CF963 Computational Models in Economics and Finance

Lab script week 20

Task 1: Program the agent-based simulator in MATLAB for the following setting:

Consider the "trading according to the trend" setting discussed in the lecture (ABM slide 19). Assume $o_1 = 6$ optimist and $p_1 = 4$ pessimist traders at step 1; $n = 10$. Trading behaviour changes according to this rule:

If at step i there are more optimists than pessimists $(p_i < o_i)$, then a pessimist will become an optimist at the following step with probability $\frac{|o_i - p_i|}{n^2}$.

If $(o_i < p_i)$, then an optimist will become a pessimist at the next step with probability $\frac{|p_i - o_i|}{n^2}$.

If $(o_i = p_i)$ then a trader will switch trading behaviors with probability 0.01.

-Calculate the number of optimist traders after 50 steps of this process.

-Replicate your experiment by running it 20 times and compute the average number of optimist traders.