**Homework due Tuesday 1/13: Fiscal Policy; Money and Banking; and Monetary Policy: 10 points**

**Use separate piece of paper for answers or submit electronically**

1. Assume MPC is 0.8 and the government increases spending on cancer research by $15B. What is the value of the initial impact on GDP? (think about C+I+G+NX…) What is the value of total impact on real GDP (multiplier…)? Initial change in G = $15B Total change in real GDP = 1/1-MPC X change in G = (1/1-.8) X 15 = $75B impact when government spends $15B
2. Assume MPC is 0.8 and policy makers have targeted real GDP to increase by $200B. By how much must taxes be reduced to achieve this goal? (hint – assume reducing taxes is the similar to calculating increasing spending because you need to use a multiplier…) Tax multiplier: MPC/1-MPC For calculating the change in Taxes (“T”) = MPC/1-MPC X change in T

$200B = .8/1-.8 X T $200B = .8/.2 X T = $200B/4 = $50B decrease in taxes

1. Calculate the budget and determine (and write) whether there is a budget surplus, deficit or balanced budget for each year. 2004 is done for you.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | Tax Revenue (Income) | Government spending | Transfer payments (i.e. social security) | Net GDP | SurplusDeficitOr balanced |
| 2004 | 2000 | 1200 | 600 | 200 | surplus |
| 2005 | 1600 | 1500 | 900 | -800 | Deficit |
| 2006 | 1700 | 1400 | 700 | -400 | Deficit |
| 2007 | 2200 | 1000 | 500 | 700 | Surplus |
| 2008 | 2400 | 1600 | 800 | 0 | balanced |

What is the budget after 2008? (sum up the net GDP) Budget = sum of net GDP = 200-800-400+700 + 0 = -300B deficit

1. Bank T-account: the bank has $250,000 on deposit and a 10% required reserve ratio

|  |  |
| --- | --- |
| ASSETS: | LIABILITIES: |
| Loans 225,000 | Deposits 250,000 |
| Reserves 25,000 |  |

1. How much should they have in reserves? Reserve ratio X deposits = .10 X 250,000 = 25,000
2. How much can they lend? Deposits – reserves = 250,000 – 25,000 = 225, 000
3. Fill in the t-account above
4. Steve deposits his $15,000 bonus into his savings account. The bank has a required reserve ratio of 15%. How much must the bank hold of his deposit? Req reserves = req reserve ratio X deposit = .15 X 15,000 = $2250
5. Sam deposits $1000 cash into his checking account. The bank’s required reserve ratio is 20%. What are the bank’s excess reserves (the bank is not lending money out)? Req reserves = .2 X 1000 = 200

Excess reserves= total reserves – req reserves = 1000 – 200 = 800 in excess reserves

1. What are the initial effects on the issues below on both M1 and M2 money supplies? (increase, decrease or no change)
	1. Example - You sell shares of stock and put the money into a savings account. M1 = nothing; M2 = up (because it includes savings deposits)
	2. You sell shares of stock and put the money into a checking account. M1 up M2 up
	3. You transfer money from savings to checking. M1 up M2 nothing (money in = money out)
	4. You find $0.25 under the floor mat in your car and deposit it into your checking account. M1 up M2 up
	5. You find $0.25 under your floor mat and deposit it into a savings account. M1 nothing M2 up
2. There’s commodity money (actual gold, silver, etc.); commodity-based money (paper backed by a commodity like gold); and fiat money. Identify which is used in each of these scenarios:

COMMODITY Rum is used to pay for goods in the British colonies.

COMMODITY Salt is used in Europe to purchase goods and services

COMMODITY-BACKED Germany used paper money called “Rye Marks” that could be redeemed for certain amounts of rye grain.

FIAT Ithaca, NY prints its own money (Ithaca HOURS) which can be used to buy local goods and services.

FIAT The U.S. dollar.

1. The government of Econoland measures money like the U.S. Their central bank has a required reserve ratio of 10%. Answer the questions below using this information (example on the money power point that will walk you through this)

Bank deposits at central bank $200m

Currency held by public $150m

Currency held in bank vaults $100m

Checkable bank deposits $500m

Travelers checks (M1 money) $10m

1. How much M1 money? Sum of currency held by public (150m) + bank deposits (500m) + travelers checks (10m) = 660m
2. What is the monetary base? Sum of currency held by public (150m) + vault (100m) + central deposit (200m) = 450m
3. Are there excess reserves being held at the banks? (how much can banks loan out?) Required Reserves = 10% X checkable deposits (500m) = 50m Total reserves (vaults and central bank) – required = excess reserves

(200m+ 100m) – 50m = 250m

1. Can banks increase their checkable deposits? By how much? Since banks have excess reserves, they can increase their checkable deposits. Excess reserves = 250m/reserve ratio (.10) = 25m. Total available 225m.
2. What happens to the money supply under these circumstances in the checkable-deposits only system (only deposit accounts accessible with checks/debit cards)?
	1. Example: Required reserve ratio is 25% and a depositor withdraws $700?

Find the multiplier: 1/reserve ratio = 1/.25 = 4

Multiplier X amount deposited or withdrawn = 4 X $700 = $2800; so the checkable deposits decrease by $2800.

The money supply drops by $2800 - $700 = $2100

* 1. Required reserve ratio is 5% and depositor withdraws $700.

Multiplier 1/.05 = 20

Checkable deposits (increase or decrease) by 14,000

Money supply (increases or decreases) by 13,300

* 1. Required reserve ratio is 20% and a depositor deposits $750.

Multiplier 1/.2 = 5

Checkable deposits increase by 3750

Money supply increases by 3000

* 1. Required reserve ratio is 10% and a depositor deposits $600.

Multiplier 1/.1 = 10

Checkable deposits increase by 6000

Money supply increases by 5400

1. Assume you are a member of the FOMC and your economic data indicates that inflation is growing. (example is on the monetary policy power point)
	1. What monetary policy would you recommend regarding the target federal funds rate? Set higher target rate for federal funds = slow down economy and reduce upward pressure on wages and prices
	2. How can you achieve this? (plan of action and what it will do) sell more t-bills (gov’t securities) to raise federal funds rate until it equals the higher target rate
	3. Graph it

 Ms2 Ms1

 R2

 R1

1. Fill in the appropriate monetary policy action in each square of the table, indicating the direction in which the policy tool in the top square should be changed to bring about the appropriate change in the problem on the left

|  |  |  |  |
| --- | --- | --- | --- |
|  | Open Market Operations | Reserve Requirements | Discount Rate |
| Recession (expansionary) | Buy | Down | Down |
| Inflation (contractionary) | Sell | Up | Up |

1. Fill in the appropriate fiscal policy action in each square of the table indicating the direction in which the policy tool in the top square should be changed to bring about the appropriate change in the problem in the left square

|  |  |  |
| --- | --- | --- |
|  | Government Spending  | Taxation |
| Recession (expansionary) | Up | Down |
| Inflation (contractionary) | Down | Up |

1. An economy has a MPC of .6; real GDP is $500b; and the government collects 20% of the GDP in taxes. If government purchases increase by $10b: show the rounds of increased spending that take place in the table. 1st & 2 are done.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ROUND | CHANGE IN C OR G | CHANGE in RGDP | CHANGE in TAXES | Change in disposable GDP |
| 1 | G $10 | $10 | $2 | $8 |
| 2 | C $4.8 | $4.8 | $.96 | $3.84 |
| 3 | C 2.3 | 2.3 | .46 | 1.84 |
| 4 | C 1.1 | 1.1 | .22 | .88 |
| 5 | C .53 | .53 | .11 | .42 |
| 6 | C .25 | .25 | .05 | .20 |
| 7 | C .12 | .12 | .02 | .10 |
| 8 | C .06 | .06 | .01 | .05 |
| 9 | C .03 | .03 | .01 | .02 |
| 10 | C .01 | .01 | .00 | .01 |

What is the total change in real GDP after 10 rounds? 19.20

Calculate the change in real GDP with the multiplier formula. How does it compare with the figure above?

(multiplier = change = 1/1 – [.6(1-.2)] 1/ 1- [MPC(1-tax rate)] = 1/1- (.6 X .8) = 1/1-.48 = 1.923 is the multiplier

Multiplier X change in purchases = 1.92 X 10 = 19.23

You can see that multiplier makes the job of calculating out the end impact of an increase in spending easier. (in this case, though, we also had taxes to contend with, too just to through another wrinkle in the mix)

\*\*\*\*The initial increase in government purchases of $10B raises real GDP by 10B, taxes increase by $2b and Disposable Income increases by 8B

 Taxes = 20% X $10B = 2B

 10B (the raise in GDP) – 2B (taxes) = 8B (Disposable income; what’s left over)

 Round 2: using the $8B Disposable income and the marginal propensity to consume to determine what the change is in consumer spending: MPC X change in disposable income = .6 and 8B = 4.8. This is a change in C which also is a change in real GDP. Calculate the taxes= $4.8 X 20% = $.96B

To calculate the disposable income = $4.8 (the change in C or GDP) - .96 (taxes) = 3.84

Round 3, start with the round 2 disposable income: $3.84. 3.84 X .6MPC = 2.3…

Multiplier: 1/1-MPC = 1/1-.6 = 2.5

1. How will the following events affect the demand for money? State whether there is a shift OF the demand curve or a movement ALONG the demand curve. Which direction does it go?
	1. Example: There is a fall in the interest rate from 12% to 10%.

Any decrease in the interest rate will lead to an increase in the quantity of money demanded (movement down the money demand curve) but no shift OF the money demand curve.

* 1. Thanksgiving arrives and, with it, the beginning of the holiday shopping season. Consumers anticipate increased expenditures at each income level, so there’s an increased demand for money at all income levels: Md shifts to right
	2. McDonald’s and other fast-food restaurants begin accepting credit cards. Deduces demand for money, shift left
		+ - THIS IS A BAD EXAMPLE – FOR THOSE OF YOU WHO MENTIONED IT, I AGREE AND AM SORRY I PUT IT IN HERE ☺ MONEY HAS TO BE USED TO MAKE THE PAYMENT… IN THE (VERY) SHORT RUN, THERE IS GOING TO BE LESS DEMAND FOR GREENBACKS. NOTHING HAPPENS TO GDP AS THE FORM OF PAYMENT IS CHANGING – PEOPLE AREN’T (ASSUMABLY) GOING TO CONSUME MORE MCDONALDS. I’LL ADDRESS THE LOANABLE FUNDS MARKET QUICKLY IN CLASS (WE’VE ALREADY TALKED ABOUT IT – IT’S THE MONEY AVAILABLE FOR LOANS BASED ON WHAT IS ON DEPOSIT…)
	3. The Fed engages in an open-market purchase of U.S. Treasury bills (securities) shift of supply line because the fed is increasing the money supply (by purchasing securities on the open market); causes the rate to lower and increase the demand for money so there is downward movement ON the Md
1. A curve indicating the Fed’s choices between inflation and unemployment in the short-run… draw and label it

Phillips Curve

1. In the economy of Econolandia, the money market is initially in equilibrium when the economy begins to slide into a recession.
	1. Use a diagram to explain what will happen to the interest rate if the central bank of Eastlandia keeps the money supply constant at Ms1

Example: When the economy goes into recession, aggregate spending will fall and money demand curve will shift to the left from Md1 to Md2 and moving equilibrium from E1 to E2. If the central bank keeps the quantity of money constant, the interest rate will decrease to r2 (shown at E2). The decrease in the interest rate would encourage investment spending and would help close the recessionary gap.

* 1. If the central bank is instead committed to maintaining an interest rate target of r1, then as the economy slides into recession, how should the central bank react? Use diagram to illustrate.

If the central bank wants to keep the rate at r1, they will have to reduce the money supply as the economy goes into recession from Ms1 to Ms2 and the rate stays the same (the curve is not parallel).

