

ECON 110, Prof. Hogendorn

Problem Set 8

1. *GrowingChina*. This problem discusses the Malthusian trap that has worried China for centuries and that the country now seems to have escaped. Let there be $\mathcal{L} = 1000$ Chinese workers who inelastically supply labor and who spend all of their income on rice. These workers own the Chinese rice firms which have aggregate production function $Y = f(L, K) = A(hL)^{2/3}K^{1/3}$. (Aggregate meaning we treat all the firms as if there were just 1.) Let $A = 3.33$, $h = 1$, $p = 1$ and let $K = 729$. Note that the Chinese capital stock is constant until part (d) of this problem.
 - (a) Find the equilibrium real wage and graph the labor market.
 - (b) Verify that there is also equilibrium in the rice market and graph the production function. What is output per worker (Y/\mathcal{L})?
 - (c) Suppose that over several years, the Chinese workforce rises to 1,728 workers. If nothing else changes, what is the new general equilibrium (the new wage and the new output per worker)? Why don't these new workers produce enough to keep the output per worker at least as high as before?
 - (d) Consider the following changes to the production function: an increase in A , an increase in K , and an increase h . How would each of these help China escape the Malthusian trap? What is the name for each of these sources of growth?
2. *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.

3. *AIG*. AIG is the world's largest insurance company, and it got into deep financial trouble in the 2008 financial crisis. As of September 30, 2008, AIG's simplified balance sheet looked approximately like this (all figures in billions):

Assets	Liabilities
\$400 financial securities	\$913 general liabilities
	\$38 government loan
\$622 other assets	\$71 net worth
\$1022	\$1022

- (a) By late fall 2008, things had gotten worse. It turned out that \$50 of the other assets are distressed, and could no longer be counted as assets. Rewrite the balance sheet, and find the new net worth.
- (b) Things got worse still. There was been a decline of 10% in the financial securities. Also, AIG had a new liability of \$35 in credit default swaps. Again rewrite the balance sheet and show the net worth.
- (c) Finally, the government announced a bailout plan. One thing the government did was buy the \$50 in distressed assets at their full face value by giving AIG \$50 in cash. Show how this changed the balance sheet.
- (d) The other terms of the government plan were to lend AIG \$60 (a new liability). AIG took this cash and paid off the credit default swap liability. Separately, the government bought \$40 in shares in the company (again, giving AIG cash). How does this change the balance sheet?

Review Problem only, not to turn in:

4. *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?

Answers to Review Problem:

4. *SW25.2_a* The balance sheet is:

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