

**Homework Assignment 1 answers. Due: Thursday, January 19.**

1. (2 points) Explain the functions of money and the problems of barter that each overcomes.

**There are three functions of money:**

- (a) **Means of Payment.** Barter requires a “double coincidence of wants”. For example, if a corn-farmer goes to a restaurant, he’d have to persuade restaurant owner to accept some of his corn in exchange for a meal at this restaurant. This might be possible. Now imagine that, instead of the corn-farmer, a camera-man from a Hollywood studio wants a meal at this restaurant. You can imagine that this person would have really hard time persuading restaurant owner to exchange his services for a meal. Money solves this problem.
  - (b) **Unit of Account.** With barter we would have to know a price of each good in terms of every other good. With just two goods, we need to know 1 price, with 3 goods we need to know 3 prices, with 4 goods we need to know 6 prices, with  $n$  goods we would have to know  $n(n-1)/2$  prices, which is a lot more than just  $n$  prices with money.
  - (c) **Store of Value.** Clearly, money is not the only store of value. You can store value with other items. The advantages of money is liquidity (easy to convert into means of payment, as opposed to, say, a house) and that money is not perishable like so many other goods that can store value.
2. (3 points) The payment system has evolved from commodity money to fiat money to checks to electronic money. Discuss one advantage and one disadvantage of each form of money.

**Commodity money. Advantage: has intrinsic value, does not depend on government promises, disadvantage: difficult to carry and transport.**

**Fiat money. Advantage: easy to carry, disadvantage: requires trust in authorities.**

**Checks. Advantage: further reduction of carrying costs, safer than banknotes, disadvantage: takes time to clear checks.**

**Electronic money. Advantage: very low costs, easy to use, disadvantage: safety and privacy concerns.**

3. (2 points) Order the following commodities by their usefulness as money. Explain why each is or is not used as a means of payment.
  - a. Shells
  - b. Furniture
  - c. Oranges

- d. Wine
- e. Treasury Bills.

**I would rank these goods in the following manner (there can be other rankings – it is a matter of opinion to a large degree):**

- 1) Treasury Bills (Used as means of payment)**
- 2) Shells (Were used as means of payment)**
- 3) Wine (Generally not used as means of payment. Having said that, vodka was and still is used in many former soviet states as means of paying small scale bribes.)**
- 4) Furniture (Not used as means of payment)**
- 5) Oranges (Not used as means of payment)**

**There are a couple of characteristics that determine whether any particular good can serve as money – whether it is perishable or not (Oranges, wine, and, to a lesser extent, furniture are perishable). Perishable goods cannot store value by definition. The money should also be small and easy to move around (furniture). Finally, it should be easy to standardize the good that is used as money. Two Treasury Bills would certainly look identical to each other. Oranges and shells may look similar but probably never identical. Wine can mean anything from \$5 a bottle to \$1000 or more per bottle.**

4. (3 points) Go to the Fed's webpage (you can use the link on the class webpage) to download the historical monthly data on money aggregates M1, M2, and M3. Using seasonally adjusted data, plot the January measures of M1, M2, M3 of every year starting 1959 and comment on whether all measures always move in the same direction.

**The graph is below. It is obvious that up until late 70ies the three monetary aggregates were moving more or less “in the same direction” (meaning growing at more or less the same speeds). After that M2 and M3 began diverging from M1. (The main reason for this is that high inflation made people move their money from checking accounts to accounts that offered interest payments.)**

**Historically analysts used M1 as their main measure of money, but starting from early 80ies M2 became the main measure because M1 no longer reflected the “true” amount of money in the economy. You can also see that M3 starts to diverge from M2. (Different financial instruments are becoming increasingly easy to convert to money inducing people to switch.) It is possible that M3 will become “the main” index in the future.**

# Monetary Aggregates (\$ bil)

