

PROBLEM SET #4

1. Find data to calculate the bilateral real exchange rate between two countries who have a bilateral trade relation that is important to at least one of the countries. Find data on the prices of traded goods in these two countries. Calculate a decomposition of the bilateral real exchange rate of the form

$$rer_t = rer_t^T + rer_t^N,$$

where rer_t is the natural logarithm of the bilateral real exchange rate and rer_t^T is the logarithm of the bilateral real exchange rate for traded goods. Calculate the correlation between rer_t and rer_t^N in levels, in 1 year differences, and in 4 year differences. Calculate ratio of the standard deviations of rer_t and rer_t^N in levels, in 1 year differences, and in 4 year differences. Calculate a variance decomposition of rer_t in terms of rer_t^T and rer_t^N in levels, in 1 year differences, and in 4 year differences.

2. Choose two countries that are important (to each other) trading partners, one with higher output per worker than the other. Use data from the Summers-Heston *Penn World Tables* (<http://pwt.econ.upenn.edu>) or from the World Bank's *Global Development Network Growth Database* (<http://www.worldbank.org/research/growth/GDNdata.htm>) to try to answer Lucas's question: To what extent can differences in output per worker be explained by differences in capital per worker? Use both data on capital per worker and IMF real interest rate data to try to make inferences about differences in capital per worker across countries. Discuss what you have learned from this exercise and what more you think would be relevant in explaining differences in output per worker across countries.