FYS4411 - Project 1

Scrap I/O and friends

March 14, 2018

Abstract

This is where we put the abstract. It will be so good, like, the best. The greatest, probably.

1 Introduction

Lorem ipsum dolor amet

2 Theory

Sample text without lorem ipsum (or is it?)

3 Method

Keeping the stuff here for examples. Might even be relevant.

3.1 Randomization

Randomizing the transaction factor ϵ, and the picking of financial agents, `agent_one` and `agent_two`, was done by initializing the following random number generators (RNGs):

```
std::random_device rd;
std::mt19937_64 gen(rd());
std::uniform_int_distribution<int> AgentPicker(0,NAgents
   -1);
std::uniform_real_distribution<double>
   TransactionFactorGenerator(0.0,1.0);
// Calling RNGs to initialize agents and transaction
   factor:
agent_one = AgentPicker(gen);
agent_two = AgentPicker(gen);
TransactionFactor = TransactionFactorGenerator(gen);
```

3.2 Conservation of money

A potential source of money "leaks" in the simulations is if `agent_one` = `agent_two`. In this case the system would "leak" an amount of money equal to $\epsilon(m_1 + m_2)$, propagating for each transaction where that agent is involved, and for each subsequent instance of the error. This was handled by a simple test

```
if (agent_one == agent_two){
    continue;
}
```

which throws away the transactions where this would happen.

4 Results

Keeping one figure as example

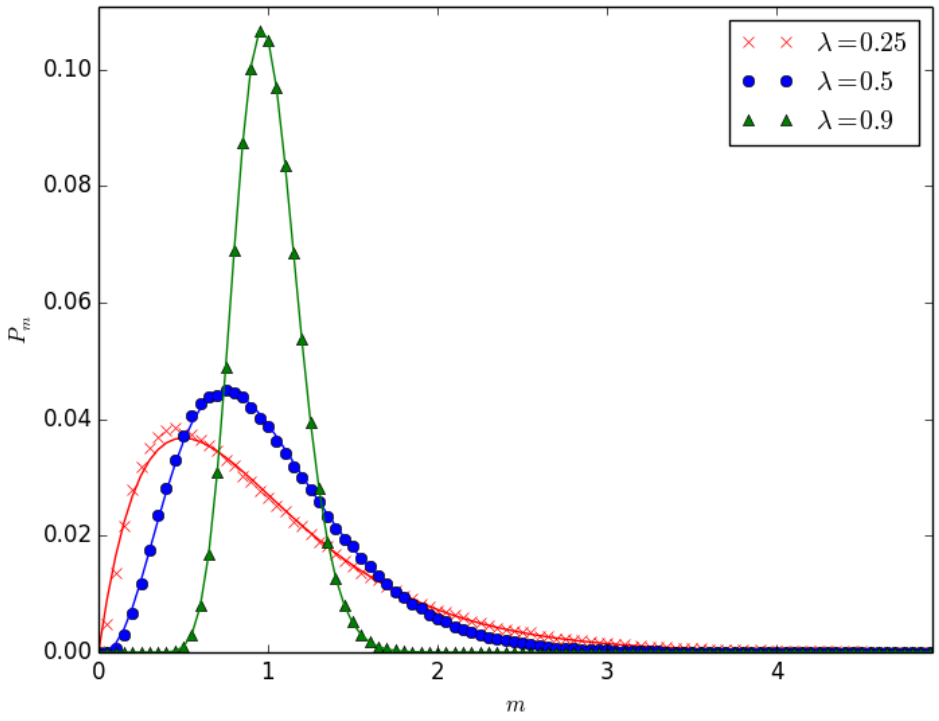

Figure 1: The wealth probability distribution of agents in the basic model where $\lambda = 0$ and $\eta = 0$

The data is normalized by dividing by the number of Monte Carlo cycles and the number of agents.

5 Discussion

Tekst

6 Conclusion

Herein lies the conclusions of yonder project, verily I say!