

ECON 110, Prof. Hogendorn

Problem Set 7

1. *SW25.1* Which of the three traits of money do the following assets have, and which are they missing: a house, a day pass to an amusement park, Euros held by a resident of New Haven, CT, a painting, gold.
2. *OldGermansMoney*. In Germany, the birth rate is low and the population is ageing. As a result, the working age population is falling at about 0.2% per year. Some observers believe this population decline puts the German economy at risk.

Suppose that Germany output is  $Y = 4374$  beers now, and will fall to  $Y = 3713$  beers in the future. If the European Central Bank (which acts as Germany's central bank plus the other countries that use the Euro) does not change the money supply over the years and velocity does not change, will there be deflation or inflation in Germany? Show what happens on a graph of  $P$  as a function of  $M$  and also mathematically.

3. *SW25.3* While gardening in his backyard, Bob finds a jar containing \$100,000 in cash. He deposits the money in his bank, where the reserve requirement is 5%. Show the relevant changes on the bank's balance sheet. How much will the money supply eventually increase due to Bob's deposit? How would your answer be different if Bob only deposited \$95,000, keeping \$5,000 in cash to himself?
4. *LittleT*. A bank has deposits of \$50 million, loans of \$52 million, and complies with a 10% reserve requirement. Assuming this bank is properly run, write its T-account.

## Review Problems only, not to turn in:

5. *UchitelleMoney*. Consider the change from part (a) to (b) of the Uchitelle problem, but now suppose there is money in the economy. Specifically, the money supply is 10 dollars and velocity is 10. Price is initially 1. If the money supply and velocity do not change, what is the change in the *nominal* price of hamburgers and the *nominal* wage? Could this have a bearing on Uchitelle's thinking?

If the central bank wanted to maintain the price of 1, how would it have to change the money supply?

6. *SW25.2* Down Home Savings Bank has the following assets and liabilities: \$6 million in government bonds and reserves, \$40 million in deposits, \$36 million in outstanding loans. Draw up the balance sheet for the bank. What is its net worth?

## Answer to Review Problems:

5. *UchitelleMoney\_a*. After the change, we still need  $MV = PY$ . Since  $MV = 100$  is unchanged, and the new  $Y$  is 108.6, then the only way to maintain the quantity equation is for the price of hamburgers to fall to  $P = 0.92$ . We know that the real wage rises from 0.78 hamburgers to 0.95 hamburgers, but the nominal wage only rises from  $0.78 \cdot 1$  to  $0.95 \cdot 0.92 = 0.87$ . Thus, if Uchitelle is thinking in nominal terms, he would not see a very large increase in nominal wages. This might make him think that things are worse than they really are.

If the central bank wants to maintain  $P = 1$ , then  $PY = 108.6$ . With  $V = 10$ , a money supply of  $M = 10.86$  would maintain the quantity equation. Thus, the central bank would have to create 86 cents.

6. *SW25.2\_a* The balance sheet is:

Assets	Liabilities
\$6 million bonds and reserves	\$40 million deposits
\$36 million loans	\$2 million net worth
\$42 million	\$42 million