# Calibration in macroeconomics : Project

## Quantification

* Solve V for grid of 100 b and 100 B and 3 S with guesses B’ = and delta = 0
* From maximization of V, find b’ and update B’
* use CRRA utility with credible parameters
* Find delta\_1(s) by isolating delta\_1(s) from first derivative (between equation 21 and 22)
* I feel I need optimal c\_1 from max U to solve bargaining problem, but I feel that to solve max U I need to solve bargaining problem to get delta\_1
* What to solve first?

Solve HH problem for any default rate

Plug solutions into Nash bargaining

* Q\_0 and q\_1 from B and delta\_1(s)
* For levels c\_0 and b\_0 and low and high states, compute what happens if they fully repay, if the state negotiates, if they default
* Should I simulate both Home and Foreign countries?

Think of foreign households as a big country like the US

* Should I simulate decentralized maximization and planner maximization?
* What is the main prediction to test?
* If low bargaining power, positive debt but lower than planner
* If high bargaining power, no debt and planner would choose small debt
* Put reasonable values on GDP growth rate, bargaining power by varying it and finding the one that find the most reasonable interest rate and default rate
* Timeline calibration

Choose parameters set externally : risk aversion, discounting factor-> decision on time frame

Exogenous income parameters to find numbers on y (ex: Argentina vs US) and default rate

Think of unknown parameters: bargaining power

Aim: debt / GDP and spread

## Comment on paper

* Application? Useful for a future calibration to have a specific context to exploit (ex: Greece 2011 or 2008, but then I feel it’s a problem of overborrowing and not underborrowing or an example of a country that cannot borrow because the country has too much negotiation power maybe Argentina?)
* Assumption: people do not internalize that their debt can be renegotiated through the sovereign -> low levels of debt and default rates
* Does it make sense in practice?
* The story could go the other way around: agents know that their debt will be renegotiated -> high levels of debt and default rates
* Ex: too big to fail

## Read code (old)

* Need to understand better Markov processes: <https://intro.quantecon.org/markov_chains_I.html> done