Notes on MNS (2016)

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1 Overview and results

Main results:

1. In standard NKM there is an outsized response of output/consumption to forward guidance.

2. In a NKM with idiosyncratic labor income shocks and borrowing constraints, the response of output/consumption to forward guidance is far lower.

3. Something about ZLB [fill in]

1.1 Intuition [for my own understanding]

2 Result #1

I've replicated this in AIM. Some notes on the AIM code

- Note that the variable r_t in the code is the deviation of the real rate from the natural rate: $\tilde{r}_t = i_t - \mathbb{E}_t \pi_{t+1} - r_t^n$. With this note, you can easily map my code back to the exposition in the paper.

3 Result # 2

This is the main result of the paper, and it requires solving MNS's heterogeneous agent model. This is a hard problem. Based MNS's online appendix, these are the main steps in solving for equilibrium:

1. Solve the households' problems using the endogenous grid point method (Carrol, 2006).

2. Simulate the distribution of the households' asset holdings using Young's (2006) nonstochastic histogram method.

3. Checking the equilibrium

4. Updating the initial guess using results from a 'simpler' economy.

Useful resources:

- [which points to some books too]

3.1 Solving the households' problems

I need to use the endogenous grid point method (EGM) (which is a numerical method for implementing policy function iteration). Note that value function iteration is too slow for this problem. Also note that this method requires approximating the policy function for consumption using a 'shape preserving cubic spline'.

3.1.1 EGM

- What I really need to try to understanding is EGM. QuantEcon has one lecture on it, but not sure if it's super useful. Here are some other notes.

3.1.2 Approximating the policy function

- QuantEcon recommends the Interpolations package in Julia. Not sure if it implements shape preserving cubic splines.

- I think Rudd and MF have notes on approximations using splines.

3.2 Simulating the distribution of asset holdings

3.3 Checking equilibrium

3.4 Updating the guess