1.24	1.30	1.42	1.69	1.93	2.10	2.46	2.72
09/07/17	0.98	1.05	1.15	1.21	1.27	1.38	1.63	1.88	2.05	2.40	2.66
09/08/17	0.96	1.04	1.14	1.22	1.27	1.39	1.64	1.89	2.06	2.41	2.67
09/11/17	0.97	1.05	1.16	1.24	1.32	1.44	1.71	1.96	2.14	2.49	2.75
09/12/17	0.99	1.03	1.16	1.27	1.33	1.46	1.75	1.99	2.17	2.52	2.78
09/13/17	0.99	1.04	1.16	1.27	1.35	1.48	1.78	2.01	2.20	2.53	2.79
09/14/17	0.99	1.05	1.17	1.28	1.37	1.50	1.79	2.01	2.20	2.52	2.77
09/15/17	0.98	1.05	1.17	1.30	1.39	1.53	1.81	2.04	2.20	2.52	2.77
09/18/17	0.96	1.05	1.18	1.30	1.40	1.54	1.83	2.06	2.23	2.56	2.80
09/19/17	0.97	1.04	1.19	1.31	1.40	1.55	1.84	2.07	2.24	2.57	2.81
09/20/17	0.98	1.04	1.20	1.32	1.45	1.60	1.89	2.12	2.28	2.59	2.82
09/21/17	0.99	1.04	1.19	1.31	1.45	1.59	1.89	2.11	2.27	2.57	2.80
09/22/17	0.97	1.03	1.19	1.30	1.46	1.58	1.88	2.10	2.26	2.57	2.80
09/25/17	0.97	1.05	1.19	1.30	1.44	1.56	1.85	2.07	2.22	2.53	2.76
09/26/17	0.96	1.06	1.19	1.31	1.45	1.57	1.87	2.08	2.24	2.54	2.78
09/27/17	0.99	1.07	1.20	1.33	1.47	1.60	1.91	2.14	2.31	2.62	2.86
09/28/17	0.97	1.06	1.18	1.31	1.45	1.59	1.89	2.13	2.31	2.63	2.87
09/29/17	0.96	1.06	1.20	1.31	1.47	1.62	1.92	2.16	2.33	2.63	2.86

Suppose the expectations hypothesis of the term structure holds.

- 3.1 Calculate the expected one year interest rate, one year from 9/29/2017.
- 3.2 Calculate the average of expected one year interest rates for periods 5 and 6 years from 9/29/2017.
- 3.3 Repeat 2.2, using *real* interest rates. Hint: go to <http://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=realyield>

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